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3.4 BIOLOGICAL RESOURCES

This section addresses biological resources known or with potential to occur in Humboldt County, and describes potential effects of project implementation on those resources. Biological resources include common vegetation and habitat types, sensitive plant communities, and special-status plant and animal species. The analysis includes a description of the existing environmental conditions, the methods used for assessment, the potential direct and indirect impacts of project implementation, and mitigation measures recommended to address impacts determined to be significant or potentially significant. Federal, state, and local regulations that pertain to biological resources are summarized.

The information presented in this EIR chapter is based on review of existing and available information and is regional in scope. Data, analysis, and findings provided in this chapter are programmatic for broad application under the proposed ordinance, rather than site-specific.

Comments were received from the California Department of Fish and Wildlife (CDFW), the Department of Parks and Recreation – California State Parks North Coast Redwoods District, the North Coast Regional Water Quality Control Board (RWQCB), the Blue Lake Rancheria Environmental Program, the Karuk Tribe, the Wiyot Tribe, the City of Fortuna, the Humboldt Bay Municipal Water District, the California Native Plant Society (CNPS), Friends of the Eel River, the Nelson-Hillside Association, Sanctuary Forest Inc., Victoria Ranch Estates HOA, and many individuals in response to the notice of preparation regarding biological resources of concern that could be adversely affected by the project. Comments generally pertained to impacts to sensitive habitats (e.g., rivers, streams, wetlands, forest habitat) and species (e.g., rare plants, anadromous fish, endangered wildlife species).

3.4.1 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 U.S.C. Section 1531 et seq.), the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) regulate the taking of species listed in the ESA as threatened or endangered. In general, persons subject to ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property, and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Clean Water Act

Section 404 of the Clean Water Act (CWA) requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) before performing any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Many surface waters and wetlands in California meet the criteria for waters of the United States. In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB indicating that the action would uphold state water quality standards.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden eagles without a permit from the Secretary of the Interior. Like the ESA, the Bald

and Golden Eagle Protection Act defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 USC 668-668c). For the purpose of the act, disturbance that would injure an eagle, decrease productivity, or cause nest abandonment, including habitat alterations that could have these results, are considered take and can result in civil or criminal penalties.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it shall be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities."

STATE

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control point and nonpoint sources of pollution to achieve and maintain these standards. The RWQCB's jurisdiction includes federally protected waters as well as areas that meet the definition of "waters of the state." Waters of the state is defined as any surface water or groundwater, including saline waters, within the boundaries of the state. The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401 of the CWA provided they meet the definition of waters of the state. Actions that affect waters of the state, including wetlands, must meet the RWQCB's waste discharge requirements.

North Coast Regional Water Quality Control Board – North Coast Region Order R1-2015-0023

The *General Waiver of Waste Discharge Requirements and General Water Quality Certification and Monitoring and Reporting Program for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region* (North Coast Regional Water Quality Control Board 2015), establishes water resource protection requirements, provides a mechanism for water quality compliance, and enables the RWQCB to better focus its enforcement resources on environmentally damaging operations. The following are related to this chapter analysis or biological resources.

- A tiered enrollment structure relative to the potential threat to water quality.
  - Tier 1 is a low-threat tier based on compliance with standard conditions and site characteristics (less than 5,000 ft^2 of total cultivated area, no cultivation on slopes greater than 35 percent, no cultivation areas or associated facilities are located within 200 feet of a surface water (i.e., wetland, Class I, II, or III streams), and no surface water diversion from May 15 – October 31. The annual fee is $1,000.
  - Tier 2 is a management tier for operations that do not meet the standard conditions or otherwise do not qualify for Tier 1. Within 180 days of enrollment, Tier 2 enrollees shall develop and implement a site-specific water resource protection plan that includes management measures to be implemented to meet the standard conditions. The annual fee is $2,500.
  - Tier 2* is a tier for operations with less than 10,000 ft^2 of total cultivated area, where enrollees have fully implemented a water resource protection plan, meet the standard conditions, and are determined by RWB staff or an approved third party to pose a low threat to water quality. The annual fee is $1,000.
  - Tier 3 is a cleanup tier, which requires the development and implementation of a cleanup and restoration plan. A Tier 3 enrollee has 45 days to develop and submit a cleanup and restoration plan for RWB approval. Tier 3 is not eligible for enrollment via a third-party program. Tier 3 Dischargers

who are cultivating cannabis concurrent with or following site cleanup activities must also enroll in and conform with Tier 2 requirements. The annual fee is $10,000.

- Standard conditions to protect water quality in conjunction with a Best Management Practice (BMP) Appendix provide a framework for cultivators to assess their sites for appropriate tiers and determine what management measures are necessary to protect water quality. All BMPs in Appendix B are considered enforceable conditions under the Order as applicable to a given site. The Order includes standard conditions regarding:

  - site maintenance, erosion control and drainage features;
  - stream crossing maintenance and improvement;
  - stream and wetland buffers;
  - spoils management;
  - water storage and use;
  - irrigation runoff;
  - fertilizers and soil amendments;
  - pesticides;
  - petroleum products and other chemicals;
  - cultivation-related wastes;
  - refuse and human waste; and
  - remediation, cleanup, and restoration activities.

- Enrollment in Order No. R1-2015-0023 is accomplished by submitting a Notice of Intent (NOI) form, the Monitoring and Reporting Program (MRP) form, and the annual fee.

- Enrollees in all tiers must monitor their sites periodically and prepare annual monitoring reports that include verification of conformance with the applicable standard conditions, and effectiveness of BMPs, and water resource protection plan. Annual reporting is required by March 31, via the MRP form. The form serves to document site monitoring and to verify continued enrollment in the program. Results of the monitoring will be evaluated on a HUC-12 or similar watershed scale.

- The Order provides a framework for non-governmental third-party programs to assist cultivators with enrollment, compliance activities, and monitoring and reporting. Third party programs, which meet certain criteria, can increase administrative efficiency and program participation and effectiveness. Upon approval, third party programs will be listed on the cannabis regulatory program webpage at: http://www.waterboards.ca.gov/northcoast/water_issues/programs/cannabis/.

California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from CDFW is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but the CESA definition of take does not include "harm" or "harass," like the ESA definition does. As a result, the threshold for take is higher under CESA than under ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Native Plant Protection Act (NPPA) of 1977

The NPPA (Fish and Game Code, Sections 1900-1913) prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and sale of rare and endangered plants. The CESA defers to the NPPA, which ensures that state-listed plant species are protected when state agencies are involved and projects are subject to CEQA. In this case, plants listed as rare under the NPPA are not protected under CESA, but rather may receive protection in response to potentially significant impacts, in accordance with CEQA.

California Fish and Game Code Sections 3503 and 3503.5—Protection of Bird Nests

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests because of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs and/or young.

California Fish and Game Code —Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code describe the take prohibitions for fully protected birds, mammals, reptiles and amphibians, and fish. Species listed under these statutes may not be taken or possessed at any time and no incidental take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

California Fish and Game Code Section 1602—Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any action that would result in an impact on a river, stream, or lake.

Oak Woodlands Conservation Act

The Oak Woodlands Conservation Act (Senate Bill [SB] 1334) was signed into California law on September 24, 2004. Section 21083.4 of the California Public Resources Code requires counties to determine if a project within their jurisdiction may result in conversion of oak woodlands that would have a significant adverse effect on the environment. If the County determines that a project would result in a significant adverse effect on oak woodlands, mitigation measures to reduce the significant adverse effect of converting oak woodlands to other land uses are required.

LOCAL

Humboldt County Code

The following regulations of the Humboldt County Code are applicable to the biological resources that are applicable to the project.

Chapter 3. Regulations Inside the Coastal Zone

313-20.1 Coastal Elk Habitat

20.1.1 Purpose. The purpose of these regulations is to ensure that development within elk habitat is compatible with such habitat areas and is sited and designed to mitigate impacts which would significantly degrade such habitat.

20.1.3 Consultation with CDFW. The County shall request CDFW to review proposed development plans within coastal elk habitat areas. The agency shall be requested to respond within 10 working days of the referral.

20.1.4 Required Findings. A Coastal Development Permit for lands within coastal elk habitat areas shall be approved only if the applicable Resource Protection Impact Findings in Chapter 2, Procedures, Supplemental Findings, are made.

20.1.5 Required Mitigation. All development within coastal elk habitat areas shall be sited and designed to mitigate the impacts which would significantly degrade such habitat areas.

313-33.1 Streams and Riparian Corridors Protection

33.1.1 Purpose. The purpose of these regulations is to provide for the maintenance, enhancement, and, where feasible, restoration of water resources by restricting development, and by minimizing adverse effects of runoff, interference with surface waterflow, and alteration of natural streams, and by protecting riparian habitats.

33.1.2 Applicability. These regulations shall apply to:

33.1.2.1 All streams, riparian corridors, and riparian forests designated "R" on the Zoning Maps.

33.1.2.2 All perennial and intermittent streams as delineated on U.S. Geological Survey (USGS) 7.5-minute quadrangles.

33.1.2.3 All riparian lands and coastal streams listed in the Coastal Land Use Plan.

33.1.3 Modifications Imposed by the Streams and Riparian Corridors Protection Regulations. These regulations shall be in addition to regulations imposed by the primary zone, development regulations, and other coastal resource special area regulations. Wherever the provisions of these regulations conflict with or are inconsistent in application with any other regulation, the regulation which is most protective of natural resources shall apply.

33.1.4 Consultation with CDFW. The County shall request CDFW to review development plans proposed within stream channels and riparian corridors. The Agency shall be requested to respond within 10 working days of the referral.

33.1.5 Permitted Development within Coastal Stream Channels. New development within stream channels located within the County's Coastal Zone, shall be limited to the following uses:

33.1.5.1 Wetlands, fishery, and wildlife enhancement and restoration projects, and small hydroelectric generating facilities.

33.1.5.2 Pipelines, utility lines, municipal water systems, wells in rural areas, and incidental public service purposes.

33.1.5.3 Road crossings, consistent with all the applicable "Findings" provisions of Chapter 2.

33.1.5.4 Maintenance dredging for flood control and drainage purposes, consistent with the Transitional Agricultural Land Use regulations.

33.1.5.5 Maintenance of levees, roads, dikes, drainage channels, floodgates, and tidegates including replacement.

3.1.5.6 Construction of new fences, so long as it would not impede the natural drainage.

3.1.5.7 Bank protection, surface mining, and other development consistent with the provisions of subsection 33.1.7, Permitted Development and Uses Within Riparian Corridors and Forests.

33.1.6 Definition of Coastal Riparian Corridors and Forests. For purposes of these regulations, riparian corridors on all perennial and intermittent streams located within the County's Coastal Zone, shall be defined as one of the following:

33.1.6.1 The larger of:

33.1.6.1.1 A minimum setback of 100 feet on both sides of the stream, as measured horizontally from the stream transition lines; or

33.1.6.1.2 A minimum setback of 50 feet plus four times the average percent of slope on both sides, as measured horizontally along the slope perpendicular to the stream transition lines; up to a maximum of 200 feet from the stream transition line on both side of the streams; or

33.1.6.1.3 Where significant areas of riparian vegetation, landslides and areas of slope instability exist adjacent to riparian corridors, as defined in accordance with the setbacks required in subsections 33.1.6.1.1 and 33.1.6.1.2, the riparian corridors shall be expanded to include such areas to a maximum setback of 200 feet from the stream transition lines; or

33.1.6.1.4 Along the Eel River and within riparian forests mapped in the Eel River Area Plan, 200 feet measured as the horizontal distance from the stream transition line.

33.1.6.2 If either the County of the landowner requests, they may agree to expand the width of the riparian corridor to protect significant areas of vegetation or special habitat areas adjacent to the corridor described in paragraph 33.1.6.1.

33.1.6.3 The width of the riparian corridor, as described in paragraph 33.1.6.1, may be reduced where such a reduction would not result in the removal of the woody vegetation, and County determines, based on specific factual findings, that a reduction of the corridor width will not result in a significant adverse impact to the habitat, and is consistent with the adopted Local Coastal Plan.

33.1.7 Permitted Development and Uses Within Riparian Corridors and Forests.

33.1.7.1 Timber management and timber harvesting activities regulated by the California Department of Forestry and the Board of Forestry, and forest improvement activities carried out under the Forest Improvement Program (FIP), Agricultural Conservation Program (ACP), or California Forest Improvement Program (Cal FIP) shall be exempt from requirements of this section.

33.1.7.2 New development within riparian corridors shall be limited to:

33.1.7.2.1 Maintenance dredging for flood control and drainage purposes consistent with the Transitional Agricultural Land Regulations

33.1.7.2.2 Maintenance or replacement of flood control structures, roads, fences, drainage channels, levees, floodgates, and tide gates.

33.1.7.2.3 Wells in rural areas.

33.1.7.2.4 Replacement or construction of roads, bridges, pipelines, electrical utility lines, municipal water systems, and incidental public service purposes, provided that the length of the facilities within the riparian corridor shall be minimized, where feasible, by rights-of-way which cross streams at right angles and do not parallel streams within the riparian corridor.

33.1.7.2.5 Removal of trees for disease control, or public safety purposes, or for firewood for personal use.

33.1.7.2.6 New fences, if they do not impede natural drainage or would not adversely affect the stream environment or wildlife.

33.1.7.2.7 Timber management activities, provided that:

33.1.7.2.7.1 In pre-commercial thinning and release activities, at least 50 percent of the tree crown canopy and 50 percent of other vegetation present before management operations shall be left standing. If either the County or the landowner requests, they may agree, after an on-the-ground inspection, to increase these percentages to protect special habitat values.

33.1.7.2.7.2 Follow-up treatments or other timber management activities which affect the tree canopy shall be permitted only when the canopy has been sufficiently re-established to prevent substantial adverse effects on soil erosion, wildlife, aquatic life, or the beneficial uses of water. These activities shall maintain a tree canopy similar to that which existed upon the completion of the initial thinning or release.

33.1.7.2.7.3 In all timber management activities, including but not limited to pre-commercial thinning, release activities, and site preparation, heavy equipment shall be excluded from any area within fifty feet (50'), measured as a slope distance, from the stream transition line, and shall not be permitted in other portions of the riparian corridor except where justified as the least environmentally damaging feasible alternative.

33.1.7.2.7.4 All activities shall be consistent with the Timber Harvest Rules of the California Board of Forestry which are applicable to the protection of aquatic life and water quality.

33.1.7.2.7.5 Timber management proposals in conformance with the requirements listed in subsections 33.1.7.2.7.1 through 33.1.7.2.7.4, shall be prepared by a Registered Professional Forester.

33.1.7.2.8 Timber harvests of merchantable timber eighteen inches in diameter, measured at four and one-half feet vertically above the ground, or greater, provided that timber harvest practices shall be consistent with those permitted by the Forest Practices Rules for Stream Protection Zones in Coastal Commission Special Treatment Areas. Unmerchantable hardwoods or shrubs shall be protected from unreasonable damage. Timber harvest proposals shall be prepared by a Registered Professional Forester.

33.1.7.3 Within riparian forests in the Eel River Planning Area: Conversion to agriculture is permitted on soils that are shown to be Class I or Class II, provided that a minimum 200-foot buffer of woody riparian vegetation remains between the boundaries of converted areas and the stream transition line.

33.1.8 Bank Protection

33.1.8.1 Protection measures for the Mad and Eel River banks shall be permitted for the following purposes:

33.1.8.1.1 Maintenance of necessary public or private roads;
33.1.8.1.2 Maintenance of existing levees and dikes;
33.1.8.1.3 Protection of principal structures in danger due to erosion; and/or
33.1.8.1.4 Protection of lands zoned AE (Agricultural Exclusive) from erosion.

33.1.8.2 Types of Bank Protection Measures Permitted. The bank protection measures permitted are listed below in order of preference. The measures chosen for any bank protection project shall employ the highest-ranked protection measures wherever feasible. The preference ranking for permitted protection measures shall be as follows:

33.1.8.2.1 Piling fence.
33.1.8.2.2 Rock hard points.
33.1.8.2.3 Continuous revetment.

33.1.9 Required Findings. A Coastal Development Permit for development or activity within stream channels and riparian corridors shall be approved only if the applicable Resource Protection and Impact Findings in Chapter 2, Procedures, Supplemental Findings, are made.

33.1.10 Required Mitigation. The best feasible measures to mitigate adverse environmental effects of development within riparian corridors shall be provided, and shall, at a minimum, include the following:

33.1.10.1 Replanting of disturbed areas with riparian vegetation; or posting of a performance bond guaranteeing re-establishment of natural vegetation within two years (2yr). The mitigation plan for replanting and/or bonding shall be approved by the Hearing Officer.

33.1.10.2 Retaining snags, unless removal is required by CAL-OSHA regulations or for stream bank protection.

33.1.10.3 Retaining live trees with visible evidence of current use as nesting sites by hawks, owls, eagles, osprey, herons, or egrets.

33.1.11 Required Mitigation for Bank Protection Projects. Bank protection projects employing rock hard points or continuous revetment shall incorporate, at a minimum, the following mitigation measures:

33.1.11.1 Bank protection projects, including design and materials, shall minimize adverse effects on fisheries, wildlife, and recreation.

33.1.11.2 Where feasible, riparian vegetation shall be planted and maintained within the riparian corridor up to 200 feet landward of the bank protection project throughout its length.

313-38.1 Coastal Wetland Areas

38.1.1 Purpose. The purpose of these provisions is to establish regulations to provide that any development in coastal wetlands will not degrade the wetland, but will maintain optimum populations of marine or freshwater organisms and, where feasible, will enhance wetland resources.

38.1.2 Applicability of the Wetland Area Regulations. These Wetland Area Regulations shall apply to lands containing wetlands designated “W” on the Zoning Maps, and shall also apply to unmapped wetlands. These regulations shall not apply to lands designated “T - Transitional Agricultural Lands,” which are subject to the Coastal Transitional Agricultural Lands Regulations.

38.1.3 Modifications Imposed by the Wetland Area Regulations. These regulations shall apply in addition to regulations imposed by the principal zone, development regulations, and other Special Area Combining Zone regulations. Wherever the provisions of these regulations conflict with or are inconsistent in application with any other regulation, the regulation most protective of wetland resources shall apply. Development requiring mitigation is also subject to supplemental application and review requirements in Chapter 2 of these regulations.

38.1.4 Consultation with CDFW. The County shall request the California Department of Fish and Game to review development plans proposed within wetlands, and to respond within ten (I0) working days of the referral.

38.1.5 Diking, Filling, and Dredging. Permitted diking, filling, and dredging shall be limited to the following developments:

38.1.5.1 Wetland restoration;

38.1.5.2 Hunting blinds and similar minor facilities;

38.1.5.3 In open coastal waters, other than wetlands, including estuaries, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide access and recreation opportunities.

38.1.5.4 In wetland areas only, entrance channels for new or expanded boating facilities.

38.1.5.5 Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

38.1.5.6 Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

38.1.5.7 Aquaculture; however, upland support facilities that are not coastal-dependent shall not be located within designated Wetland Areas.

38.1.5.8 Coastal-Dependent Industrial Use Types subject to the Coastal-Dependent Industrial Development Regulations at Section 313-45.1.

38.1.6 Filling of Pocket Marshes

38.1.6.1 Within the Humboldt Bay Planning Area, fill for development not specifically listed in subsection 38.1.5 may be permitted only if all of the Pocket Marsh Findings in Chapter 2, Section 312-39.14.2, are made.

38.1.6.2 Required Mitigation

38.1.6.2.1 Restoration of an area to mitigate for the fill shall occur at a site which is contiguous or adjacent to a wetland area and which would provide significant fish and wildlife habitat benefits.

38.1.6.2.2 Mitigation must be consistent with the Required Mitigation regulations of Section 313-38.1.9.

38.1.7 Filling of Dune Hollows. Permitted filling of dune hollow wetlands located on the North Spit of Humboldt Bay shall be limited to the following:

38.1.7.1 Wetland restoration;

38.1.7.2 Hunting blinds and similar minor facilities;

38.1.7.3 In estuaries, maintenance and improvement of boating facilities and minor alterations to existing facilities, allowable consistent with Public Resources Code Section 30233;

38.1.7.4 Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines;

38.1.7.5 Access facilities consistent with the access inventory development recommendations of the Coastal Land Use Plans (the Coastal Land Use Plans are a component of the County General Plan and may be reviewed at the Planning and Building Divisions of Community Development Services);

38.1.7.6 Aquaculture; however, upland support facilities, including steel or concrete holding tanks and raceways, administrative buildings, and parking facilities may not be located within dune hollow wetland areas;

38.1.7.7 Coastal-Dependent Industrial Use Types subject to the Coastal-Dependent Industrial Development Regulations at Section 313-45.1; and

38.1.7.8 Expansion of existing industrial facilities.

38.1.8 Required Findings. The diking, filling, and dredging of wetlands shall be permitted only if the applicable Resource Protection Impact Findings in Chapter 2, Procedures, are made.

38.1.9 Required Mitigation.

38.1.9.1 If the project involves dredging, mitigation measures must include at least the following:

38.1.9.1.1 Dredging and spoils disposal must be planned and carried out to avoid significant disruption to wetland habitats and to water circulation.

38.1.9.1.2 Dredge spoils suitable for beach replenishment shall, where feasible, be transported to appropriate beaches or into suitable longshore current systems.

38.1.9.2 1f the project involves diking or filling of a wetland, required minimum mitigation measures shall include the following:

38.1.9.2.1 Either acquisition of equivalent areas of equal or greater biological productivity or opening up equivalent areas to tidal action.

38.1.9.2.1.1 A restoration plan shall be prepared, pursuant to the Wetland Restoration Plan Procedures in Chapter 2, Procedures, of these regulations, which includes provisions for purchase and restoration of an equivalent area of equal or greater biological productivity.

38.1.9.2.1.2 The mitigation site shall be purchased before the dike or fill development may proceed.

38.1.9.2.1.3 The site shall be protected permanently through the dedication of the land to a public agency capable of managing the resource or through open space easements or similar restrictions.

38.1.9.2.1.4 The restoration plan shall provide for appropriate public access to the restoration site.

38.1.9.2.2 Where no appropriate restoration sites are available, an in-lieu fee shall be required and paid to an appropriate public agency, which fee shall be of sufficient value for the purchase and restoration of an area of equivalent productive value or equivalent surface area.

38.1.9.3 Mitigation measures shall not be required for temporary or short-term fill or diking, if a bond or other evidence of financial responsibility is provided to assure that restoration will be

accomplished in the shortest feasible time. For the purposes of this section, "short-term" generally means that the fill or dikes would be removed immediately upon completion of the construction of the project necessitating the short-term fill or diking.

313.64.1 Vegetation Removal, Major

64.1.1 Purpose. The purpose of these provisions is to: (1) preserve and protect major vegetation within the County Coastal Zone that directly and indirectly prevents soil erosion, landslide and flood hazard; (2) reduce runoff, provide windbreaks or provide protection to adjacent trees from irreparable wind damage; and (3) protect property values and the local economy by maintaining the visual quality of the County, while respecting and recognizing individual rights to develop, maintain, and enjoy private property to the fullest possible extent.

64.1.2 Major Vegetation Removal Permitted with a Special Permit in All Zones as an Accessory Use. Major vegetation removal may be permitted with a Special Permit in all zones, as an accessory use associated with a specified principal or conditionally permitted use. Major vegetation removal may be permitted with a Special Permit in conjunction with or prior to the establishment of a principal or conditionally permitted use.

64.1.3 Applicability. These regulations shall apply to major vegetation removal as defined in this section, within the Humboldt County Coastal Zone, except that the following development shall be exempt:

64.1.3.1 Timber management and timber harvesting activities regulated by the California Department of Forestry and the Board of Forestry, and forest improvement activities carried out under the Forest Incentives Program (FIP), Agricultural Conservation Program (ACP), or California Forest Improvement Program (Cal FIP);

64.1.3.2 Major vegetation removal necessary to carry out activities authorized by: (l) an approved building permit, Coastal Development Permit, Use Permit, or Special Permit; or (2) satisfying improvement requirements of an approved subdivision;

64.1.3.3 Major vegetation removal subject to the Coastal Streams and Riparian Corridor regulations; and

64.1.3.4 Major vegetation removal associated with general agriculture, in zones where the General Agriculture use type is a principal permitted use, except where the Director determines that pursuant to subsection 313-64.1.4.3., that the major vegetation removal may result in a significant environmental impact.

64.1.4 Definition of Major Vegetation Removal. For purposes of this section major vegetation removal shall be defined to include one or more of the following:

64.1.4.1 The removal of one or more trees with a circumference of thirty-eight inches or more measured at four and one-half feet vertically above the ground;

64.1.4.2 The removal of trees within a total aggregate contiguous or non-contiguous area or areas exceeding 6,000 square feet, measured as the total of the area(s) located directly beneath the tree canopy; or

64.1.4.3 The Director may determine that a proposal to remove woody vegetation constitutes major vegetation removal if the Director finds that it may result in a significant environmental impact pursuant to this section. In making a finding that the proposed major vegetation removal may result in a significant environmental impact, the Director shall review the proposal and determine if any of the following conditions exist or are proposed:

64.1.4.3.1 The major vegetation removal involves the use of heavy equipment;

64.1.4.3.2 The major vegetation removal:

64.1.4.3.2.1 is proposed on either a steep slope (15 percent or greater), or on a slope designated on the Geological Map of the General Plan with slope stability index of "2" - moderate instability, or "3" – high instability; and

64.1.4.3.2.2 may result in soil erosion or landslide;

64.1.4.3.3 The major vegetation removal is located within or adjacent to an environmentally sensitive habitat as identified in the applicable coastal area plan; or

64.1.4.4 The major vegetation removal may result in significant exposure of adjacent trees to wind damage.

313.124 Water Withdrawals from Anadromous Fish Streams

124.1 Purpose. The purpose of these regulations is to provide that new development not cause the reduction of stream flows below the minimum levels required to protect any identified fish habitat.

124.2 Application. The provisions of these regulations shall apply to new development which is proposed to be supported by water withdrawn from any anadromous fish stream.

124.3 Limitation of Development Dependent Upon Water Withdrawals. Development which is proposed to be supported by water withdrawn from an anadromous fish stream shall be permitted only if such withdrawals will not have a significant impact on instream flow regimes and coastal resources. Such developments shall, overall, maintain in basin beneficial uses of water, enhance in-stream beneficial uses of water, where feasible, and prevent significant adverse effects upon coastal resources.

124.4 Required Findings. Development dependent upon water withdrawn from anadromous streams shall be approved only if the Resource Protection Impact Findings in Chapter 2, Procedures, are made.

124.5 Required Mitigation. Development dependent upon water withdrawals from anadromous fish streams shall at a minimum, incorporate the following mitigation measures:

124.5.1 Minimum stream flows necessary to protect the anadromous stream population shall be maintained.

124.5.2 The timing of water withdrawals will not cause stream flows to fall below minimum levels required for the habitat.

313.125 Wetland Buffer Areas.

125.1 Purpose. The purpose of these regulations is to ensure that any development permitted in lands adjacent to coastal wetlands will not degrade the wetland and detract from its natural resource value, and will incorporate such features into the development site design without significant impact.

125.2 Application of the Coastal Wetland Buffer Area Regulations. These regulations shall apply in the Coastal Zone to lands identified as meeting the definition for Wetland Buffer Areas in subsection 313-125.5, on a case-by-case basis, in accordance with the setback provisions of subsection 313-125.7.

125.3 Modification Imposed by the Coastal Wetland Buffer Area Regulations. These regulations shall be in addition to regulations imposed by the principal zone development regulations, Special Area Combining Zone regulations, and other general regulations. Wherever the provisions of these regulations

conflict with or are inconsistent in application with any other regulation, the most restrictive regulations most protective of wetland resources shall apply.

125.4 Consultation with CDFW. The County shall request CDFW to review development plans proposed within coastal wetland buffer areas, and to recommend, within 10 working days of the request, measures to mitigate disturbance of habitats.

125.5 Definitions. Wetland buffer areas shall be defined as:

125.5.1 The area between a wetland and the nearest paved road or the 40-foot contour line (as determined from the 7.5-minute USGS contour maps), whichever is the shortest distance; or

125.5.2 250 feet from the wetland, where the nearest paved road or 40-foot contour exceed this distance.

125.5.3 Transitional Agricultural Lands zoned AE are excluded from the wetland buffer.

125.6 Development Permitted Within Coastal Wetland Buffer Areas. The following uses and developments may be permitted anywhere within Coastal Wetland Buffer Areas:

125.6.1 Uses permitted in the NR - Natural Resources Zone;
125.6.2 Uses permitted in the Transitional Agricultural Land Regulations;
125.6.3 Uses permitted in the Coastal Wetland Regulations; and
125.6.4 Wells in rural areas.

125.7 Development Permitted Within Coastal Wetland Buffer Areas with Supplemental Setback. Developments not listed as permitted uses within subsection may be permitted if they maintain the following setbacks from the boundary of the wetland:

125.7.1 Within an urban limit line: the setback from the boundaries of the wetland shall be either 100 feet or the average setback of existing development immediately adjacent as determined by the "stringline method" as described in the definitions in this Chapter, Section C: Index of Definitions of Language and Legal Terms.

125.7.2 Outside an urban limit line: The setback shall be between 100 and 200 feet, depending upon the size and sensitivity of the wetland, drainage boundaries, vegetation, adjacent uses, and the potential impacts of the project on the wetland habitat values. The precise width of the setback shall be sufficient to prevent significant effects to the wetland.

125.7.3 Reduction of Required Setback: In both urban and rural areas, setbacks of less than the distance specified in this section may be permitted only when:

125.7.3.1 The applicant for the proposed development demonstrates, to the satisfaction of the County, that a setback of less than the distance specified will not result in significant adverse impacts to the wetland habitat and will be compatible with the continuance of such habitats.

125.7.3.2 Any such reduction in development setback may require mitigation measures, in addition to those specified below, to ensure new development does not adversely affect the wetland habitat values.

125.8 Required Findings. Development within Coastal Wetland Buffer Areas shall be permitted only if the applicable Resource Protection Impact Findings in Chapter 2, Procedures, Supplemental Findings (312-39.15), are made.

125.9 Required Mitigation. All development permitted within wetland buffer areas shall be required to include the following mitigation measures:

125.9.1 Coverage of the lot or parcel with impervious surfaces shall not exceed 25 percent of the total lot area.

125.9.2 The release rate of storm water runoff to adjacent wetlands shall not exceed the natural rate of stormwater runoff for a SO-year storm of I 0-minute duration.

125.9.3 Stormwater outfalls, culverts, gutters, and the like, shall be dissipated, and where feasible, screened.

125.9.4 Areas disturbed during construction, grading, etc., within 100 feet of the boundary of the wetland shall be restored to original contours and sufficiently and promptly replanted with vegetation naturally occurring in the immediate area.

125.9.5 Development and construction shall minimize cut-and-fill operations and erosion and sedimentation potential through construction of temporary and permanent sediment basins, seeding or planting bare soil, diversion of runoff away from grading areas and areas heavily used during construction, and, when feasible, avoidance of grading during the rainy season (November through April).

Chapter 4 Regulations Outside the Coastal Zone
314-38 "W" Combining Zone Designations

314.38.1 Streamside Management Areas and Wetlands.

30.1 Purpose. The purpose of these provisions is to assist in the application of minimum standards pertaining to the use and development of land located within streamside management areas, wetlands, and other wet areas.

30.2 Applicability. The Streamside Management Areas and Wetlands Combining Zone, indicated by "WR" on the Zoning Maps, shall apply to streamside management areas, wetlands, and other wet areas as defined by the Streamside Management Areas Ordinance Section 316-25.

30.3 Modifications Imposed by the Streamside Management Areas and Wetlands Combing Zone. The provisions of the Streamside Management Area Ordinance shall apply in addition to regulations imposed by the principal zone, development regulations, and other special area combining regulations.

314-61.1 Streamside Management Area Ordinance (See Humboldt County General Plan Standards 3432.5-3432.10).

Humboldt County General Plan

The following policies and standards of the *Humboldt County General Plan* are applicable to the biological resources potentially affected by the project.

Water Resources Standards

- **Standard 3462.6.** Water export projects on Humboldt County Streams.

The Humboldt County Board of Supervisors, prior to giving its approval and support to large export projects on County streams, will require the following:

- Absolute assurance must be given that funding will be made available for development and improvement of suitable fisheries above, and maintenance and improvement of native fisheries

below, any project. Absolute assurance must also be given that funding will be made available for the effort to replace, restore, and maintain the native wildlife habitat destroyed or altered by any of the contemplated projects. The funding requirement for such development, improvement and maintenance of the fisheries and native wildlife habitat set forth herein above, shall be a funding requirement of the project and shall be identified as a commitment of the state, federal or local entity sponsoring the project. Recognition must also be given to the difficulty in accurately predicting long range financial requirements to meet the fisheries and wildlife policies set forth herein. Consequently, reappraisal and adjustments should be considered on five to ten-year schedules throughout the projected project life in order to meet all of the funding requirements which may occur during the project life. Funding shall be provided for post project evaluation. Wildlife mitigation should be accomplished insofar as possible on existing public lands with prime consideration given to the wildlife resources involved and to its habitat requirements.

- Water supplies must be planned and financed as part of any project in sufficient quantity to provide ultimate future supplies of agricultural, municipal, industrial, recreational, and environmental water, and water for fisheries and wildlife habitat development. Recreational, and environmental water requirements (i.e., non-consumptive water requirements for the general public enjoyment including non-resident populations of tourists to north-western California) may well exceed consumptive uses in many hydrographic areas. Thus, the project sponsor must take an active role in providing such water and must absorb the burden of expenses for such water. Greater consideration of the values of non-consumptive water uses should be given when assessing the economic feasibility of water projects.

- CDFW shall develop a flow release schedule to provide for the maintenance of the fishery resources and habitat. The project sponsor shall agree to provide the water for the release schedule.

Biological Resources Policies

- **Policy 3431.1.** Maintain values of significantly important habitat areas by assuring compatible adjacent land uses, where feasible.

- **Policy 3431.2.** Habitats for "critical species" shall be protected under provisions of NEPA and CEQA.

- **Policy 3431.3.** Development within stream channels shall be permitted when there is no less environmentally damaging feasible alternative, where the best feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to essential, nondisruptive projects as listed in Standard 3432.6.

- **Policy 3431.4.** To protect sensitive fish and wildlife habitats and to minimize erosion, runoff, and interference with surface water flows, the County shall maintain Streamside Management Areas (SMA's), along its blue line streams as identified on the largest scale U.S. Geological Survey (USGS) topographic maps most recently published, and any significant drainage courses identified through the CEQA process.

- **Policy 3431.5.** Development within SMA's shall only be permitted where mitigation measures (Standard 8) have been provided to minimize any adverse environmental effects, and shall be limited to uses as described in Standard 3432.7.

- **Policy 3431.6.** Biological Resource Maps shall be incorporated into the project review process in order to identify sensitive habitat concerns. These maps shall be kept up to date with the most recent information obtainable. Accommodation of new resource information on the Biological Resource Maps may require amendment to the adopted General Plan.

- **Policy 3431.7**. The County shall request CDFW, as well as other appropriate agencies and organizations to review plans for development within sensitive habitat areas or SMA's. R

Biological Resources Standards

- **Standard 3432.1.** Proposed development occurring within areas containing sensitive habitats shall be subject to the conditions and requirements of this chapter except for exclusions as follows.
  - Timber management and harvest activities regulated by the Forest Practices Act.
  - Any area proposed for development, which upon examination of the Biological Resource Maps and field inspection is not actually within or does not contain the indicated habitat, then the development is exempt from the requirements of this section.
  - Forest management activities needed to improve timber productivity regulated by other agencies.
  - Agricultural operations needed to improve agricultural productivity.
- **Standard 3432.2**. Recommendations from CDFW, agencies, and organizations shall be specific and cite relevant code sections and standards.
- **Standard 3432.3.** Critical habitats are sensitive habitats essential for a Federal or State designated endangered, threatened, or rare species. This includes the portion of a critical species range which is essential to the existence of that species.
- **Standard 3432.4.** Sensitive habitats are defined as a unique, limited, or economically important habitat type for a species whose habitat requirements, if significantly changed, would cause a threatening change to the species population and may include the following:
  - Critical habitat.
  - Migratory deer winter range.
  - Roosevelt elk (*Cervus canadensis roosevelti*) range.
  - Sensitive species rookery and nest sites.
  - Streams and streamside areas.
  - Natural ponds, springs, vernal pools, marshes, and wet meadows exhibiting standing water yearlong or riparian vegetation.
  - Other sensitive habitat and communities listed in the CDFW California Natural Diversity Database (CNDDB), if and when adopted.
- **Standard 3432.5**.S MAs are identified and modified as follows:
  - In areas outside of Urban Development and Expansion Areas, the outer boundaries shall be defined as:
    - 100 feet, measuresd as the horizontal distance from the stream transition line on either side of perennial streams.
    - 50 feet, measured as the horizontal distance from the stream transition line on either side of intermittent streams.
  - In areas inside of the Urban Development and Expansion Areas, the outer boundaries shall be defined as:

- 50 feet, measured as the horizontal distance from the stream transition line on either side of perennial streams.
- 25 feet, measured as the horizontal distance from the stream transition line on either side of intermittent streams.

- Where necessary, the width of SMA's shall be expanded to include significant areas of riparian vegetation adjacent to the buffer area, slides and areas with visible evidence of slope instability, not to exceed 200 feet measured as horizontal distance.
- The SMA's may be reduced or eliminated where the County determines, based on specific factual findings, that:
  - The USGS mapping of the stream as perennial or intermittent is not accurate, and typical stream flow can be shown to be less than the required to be classified as either perennial or intermittent, or
  - It will not result in a significant adverse impact to fish, wildlife, riparian habitat, or soil stability.

- Standard 3432.6. Development within stream channels and is limited to the following projects:
  - Fishery, wildlife, and aquaculture enhancement and restoration projects.
  - Road crossings consistent with Standard 3432.9 of this section.
  - Flood control and drainage channels, levees, dikes, and floodgates.
  - Mineral extraction consistent with other County regulations.
  - Small-scale hydroelectric power plants in compliance with applicable County regulations and those of other agencies.
  - Agricultural diversions and wells.
  - New fencing, so long as it would not impede natural drainage or would not adversely affect the stream environment or wildlife.
  - Bank protection, provided it is the least environmentally damaging alternative.
  - Other essential projects, including municipal groundwater pumping stations, provided they are the least environmentally damaging alternative, or necessary for the protection of the public's health and safety.
- Standard 3432.7. Development within SMA's shall be limited to the following uses:
  - Development permitted within stream channels.
  - Timber management and harvest activities not otherwise excluded by Applicability Section as well as noncommercial cutting of firewood and clearing for pasturage, provided:
    - Cottonwoods are retained.
    - Remaining willows and alders, as well as other unmerchantable hardwoods or shrubs should be protected from unreasonable damage.

- Road and bridge replacement or construction, when it can be demonstrated that it would not have degrade fish and wildlife resources or water quality, and that vegetative clearing is kept to a minimum.

- Removal of vegetation for disease control or public safety purposes.

- Standard 3432.8. Mitigation measures for development within SMA's shall, at a minimum, include:

  - Retaining snags unless felling is required by California Occupational Safety and Health Administration (CAL-OSHA), or by California Department of Forestry forest and fire protection regulations, or for public health and safety reasons, approved by the appropriate County department. Felled snags shall be left on the ground if consistent with fire protection regulations as long as they have no economic value.

  - Retain live trees with visible evidence of use as a nesting site by hawks, owls, eagles, osprey, herons, or egrets.

  - Replanting of disturbed areas within riparian vegetation (including such species as alders, cottonwoods, willows, Sitka spruce, etc.) shall not be required unless natural regeneration does not occur within two years of the completion of the development project.

  - Erosion control measures (Standard 3432.9).

- Standard 3432.9. Erosion control measures for development within SMA's shall include the following:

  - During construction, land clearing and vegetation removal will be minimized.

  - Construction sites will be planted with native or naturalized vegetation and mulched with natural or chemical stabilizers to aid in erosion control and ensure revegetation.

  - Long slopes will be minimized to increase infiltration and reduce water velocities down cut slopes by such techniques as soil roughing, serrated cuts, selective grading, shaping, benching, and berm construction.

  - Concentrated runoff will be controlled by the construction and continued maintenance of culverts, conduits, non-erodible channels, diversion dikes, interceptor ditches, slope drains, or appropriate mechanisms. Concentrated runoff will be carried to the nearest drainage course. Energy dissipaters may be installed to prevent erosion at the point of discharge where discharge is to natural ground or channels.

  - Runoff shall be controlled to prevent erosion by on-site or off-site methods. On-site methods include, but are not limited to, the use of infiltration basins, percolation pits, or trenches. On-site methods are not suitable where high groundwater or slope stability problems would inhibit or be aggravated by on-site retention or where retention will provide no benefits for groundwater recharge or erosion control. Off-site methods include detention or dispersal of runoff over non-erodible vegetated surfaces where it would not contribute to downstream erosion or flooding.

  - Disposal of silt, organic, and earthen material from sediment basins and excess material from construction will be disposed of out of the SMA to comply with CDFW and the North Coast RWQCB requirements.

Winter operations (generally October 15 through April 15) shall employ the following specials considerations:

- Slopes will be temporarily stabilized by stage seeding and/or planting of fast germinating seeds, such as barley or rye grass, and mulched with protective coverings such as natural or chemical stabilizations.
- Runoff from the site will be temporarily detained or filtered by berms, vegetated filter strips, and/or catch basins to prevent the escape of sediment from the site. Drainage controls are to be maintained as long as necessary to prevent erosion throughout construction.

- **Standard 3432.10.** For natural ponds, springs, vernal pools, marshes, and wet meadows (exhibiting standing water yearlong or riparian vegetation): Development except for wells and springboxes shall be consistent with the standards for SMA's, where appropriate.

3.4.2 Environmental Setting

This environmental setting section contains information of the following existing biological resources:

- project location;
- land cover types and associated biological habitat uses;
- special-status species;
- sensitive natural communities;
- waters of the United States (including wetlands);
- wildlife movement corridors; and
- habitat conservation plans.

LAND COVER TYPES

There are 25 different land cover types within the County (Table 3.4-1; Exhibit 3.4-1, 3.4-2, and 3.4-3; CDFW 2017). Over 25 percent (584,027 acres) of the County contains Douglas fir (*Pseudotsuga menziesii*) habitat, approximately 21 percent (457,275 acres) contains montane hardwood-conifer habitat, and approximately 18 percent (405,455 acres) contains redwood habitat (*Sequoia sempervirens*), and just under 0.5 percent (1,051 acres) contains urban land cover types. The County contains a significant amount of late-successional (i.e., forest with multi-layered tree canopy, large-diameter trees, complex understory, and coarse woody debris) and old growth forest (i.e., forest usually 180-220 years old with large trees, large snags, and complex structure that has not undergone significant disturbance; Exhibit 3.4-4). Total acreages of each habitat type are presented in Table 3.4-1, and land cover types are described below in order of abundance (CDFW 2017).

Table 3.4-1 Habitat Types within Humboldt County

Habitat Type	Size (acres)
Douglas Fir	584,027
Montane Hardwood-Conifer	475,275
Redwood	405,455
Montane Hardwood	248,654
Grassland	221,921
Agricultural	53,954
Coastal Scrub	51,788
Sierran Mixed Conifer	45,127
Chaparral	43,126

Table 3.4-1 Habitat Types within Humboldt County

Habitat Type	Size (acres)
Riparian	36,561
Red Fir and White Fir	29,550
Aquatic	22,799
Coastal Oak Woodland	22,175
Barren	21,702
Klamath Mixed Conifer	14,120
Urban	10,281
Yellow Pine	3,779
Saline Emergent Wetland	1,793
Closed-Cone Pine-Cypress	1,051
Subalpine Conifer	231
Eucalyptus	97
Wet Meadow	84
Lodgepole Pine	58
Blue Oak-Foothill Pine	42
Freshwater Emergent Wetland	10

Source: Data compiled by Ascent Environmental in 2017

Douglas Fir

Douglas fir forest composition varies depending on soil, moisture, topography, and disturbance of the habitat (e.g., history of logging). Douglas fir forests in dry habitats often contain canyon live oak (*Quercus chrysolepis*), tanoak (*Notholithocarpus densiflorus*), Pacific madrone (*Arbutus menziesii*), sugar pine (*Pinus lambertiana*), ponderosa pine (*P. ponderosa*), and black oak (*Q. kelloggii*). In wetter habitats, Douglas fir can be associated with species like Pacific yew (*Taxus brevifolia*) and Port Orford cedar (*Chamaecyparis lawsoniana*). Douglas fir habitat is widespread throughout the County, primarily in the interior portion of Humboldt County and in more coastal regions in southern Humboldt County. Many wildlife species can be found within Douglas fir forests in Humboldt County, including bird species (e.g., northern spotted owl [*Strix occidentalis caurina*], varied thrush [*Ixoreus naevius*], chestnut-backed chickadee [*Poecile rufescens*]), amphibians (e.g. coast giant salamander [*Dicamptodon tenebrosus*], northwestern salamander [*Ambystoma gracile*], Ensatina [*Ensatina* sp.]), and various mammal species (e.g. fisher [*Pekania pennanti*], dusky-footed woodrat [*Neotoma fuscipes*], Douglas squirrel [*Tamiasciurus douglasii*]).

Montane Hardwood-Conifer

Montane hardwood-conifer habitats contain at least one-third conifer and one-third broad-leaved hardwood trees. Species assemblages often include ponderosa pine, Douglas fir, incense cedar (*Calocedrus decurrens*), black oak, tanoak, Pacific madrone, and Oregon white oak (*Q. garryana*). Other potential species within this habitat type that are more specific to California north coast regions include golden chinquapin (*Chrysolepis chrysophylla*), canyon live oak, white fir (*Abies concolor*), red alder (*Alnus rubra*), western red cedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), and knobcone pine (*P. attenuata*). Montane hardwood-conifer habitat is widespread throughout the County, including coastal and interior areas. Species assemblages likely vary widely depending on location within Humboldt County.

Exhibit 3.4-1 **Humboldt County Land Cover**

Exhibit 3.4-2 **Humboldt County Land Cover**

Exhibit 3.4-3 **Humboldt County Land Cover**

Exhibit 3.4-4 **Old Growth Forest**

Redwood

Redwood habitat is typically associated with coastal environments and usually occurs within approximately 30 miles of the coast. In addition to redwood, species within this habitat include Sitka spruce (*Picea sitchensis*), grand fir (*Abies grandis*), red alder, and Douglas fir. In more interior areas, redwood is also associated with tanoak and Pacific madrone. Understory species within redwood forests often include sword fern (*Polystichum californicum*), deer fern (*Blechnum spicant*), chainfern (*Woodwardia fimbriata*), salal (*Gaultheria shallon*), coast rhododendron (*Rhododendron macrophyllum*), huckleberry (*Vaccinium* sp.), fireweed (*Chamerion angustifolium*), oceanspray (*Holodiscus discolor*), salmonberry (*Rubus spectabilis*), poison oak (*Toxicodendron diversilobum*), and western thimbleberry (*Rubus parviflorus*). Old growth redwood forests are one of the signature features of Humboldt County. Exhibit 3.4-4 illustrates old growth and late-successional habitat (including old growth Redwood) within Humboldt County. Redwood National and State Park contains 45 percent of the remaining protected old growth redwood in the State of California (including within Humboldt and Del Norte Counties), and additional old growth redwoods are protected within federal and state lands throughout Humboldt County. Old growth redwood habitat also occurs within privately-owned lands, including Green Diamond Resource Company and Humboldt Redwood Company properties. Both companies conserve old growth redwood habitat through implementation of habitat conservation plans (HCP, See section "Habitat Conservation Plans"). Many wildlife species can be found in redwood forest habitat, and several species, such as marbled murrelet (*Brachyramphus marmoratus*), fisher, northern red-legged frog (*Rana aurora*), and Ensatina salamanders (*Ensatina* sp.) prefer, or depend almost entirely on redwood forests.

Montane Hardwood

Montane hardwood habitats in Humboldt County are dominated by broad-leaved hardwood tree species; primarily canyon live oak on canyon slopes, and huckleberry oak (*Q. vacciniifolia*) at higher elevations. Other species associated with montane hardwood habitat include white fir, Jeffrey pine, Douglas fir, tanoak, Pacific madrone, bay laurel (*Umbellularia californica*), black oak, knobcone pine, foothill pine (*P. sabiniana*), Oregon white oak, and coast live oak (*Q. agrifolia*). Montane hardwood habitat in Humboldt County is widespread and intergrades with montane hardwood-conifer and Douglas fir habitat within the County. Wildlife species that use acorns as a primary food source include Steller's jay (*Cyanocitta stelleri*), acorn woodpecker (*Melanerpes formicivorus*), California quail (*Callipepla californica*), western gray squirrel (*Sciurus griseus*), black bear (*Ursus americanus*), and mule deer (*Odocoileus hemionus*).

Grassland

Grassland habitat within the County includes both annual and perennial grassland types, and occurs within both coastal and interior areas. Annual grasses include wild oats (*Avena* sp.), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), Chinook brome (*Bromus laevipes*), and wild barley (*Hordeum* sp.). Perennial grasses include species such as California oatgrass (*Danthonia californica*), American dune grass (*Elymus mollis*), and Kentucky bluegrass (*Poa pratensis*). While dominated by grasses, grassland habitats are often interspersed with forbs species. Grasslands provide habitat for many wildlife species, including garter snakes (*Thamnophis* sp.), western fence lizard (*Sceloporus occidentalis*), voles (*Microtus* sp.), mice (*Reithrodontomys* sp. and *Peromyscus* sp.), and various bird species.

Agricultural

Agricultural land types within Humboldt County include pasture, croplands, and vineyards. Agricultural land is largely concentrated within the lowland river valleys of the Mad and Eel Rivers, as well as lowland areas near Humboldt Bay, and in the Arcata Bottoms. Approximately 71 percent of agricultural land in Humboldt County is used for pasture for livestock, and approximately 29 percent is used for cropland. Vineyards make up a very small portion of the total agricultural land in the County (approximately 29 acres), and are located near urban areas. Migrating waterfowl and shorebirds forage within pasture land in the County, including Aleutian cackling goose (*Branta hutchinsii*), greater white-fronted goose (*Anser albifrons*), tundra swan (*Cygnus columbianus*), marbled godwit (*Limosa fedoa*), long-billed curlew (*Numenius americanus*), sandpipers (*Calidris* sp.), and willet (*Tringa semipalmata*).

Coastal Scrub

Coastal scrub habitat occurs throughout the coastal regions of Humboldt County, and is often associated with redwood habitats. Plant species associated with coastal scrub include lupine (*Lupinus* sp.), coyote brush (*Baccharis pilularis*), California coffeeberry (*Frangula californica*), blueblossom (*Ceanothus thyrsiflorus*), salal, bush monkeyflower (*Mimulus aurantiacus*), blackberry (*Rubus* sp.), and poison oak.

Sierran Mixed Conifer

Sierran mixed conifer habitat occurs predominately in the interior region of the County near the Humboldt-Trinity County line where it intergrades with red fir and white fir habitat, as well as chaparral habitat and Douglas fir habitat. Sierran mixed conifer habitat largely consists of white fir, Douglas fir, ponderosa pine, sugar pine, incense cedar, and black oak. Understory species include deerbrush (*Ceanothus integerrimus*), whitethorn (*Ceanothus cordulatus*), manzanita (*Manzanita* sp.), chinquapin (*Chrysolepis* sp.), tanoak, and gooseberry (*Ribes* sp.). Sierran mixed conifer forests support many wildlife species, including northern spotted owl, bald eagle (*Haliaeetus leucocephalus*), Humboldt marten (*Martes caurina humboldtensis*), and fisher.

Chaparral

Chaparral habitat within Humboldt County includes mostly montane chaparral (36,242 acres), approximately 6,847 acres of mixed chaparral, and a small amount of chamise-redshank chaparral (37 acres). Chaparral habitat is located predominately within the interior portion of the County. Plant assemblages for this habitat type vary based on elevation and geographic area; however, chaparral habitat generally includes manzanita, various ceanothus species (*Ceanothus* sp.), huckleberry oak, chinquapin, boxleaf silk tassel (*Garrya buxifolia*), and birch leaf mountain mahogany (*Cercocarpus betuloides*). Chamise-redshank chaparral can contain these species, but generally contain mostly chamise (*Adenostoma fasciculatum*). Chaparral provides important foraging habitat for mammals (e.g. deer and rabbits), as well as for many bird species. The physical structure of chaparral habitat also provides protection, cover, and nesting habitat for many wildlife species.

Riparian

Riparian habitat within Humboldt County includes mostly montane riparian (36,439 acres), and approximately 123 acres of valley foothill riparian. Riparian habitat occurs throughout the County adjacent to aquatic habitat. Montane riparian habitat contains black cottonwood (*Populus trichocarpa*), bigleaf maple (*Acer macrophyllum*), Pacific dogwood (*Cornus nuttallii*), boxelder (*Acer negundo*), and bay laurel. Valley foothill riparian habitat also contains western sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia*), and Oregon ash (*Fraxinus latifolia*). Riparian habitat provides very important habitat for wildlife species and often supports a great diversity of species. Sensitive species that utilize riparian habitat include foothill yellow-legged frog (*Rana boylii*), northern red-legged frog, bank swallow (*Riparia riparia*), little willow flycatcher (*Empidonax traillii brewsteri*), tricolored blackbird (*Agelaius tricolor*), and white-tailed kite (*Elanus leucurus*). Roosevelt elk (*Cervus canadensis roosevelti*) also use riparian habitat within Redwood National and State Park for foraging.

Red Fir and White Fir

Red fir and white fir forest habitats are predominately monotypic (contain only one species), and intergrade into each other on an elevational gradient. These habitats occur largely within the interior of Humboldt County, near the Humboldt-Trinity County line. Red fir habitat is used by northern goshawk (*Accipiter gentilis*), and both red and white fir habitats provide large snags, which are used by many wildlife species.

Aquatic

Aquatic habitat in Humboldt County includes Freshwater, Stone, and Big Lagoons; Humboldt Bay; and all rivers, creeks, other tributaries, and estuarine areas. These habitats occur throughout the County, adjacent to many different habitat types.

Humboldt Bay

Humboldt Bay is one of the most significant aquatic features within the County. The bay supports many different fish and invertebrate species, as well as plants such as eelgrass (*Zostera marina*) which in turn

provide excellent foraging opportunities for many species of waterfowl including black brant (*Branta bernicla*), common loon (*Gavia immer*), Pacific loon (*G. pacifica*), and western grebe (*Aechmophorus occidentalis*); seabirds including double-crested cormorant (*Phalacrocorax auritis*), Brandt's cormorant (P. penicillatus), and pelagic cormorant (*P. pelagicus*), brown pelican (*Pelicanus occidentalis*), western gull (*Larus occidentalis*), and common murre (*Uria aalge*); and many shorebird species. Raptors including osprey (*Pandion haliaetus*) and American peregrine falcon (*Falco peregrinus*), forage for fish and waterbirds (respectively) on Humboldt Bay. Aquatic mammal species also occur in Humboldt Bay, including North American river otters (*Lontra canadensis*), harbor seals (*Phoca vitulina*), and California sea lions (*Zalophus californianus*). The Humboldt Bay National Wildlife Refuge, managed by USFWS, has several units adjacent to Humboldt Bay.

Humboldt Lagoons

Humboldt Lagoons State Park includes Dry Lagoon (which is now a coastal marsh), Freshwater Lagoon, Stone Lagoon, and Big Lagoon. The coastal lagoons are enclosed bodies of water that are separated from the ocean by spits of land. Water breaches these spits seasonally, usually after a period of heavy rain. The Lagoons support many bird species, including nesting bald eagles, American peregrine falcons, osprey, and the federally threatened western snowy plover (*Charadrius alexandrinus nivosus*). Roosevelt elk also frequent the area.

Humboldt County Rivers and Streams

The County includes significant portions of the Klamath River, Trinity River, Mad River, Van Duzen River, Mattole River, Eel River, Bear River, and Redwood Creek watersheds, and their tributaries. Several special-status fish species occur within Humboldt County watersheds, including Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*O. kisutch*), steelhead (*O. mykiss irideus*), coast cutthroat trout (*O. clarkii clarkii*), green sturgeon (*Asperser medirostris*), eulachon (*Thaleichthys pacificus*), longfin smelt (*Spirinchus thaleichthys*), and tidewater goby (*Eucyclogobius newberryi*; Table 3.4-1). Habitat along rivers, streams, and estuaries provide habitat for special-status amphibian and reptile species, such as foothill yellow-legged frog, northern red-legged frog, Pacific tailed frog (*Ascaphus truei*), red-bellied newt (*Taricha rivularis*), southern torrent salamander (*Rhyacotriton variegatus*), and western pond turtle (*Actinemys marmorata*), as well as nesting bald eagle and osprey.

Coastal Oak Woodland

Coastal oak woodland habitats occur in a mosaic with montane hardwood and montane hardwood-conifer habitats, depending on dominant species. In Humboldt County, coastal oak woodland habitat includes Oregon white oak, black oak, canyon live oak, madrone, and interior live oak (*Q. wislizeni*). Wildlife associations are like montane hardwood habitats (see above).

Barren

Barren habitat is devoid of vegetation and can include rocky outcroppings, open sandy beaches, mudflats, river banks, canyon walks, or areas associated with urbanization. Within the County, barren habitats are present along the Mad, Eel, and Mattole Rivers, on mudflats surrounding Humboldt Bay, along sandy beaches (e.g., Samoa Beach and Manila Beach), and adjacent to urban areas in Eureka, Arcata, and McKinleyville. Barren habitats vary widely in their composition and wildlife associations are also variable. Barren, vertical cliffs along river banks can provide habitat for bank swallows. Mudflats, and open sandy beaches provide foraging and nesting habitat for shorebirds, including the federally threatened western snowy plover.

Klamath Mixed Conifer

Klamath mixed conifer habitat is restricted to northern California and southern Oregon. The habitat is found within the northeast corner of the County, near the Humboldt-Trinity and Humboldt-Siskiyou County lines, and within the Hoopa Valley Reservation. Klamath mixed conifer is like Sierran mixed conifer in that dominant conifers include white fir, Douglas fir, ponderosa pine, incense cedar, and sugar pine. Wildlife associations are like Sierran mixed conifer habitats (see above).

Urban

In Humboldt County, urban habitat makes up less than 1 percent of the total land cover within the county, and occurs sporadically within incorporated towns and unincorporated communities, including Orleans, Hoopa, Willow Creek, Mckinleyville, Arcata, Blue Lake, Eureka, Ferndale, and Fortuna. These incorporated areas are not within the County. Urban habitat includes urban landscaping, lawns, parks, and green zones. Some parks within Arcata and Eureka city limits, including the Arcata Community Forest, Redwood Park, and Rohnert Park are not considered urban landscaping, because the quality of other habitats (e.g., redwood, montane hardwood-conifer, coastal scrub) has been retained within the parks. Common urban wildlife species include rock pigeon (*Columba livia*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and racoon (*Procyon lotor*). Because much of the urban areas in Humboldt County are located adjacent to more natural habitats, species such as gray fox (*Urocyon cinereoargenteus*), mule deer, and a variety of resident and migratory songbirds are also common within surburban areas. A well-studied population of Steller's jays occurs within the City of Arcata.

Yellow Pine

Yellow pine habitat in Humboldt County includes both Jeffrey pine and ponderosa pine. These habitat types are commonly pure stands of either species, but are often associated with each other, and other conifer species, such as sugar pine, white fir, red fir, incense-cedar, and black cottonwood. Common understory species include huckleberry, scrub oak, manzanita, ceanothus, Fremont's silk tassel (*Garrya fremontii*), Pacific dogwood, and coffeeberry. Wildlife species, such as squirrels and mule deer, depend on pine nuts as a major food source. Species also uses yellow pine habitats such as nuthatches (*Sitta* sp.), brown creeper (*Certhia americana*), woodpeckers, and Humboldt's flying squirrel (*Glaucomys oregonensis*). Most of the yellow pine habitat present in Humboldt County is located within Six Rivers National Forest.

Saline Emergent Wetland

Saline emergent wetlands in Humboldt County include the saltwater or brackish marshes within Big Lagoon, Humboldt Bay, and the Eel River estuary. Saline emergent wetland habitat contains plant species including California cord grass (*Spartina foliosa*), invasive dense flowered cord grass (*S. densiflora*), pickleweed (*Salicornia pacifica*), common cattail (*Typha latifolia*), and various other grasses and forbs. A wide variety of wildlife species occur within saline emergent wetland habitats, including Virginia rail (*Rallus limicola*), sora (*Porzana carolina*), common yellowthroat (*Geothlypis trichas*), various shorebird species, California harvest mouse (*Reithrodontomys megalotis*), raccoon, American mink (*Neovison vison*), Sierran tree frog (*Pseudacris sierra*).

Closed-Cone Pine-Cypress

Closed-cone pine-cypress habitat occurs sporadically and sparsely within Humboldt County. The dominant cypress species within these habitats in Humboldt County is Monterey cypress (*Hesperocyparis macrocarpa*), and the dominant closed-cone pine species include Monterey pine (*P. radiata*), Bishop pine (*P. muricata*), knobcone pine, and lodgepole pine (*Pinus contorta*). Various wildlife species use this habitat for foraging and cover, and great horned owl (*Bubo virginianus*) and red-tailed hawk have been known to nest within closed-cone pine habitats.

Subalpine Conifer

Subalpine conifer habitat typically includes open conifer forests with little to no understory vegetation at high elevations. Trees within subalpine conifer habitats are typically shorter than trees in other forest habitats. Common conifer species include mountain hemlock (*Tsuga mertensiana*), western white pine (*P. monticola*), and lodgepole pine. Wildlife associations are like other conifer habitats in the County. Subalpine conifer habitat within Humboldt County is present in the northeastern portion of the County, associated with Klamath mixed conifer habitat.

Eucalyptus

Eucalyptus-dominated habitats within Humboldt County most commonly contains blue gum (Eucalyptus globulus). Blue gum is an invasive species from Australia that has become widespread in California. Eucalyptus stands in Humboldt County are typically associated with urban development, or disturbed areas,

including along the SR 101 corridor from Arcata to Eureka. While blue gum is not a California native species, several bird species use the trees to nest, including American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), barn owl (*Tyto alba*), red-tailed hawk, and red-shouldered hawk.

Wet Meadow

Wet meadow habitat is present throughout Humboldt County in association with aquatic features, such as rivers and creeks. Many different plant species can be associated with wet meadow habitats, including sedges (*Carex* sp.), rushes (*Juncus* sp.), bulrush (*Scirpus* sp.), willow (*Salix* sp.), and various grasses. Mule deer and Roosevelt elk often feed in wet meadows, and waterfowl and other bird species also use the habitat. Special-status amphibian species, such as foothill yellow-legged frog and northern red-legged frog can also be found within wet meadow habitat.

Lodgepole Pine

Lodgepole pine habitat can be found in small areas (less than 60 acres in Humboldt County), within the northeastern portion of the County. Shore pine, which is a subspecies of lodgepole pine (*P. contorta* ssp. *contorta*), is found along the coast of Humboldt County near Humboldt Bay and Trinidad. Lodgepole pine forests typically lack understory vegetation, and because of this, do not support a wide variety of wildlife species.

Blue Oak-Foothill Pine

Less than 50 acres of blue oak-foothill pine habitat is present within Humboldt County, and it exclusively occurs within the Hoopa Valley Reservation. While blue oak (*Q. douglasii*) and foothill pine dominate the overstory of this habitat, other species include interior live oak, California buckeye (*Aesculus californica*), ceanothus, and manzanita. Wildlife associations are like montane hardwood habitats in the County.

Freshwater Emergent Wetland

Approximately 10 acres of freshwater emergent wetland habitat is present in Espa Lagoon near Gold Bluffs Beach, and within the Mad River tributary system. Additionally, much of the pasture land Humboldt Bay and the Eel River estuary has freshwater emergent wetland qualities. Freshwater emergent wetland habitat can support sedges, rushes, bulrush, and cattail. Many wildlife species utilize this productive habitat; see "Agriculture" above.

SPECIAL-STATUS SPECIES

Special-status species are plants and animals that are legally protected under CESA (Fish and Game Code, Section 2050 et seq.), ESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. For this program EIR, special-status species are defined as:

- species listed or proposed for listing as threatened or endangered under the ESA (50 Code Fed. Regs., Section 17.12) for listed plants, (50 Code Fed. Regs., Section 17.11) for listed animals, and various notices in the Federal Register for proposed species;
- species that are candidates for possible future listing as threatened or endangered under the ESA (75 Code Fed. Regs., Section 69222, USFWS 2017);
- species that are listed or proposed for listing by the State of California as threatened or endangered under the CESA of 1984 (14 Cal. Code Regs., Section 670.5);
- plants considered by CDFW and CNPS to be "rare, threatened, or endangered in California" (Rare Plant Ranks 1A, 1B, 2A, and 2B; CDFW 2017; CNPS 2017);
- species that meet the definition of rare or endangered under the State CEQA Guidelines, Section 15380;

- animals fully protected in California (Fish and Game Code, Section 3511 for birds, Section 4700 for mammals, and Section 5050 for reptiles and amphibians); or
- animal species of special concern to CDFW (CDFW 2017).

Special-Status Wildlife

A total of 45 special-status wildlife species have potential to occur within Humboldt County (Table 3.4-2).

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
Amphibians and Reptiles				
foothill yellow-legged frog *Rana boylii*	-	SSC	Aquatic, chaparral, cismontane woodland, coastal scrub, Klamath/north coast flowing waters, lower montane coniferous forest, meadow and seep, riparian forest, riparian woodland, and Sacramento/San Joaquin flowing waters. Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Foothill yellow-legged frog is known to occur within rivers and creeks from Redwood Creek to the Mattole River (CNDDB 2017). Suitable habitat is likely present within most flowing waterways within Humboldt County.
northern red-legged frog *Rana aurora*	-	SSC	Klamath/North coast flowing waters, riparian forest, and riparian woodland. Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover. Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Northern red-legged frog is known to occur within rivers and creeks from Redwood Creek to the Eel River (CNDDB 2017). Suitable habitat is likely present within most flowing waterways within Humboldt County.
Pacific tailed frog *Ascaphus truei*	-	SSC	Aquatic, Klamath/north coast flowing waters, lower montane coniferous forest, north coast coniferous forest, redwood, and riparian forest. Occurs in montane hardwood-conifer, redwood, Douglas fir and ponderosa pine (Pinus ponderosa) habitats. Restricted to perennial montane streams. Tadpoles require water below 15 degrees C.	Pacific tailed frog is known to occur from Prairie Creek Redwoods State Park to the King Range National Conservation Area (CNDDB 2017). Suitable habitat is likely present within most flowing waterways within Humboldt County.
red-bellied newt *Taricha rivularis*	-	SSC	Broadleaved upland forest, north coast coniferous forest, redwood, riparian forest, and riparian woodland. Coastal drainages from Humboldt County south to Sonoma County, inland to Lake County. Isolated population of uncertain origin in Santa Clara County. Lives in terrestrial habitats, juveniles generally underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean rocky substrate.	Red-bellied newt is known to occur within the Mattole River and its tributary creeks (CNDDB 2017). This species is expected to occur only in southern Humboldt County, and its range extends south to Mendocino and Lake Counties.
southern torrent salamander *Rhyacotriton variegatus*	-	SSC	Lower montane coniferous forest, old growth, redwood, and riparian forest. Coastal redwood, Douglas fir, mixed conifer, montane riparian, and montane hardwood-conifer habitats. Old growth forest. Cold, well-shaded, permanent streams and seepages, or within splash zone or on moss-covered rock within trickling water.	Southern torrent salamander is known to occur within rivers and creeks from Prairie Creek Redwoods State Park to the Mattole River (CNDDB 2017). Suitable habitat is likely present within most flowing streams and seeps within Humboldt County.

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
western pond turtle *Actinemys marmorata*	-	SSC	Aquatic, artificial flowing waters, Klamath/north coast flowing waters, Klamath/north coast standing waters, marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing and standing waters. A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Western pond turtle is known to occur along the banks and within tributaries of the Trinity, Little, Van Duzen, Eel, Elk, and Mattole Rivers, as well as ponds and lakes throughout the county (CNDDB 2017). Suitable habitat is likely present within most aquatic habitat within Humboldt County.
Birds				
American peregrine falcon *Falco peregrinus anatum*	FD	SD FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	American peregrine falcons are known to nest within Humboldt County (CNDDB 2017). The species has been observed throughout the County, especially on the coast, near Humboldt Bay, and along the Klamath River where abundant waterfowl prey is present (eBird 2017).
bald eagle *Haliaeetus leucocephalus*	FD	SE FP	Lower montane coniferous forest, old growth. Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Bald eagles are known to nest near the Klamath, Trinity, and Mad Rivers, and near Humboldt Bay (CNDDB 2017). The species has been observed throughout the county, especially on the coast, near Humboldt Bay, and along the Trinity River (eBird 2017).
bank swallow *Riparia riparia*	-	ST	Riparian scrub, riparian woodland. Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Bank swallows have historically occurred in several locations in Humboldt County, including Freshwater Lagoon; Luffenholtz, Moonstone, and Clam Beaches; north Humboldt Bay; and along the banks of the Mad and Eel Rivers (CNDDB 2017). There have been many recent observations of the species along the coast, in Humboldt Bay, and along the Mad, Eel, and Mattole Rivers (eBird 2017). Suitable habitat is likely present within sandy coastal cliffs and vertical river banks throughout Humboldt County.
black swift *Cypseloides niger*	-	SSC	Coastal belt of Santa Cruz and Monterey Co; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely	One historic occurrence of black swift was recorded in 1982 in Orleans near the Klamath River (CNDDB 2017). There have not been any recent observations of this species in Humboldt County, and the County is outside of the current breeding range of the species (eBird 2017). Black swift could be a rare visitor to Humboldt County, but likely is not a permanent resident.
Ridgway's rail *Rallus longirostris obsoletus*	FE	SE FP	Brackish marsh, marsh and swamp, salt marsh, wetlands. Salt-water and brackish marshes traversed by tidal sloughs near San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Two historic occurrences of Ridgway's rail (then California clapper rail) were recorded in 1932, within Humboldt Bay, and the mouth of the Mad River (CNDDB 2017). This species no longer occurs in Humboldt County.
fork-tailed storm-petrel *Oceanodroma furcata*	-	SSC	Protected deepwater coastal communities. Colonial nester on small, offshore islets. Forages over the open ocean, usually well off-shore. Birds choose off-shore islets which provide nesting crannies beneath rocks or sod for burrowing.	Fork-tailed storm-petrel breeding colonies have historically occurred on offshore rocks near Trinidad (including Blank and Green Rocks), and at the Little River mouth (CNDDB 2017). The species has also been observed recently while foraging on the Humboldt County coastline and farther offshore (eBird 2017).

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
golden eagle *Aquila chrysaetos*	-	FP	Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodlands, upper montane coniferous forest, and valley and foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Golden eagles are known to nest in Humboldt County, including near the Mad, Eel, Bear, and Mattole Rivers (CNDDB 2017). The species has been observed throughout the County (eBird 2017).
great gray owl *Strix nebulosa*	-	SE	Lower montane coniferous forest, old growth, subalpine coniferous forest, upper montane coniferous forest. Resident of mixed conifer or red fir forest habitat, in or on edge of meadows. Requires large diameter snags in a forest with high canopy closure, which provide a cool sub-canopy microclimate.	Great gray owl is a rare visitor to Humboldt County; however, the County is not within the typical range of this species. In 2017, a single great gray owl was observed in Redwood National and State Parks and in Aldergrove Marsh near the Mad River (eBird 2017). It is unlikely that great gray owl would breed or become a permanent resident within Humboldt County.
little willow flycatcher *Empidonax traillii brewsteri*	-	SE	Meadow and seep, riparian woodland. Mountain meadows and riparian habitats in the Sierra Nevada and Cascades Nests near the edges of vegetation clumps and near streams.	Little willow flycatcher has been observed in Humboldt County near Arcata, Blue Lake, and the Eel River (CNDDB 2017, eBird 2017). While this species is rare, it could occur within suitable riparian breeding habitat throughout Humboldt County.
marbled murrelet *Brachyramphus marmoratus*	FT	SE	Lower montane coniferous forest, old growth, redwood. Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas fir.	Marbled murrelet is known to occur in inland coniferous forests throughout Humboldt County, including Prairie Creek Redwoods State Park, Redwood National and State Park, the Headwaters Forest Reserve, and Humboldt Redwoods State Park (CNDDB 2017). Marbled murrelets have been observed along the entire Humboldt County coastline, but typically occur in the greatest concentrations offshore of areas with intact old growth forests (eBird 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
northern goshawk *Accipiter gentilis*	-	SSC	North coast coniferous forest, subalpine coniferous forest, upper montane coniferous forest. Within, and in vicinity of, coniferous forest. Uses old nests, and maintains alternate sites. Usually nests on north slopes, near water. Red fir, lodgepole pine, Jeffrey pine, and aspens are typical nest trees.	Northern goshawk is known to nest within Humboldt County, primarily within Six Rivers National Forest in the western portion of the county (CNDDB 2017). While northern goshawk has been observed near the coast, including near Redwood National and State Park, Arcata, and Cape Mendocino; most sightings have been inland near Six Rivers National Forest (eBird 2017).
northern spotted owl *Strix occidentalis caurina*	FT	ST SSC	North coast coniferous forest, old growth, redwood. Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests w/patches of big trees. High, multistory canopy dominated by big trees, many trees w/cavities or broken tops, woody debris and space under canopy.	Spotted owls have been observed nesting throughout Humboldt County, including within Redwood National and State Park, Humboldt Redwoods State Park, Six Rivers National Forest, and private land owned by Green Diamond Resource Company (CNDDB 2017, eBird 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
short-tailed albatross *Phoebastria albatrus*	FE	SSC	The largest bird in the North Pacific. Adapted to soaring low over the ocean. Breeds in Japan, and forages widely across the temperate and subarctic North Pacific.	Humboldt County is technically within the range of the short-tailed albatross, but nearest historic occurrence was in 1969, approximately 50 miles offshore of Crescent City in Del Norte County (eBird 2017). The species is largely pelagic, and is unlikely to occur near the Humboldt County coastline.

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
tricolored blackbird *Agelaius tricolor*	-	SC SSC	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	A historic tricolored blackbird colony was located in Fortuna near the Eel River; however, the colony was last active in 1997, and birds have not been observed during recent surveys (CNDDB 2017, UC Davis 2017). While this is the only documented nesting colony in Humboldt County, tricolored blackbirds have been observed recently, primarily within the Arcata Bottoms, the Arcata Marsh, Humboldt Bay, and near the Eel River (eBird 2017).
tufted puffin *Fratercula cirrhata*	-	SSC	Protected deepwater coastal communities. Open-ocean bird; nests along the coast on islands, islets, or (rarely) mainland cliffs. Requires sod or earth into which the birds can burrow, on island cliffs or grassy island slopes.	Historic tufted puffin breeding colonies occurred on Green, Blank, Flatiron, and Little River Rocks near Trinidad; and Sugarloaf near Cape Mendocino (CNDDB 2017). Puffin numbers have decreased in California throughout the 20th century, and breeding colonies in Humboldt County are likely no longer active, although puffins have been observed farther offshore (likely originating from a nearby colony on Castle Rock in Del Norte County, eBird 2017).
western snowy plover *Charadrius alexandrinus nivosus*	FT	SSC	Great Basin standing waters, sand shore, wetland. Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting.	Snowy plovers are known to nest along the coast of Humboldt County, especially Gold Bluffs Beach, Big Lagoon, Clam Beach, Mad River Beach, the south spit of Humboldt Bay, the Eel River Wildlife Area, and Centerville Beach (Colwell et al. 2013). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	Riparian forest. Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, w/ lower story of blackberry, nettles, or wild grape.	Western yellow-billed cuckoo has been observed near the Eel River (Cock Robin Island and near Ferndale), and in the Arcata Marsh (CNDDB 2017, eBird 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
white-tailed kite *Elanus leucurus*	-	FP	Cismontane woodland, marsh and swamp, riparian woodland, valley and foothill grassland, and wetlands. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	White-tailed kites are known to nest within Humboldt County, including recent records of nests near Eureka (CNDDB 2017). There have been many observations of white-tailed kite in Humboldt County, and most of observations have been near the coast with concentrations near Humboldt Bay and the Eel and Mad Rivers (eBird 2017).
Fish				
Chinook salmon - California coastal ESU *Oncorhynchus tshawytscha*	FT	-	Aquatic, Sacramento/San Joaquin flowing waters. Federal listing refers to wild spawned, coastal, spring and fall runs between Redwood Creek, Humboldt County and Russian River, Sonoma County.	This species is known to occur in Humboldt County within Redwood Creek, and the Van Duzen, Little, Mad, Elk, Bear, Eel, and Mattole Rivers and their tributaries (CNDDB 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
Chinook salmon - upper Klamath and Trinity Rivers ESU *Oncorhynchus tshawytscha*	-	SSC	Aquatic, Klamath/north coast flowing waters. Spring-run chinook in the Trinity River and the Klamath River upstream of the mouth of the Trinity River. Major limiting factor for juvenile chinook salmon is temperature, which strongly effects growth and survival.	In Humboldt County, this species is limited to the Trinity and Klamath rivers (CNDDB 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
coast cutthroat trout *Oncorhynchus clarkii clarkii*	-	SSC	Aquatic, Klamath/North coast flowing waters. Small coastal streams from the Eel River to the Oregon border. Small, low gradient coastal streams and estuaries. Need shaded streams with water temps <18C, and small gravel for spawning.	Coast cutthroat trout is known to occur within rivers, creeks, and other tributaries from the Del Norte County border to the Eel River in southern Humboldt County (CNDDB 2017). Suitable habitat is likely present within most flowing waters within Humboldt County.
Coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	FT	ST	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters. Federal listing refers to populations between Cape Blanco, Oregon, and Punta Gorda, Humboldt County, California. State listing refers to populations between the Oregon border and Punta Gorda, California.	Coho salmon in Humboldt County are known to occur within the Mad and Mattole Rivers and their tributaries (CNDDB 2017). Suitable habitat is likely present within most flowing waters within Humboldt County.
eulachon *Thaleichthys pacificus*	FT	-	Aquatic, Klamath/North coast flowing waters. Found in Klamath River, Mad River, Redwood Creek and in small numbers in Smith River and Humboldt Bay tributaries. Spawn in lower reaches of coastal rivers w/ moderate water velocities and bottom of pea-sized gravel, sand, and woody debris.	In Humboldt County, eulachon is known to occur in Redwood Creek, Mad River, and Humboldt Bay (CNDDB 2017). Suitable habitat is likely present within most flowing waters within Humboldt County.
green sturgeon *Acipenser medirostris*	FT	SSC	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters. The most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, and Trinity Rivers. Spawns at temps between 8-14 degrees C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	Green sturgeon has been observed within Humboldt Bay (CNDDB 2017). A spawning population has been confirmed within the Klamath/Trinity river system, and spawning likely also takes place within the Eel River. The species requires deep, fast water for spawning, and thus are most likely to be found in the mainstem of the Klamath and Trinity Rivers. However, green sturgeon could occur in larger, fast-moving tributaries to these rivers.
longfin smelt *Spirinchus thaleichthys*	FC	SSC	Aquatic, estuary. Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Longfin smelt are known to occur in Trinidad Bay, Humboldt Bay, and the Eel River (CNDDB 2017). Suitable habitat is likely present for this species within all estuarine waters in Humboldt County.
Lost River sucker *Deltistes luxatus*	FE	SE FP	Aquatic, Klamath/north coast flowing waters, Klamath/north coast standing waters. Native to the Lost River system in California and Oregon. Primarily a lake species found in fairly deep water. Adults run up tributary streams to spawn in the spring.	The nearest known occurrence of Lost River sucker is approximately 56 miles east of the Humboldt-Siskiyou County line within the Klamath River in Siskiyou County (CNDDB 2017). It is unlikely that this species would occur in Humboldt County.
shortnose sucker *Chasmistes brevirostris*	FE	SE FP	Aquatic, Klamath/north coast flowing waters. Native to the Klamath and Lost River systems in California and Oregon. Spend most of year in open waters of large lakes. They feed on plankton. Spawn in tributary streams.	The nearest known occurrence of Lost River sucker is approximately 58 miles east of the Humboldt-Siskiyou County line within Coyote Lake in Siskiyou County (CNDDB 2017). It is unlikely that this species would occur in Humboldt County.
summer-run steelhead trout *Oncorhynchus mykiss irideus*	-	SSC	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters. Northern California coastal streams south to Middle Fork Eel River. Within range of Klamath Mountains province DPS and Northern California DPS. Cool, swift, shallow water and clean loose gravel for spawning, and suitably large pools in which to spend the summer.	Steelhead are known to occur in Humboldt County within Bluff Creek, Red Cap Creek, Redwood Creek, and the Mad, Van Duzen, and Mattole Rivers (CNDDB 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
tidewater goby *Eucyclogobius newberryi*	FE	SSC	Aquatic, Klamath/north coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters. Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Tidewater goby is known to occur within brackish waters in Redwood Creek, Humboldt Lagoons State Park, Humboldt Bay, and the Eel River estuary (CNDDB 2017). Critical habitat for this species is present within the County (see "Critical Habitat" section below and Exhibit 3.4-5).
Invertebrates				
Behren's silverspot butterfly *Speyeria zerene behrensii*	FE	-	Coastal prairie. Restricted to the Pacific side of the Coast Ranges, from Point Arena to Cape Mendocino, Mendocino County. Inhabits coastal terrace prairie habitat. Foodplant is Viola sp.	One historic occurrence of Behren's silverspot butterfly was recorded in 1975 near Orick, but the species is now extirpated from Humboldt County entirely (CNDDB 2017).
Mammals				
American badger *Taxidea taxus*	-	SSC	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog a fen, brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	The range of American badger includes most of Humboldt County, but does not include the northwest corner of the County from Clam Beach to the Del Norte County border. There is one known occurrence of American badger in Humboldt County from 2007, near the Mattole River in open rangeland (CNDDB 2017). While the species is uncommon, it could occur within suitable open grassland, dune, and woodland habitat within Humboldt County.
fisher - West Coast DPS *Pekania pennanti*	FC	SSC	North coast coniferous forest, old growth, riparian forest. Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	The fisher is known to occur in Humboldt County, including within the Six Rivers National Forest, private land owned by Green Diamond Resource Company, the Hoopa Valley Reservation, Humboldt Redwoods State Park, and the King Range National Conservation Area (CNDDB 2017). This species could occur within suitable forest habitat throughout Humboldt County.
Humboldt marten *Martes caurina humboldtensis*	-	SC SSC	North coast coniferous forest, old growth, redwood. Occurs only in the coastal redwood zone from the Oregon border south to Sonoma County. Associated with late-successional coniferous forests, prefer forests with low, overhead cover.	The Humboldt marten is known to occur in Humboldt County, including within the Six Rivers National Forest, Redwood National and State Park, and Humboldt Redwoods State Park (CNDDB 2017). This species could occur within suitable forest habitat throughout Humboldt County.
pallid bat *Antrozous pallidus*	-	SSC	Chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, valley, and foothill grassland. Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	There are several historic records of pallid bat (1924 to 1971), including occurrences near Orick, Ferndale, and Richardson Grove State Park (CNDDB 2017). While the species is not abundant, it could occur within suitable habitat throughout Humboldt County.

Table 3.4-2 Special-status Wildlife Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]		Habitat	Occurrence in Humboldt County
	Federal	State		
Roosevelt elk *Cervus canadensis roosevelti*	-	-	Breed in open, brushy stands of many deciduous and conifer habitats with abundant water. Feed in riparian areas, meadows, and herbaceous and brush stages of forest habitats. Require mature stands of deciduous and conifer forest habitats. Dense brush understory is used for escape and cover. Herds are sedentary within an annual home range, or migrate altitudinally. During the rut (August-November), bulls defend movable breeding territories consisting of cow harems.	Several herds of Roosevelt elk can be found within Redwood National and State Park, from Freshwater Lagoon to the Klamath River. General locations include Gold Bluffs Beach, Prairie Creek Redwoods State Park, Elk Meadow, Lower Redwood Creek, the Orick Valley, and the Bald Hills.
Sonoma tree vole *Arborimus pomo*	-	SSC	North coast coniferous forest, old growth, redwood. North coast fog belt from Oregon border to Sonoma County. In Douglas fir, redwood, and montane hardwood-conifer forests. Feeds almost exclusively on Douglas fir needles. Will occasionally take needles of grand fir, hemlock, or spruce.	Sonoma tree vole is known to occur throughout Humboldt County, including within Prairie Creek Redwoods State Park, Six Rivers National Forest, and Humboldt Redwoods State Park (CNDDB 2017). This species could occur within suitable redwood, Douglas fir, or montane hardwood-conifer forests throughout Humboldt County.
Steller sea lion *Eumetopias jubatus*	FD	-	Marine intertidal and splash zone communities, protected deepwater coastal communities, rock shore. Breeds on Año Nuevo, San Miguel and Farallon islands, Pt. St. George, and Sugarloaf. Hauls out on islands and rocks. Needs haulout and breeding sites with unrestricted access to water, near aquatic food supply and with no human disturbance.	Steller sea lions occur on rocky shoreline and offshore reef systems in Humboldt County. The largest breeding site in Humboldt County is Sugarloaf near Cape Mendocino; however, breeding also occurs on offshore rocks near Trinidad, and on Redding Rock west of Orick. Non-breeding Steller sea lions can be found along the coast throughout the County.
Townsend's big-eared bat *Corynorhinus townsendii*	-	SSC	Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran desert scrub. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. extremely sensitive to human disturbance.	Townsend's big-eared bat is known to occur in the Hoopa Valley Reservation, Six Rivers National Forest, Grizzly Creek Redwoods State Park, the King Range National Conservation Area, near the Mad, Van Duzen, Elk, and Eel Rivers (CNDDB 2017). This species could occur within suitable habitat throughout Humboldt County.
white-footed vole *Arborimus albipes*	-	SSC	North coast coniferous forest, redwood, riparian forest. Mature coastal forests in Humboldt and Del Norte Counties. Prefers areas near small, clear streams with dense alder and shrubs. Occupies the habitat from the ground surface to the canopy. Feeds in all layers and nests on the ground under logs or rock	White-footed vole has been recorded within Humboldt County in Trinidad and near the Mad River (CNDDB 2017). This species could occur within suitable habitat throughout Humboldt County.

Note: CNDDB = California Natural Diversity Database

[1] Legal Status Definitions

Federal:
FC Candidate
FD Delisted
FE Endangered (legally protected)
FT Threatened (legally protected)

State:
FP Fully protected (legally protected)
SC Candidate
SD Delisted
SE Endangered (legally protected)
SSC Species of special concern (no formal protection other than CEQA consideration)
ST Threatened (legally protected)

Source: CNDDB 2017; eBird 2017; USFWS 2017

Special-Status Plants

A total of 91 special-status plant species occur within Humboldt County (Table 3.4-3).

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
pink sand-verbena *Abronia umbellata* var. *breviflora*	-	-	1B.1	Coastal dunes and coastal strand. Foredunes and interdunes with sparse cover. Usually the plant closest to the ocean. 0 to 33 ft in elevation. Blooms June-October.
scabrid alpine tarplant *Anisocarpus scabridus*	–		1B.3	Upper montane coniferous forest. Open stony ridges, metamorphic scree slopes of mountain peaks, and cliffs in or near red fir forest. 5,413 to 7,546 ft in elevation. Blooms July-September.
McDonald's rockcress *Arabis mcdonaldiana*	FE	SE	1B.1	Lower montane coniferous forest, ultramafic, upper montane coniferous forest. Rocky outcrops, ridges, slopes, and flats on serpentine. 443 to 5,906 ft in elevation. Blooms May-July.
Konocti manzanita *Arctostaphylos manzanita* ssp. *elegans*	-	-	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Volcanic soils. 738 to 6,004 ft in elevation. Blooms January-July.
Humboldt milk-vetch *Astragalus agnicidus*	-	SE	1B.1	Broadleafed upland forest, north coast coniferous forest. Disturbed openings in partially timbered forest lands; also along ridgelines; south aspects. 525 to 2,198 ft in elevation. Blooms April-September.
coastal marsh milk-vetch *Astragalus pycnostachyus* var. *pycnostachyus*	-	-	1B.2	Wetland. Coastal dunes, marshes and swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes. 0 to 509 ft in elevation. Blooms April-October.
Bald Mountain milk-vetch *Astragalus umbraticus*	-	-	2B.3	Cismontane woodland, lower montane coniferous forest. Dry open oak and pine woodlands; sometimes on roadsides. 689 to 4,003 ft in elevation. Blooms May-August.
Bensoniella *Bensoniella oregona*	-	-	1B.1	Wetland. Bogs and fens, lower montane coniferous forest, meadows, and seeps. Wet meadows and openings in forest. 3,084 to 4,560 ft in elevation. Blooms May-July.
twisted horsehair lichen *Bryoria spiralifera*	-	-	1B.1	North coast coniferous forest. Usually on conifers. 0 to 98 ft in elevation.
buxbaumia moss *Buxbaumia viridis*	-	-	2B.2	Lower montane coniferous forest, upper montane coniferous forest, subalpine coniferous forest. Well-rotted logs and in peaty soil and humus. 3,199 to 7,218 ft in elevation.
Thurber's reed grass *Calamagrostis crassiglumis*	-	-	2B.1	Wetland. Coastal scrub, marshes, and swamps. Usually in marshy swales surrounded by grassland or coastal scrub. 16 to 164 ft in elevation. Blooms May-August.
small-flowered calycadenia *Calycadenia micrantha*	-	-	1B.2	Ultramafic. Chaparral, valley and foothill grassland, meadows, and seeps. Rocky talus or scree; sparsely vegetated areas. occasionally on roadsides; sometimes on serpentine. 1,427 to 4,610 ft in elevation. Blooms June-September.
seaside bittercress *Cardamine angulata*	-	-	2B.1	Wetland. North coast coniferous forest, lower montane coniferous forest. Wet areas, streambanks. 295 to 509 ft in elevation. Blooms January-July.
northern clustered sedge *Carex arcta*	-	-	2B.2	Wetland. Bogs and fens, north coast coniferous forest. Mesic sites. 197 to 4,610 ft in elevation. Blooms June-September.
lagoon sedge *Carex lenticularis* var. *limnophila*	-	-	2B.2	Bogs and fens, marshes and swamps, north coast coniferous forest. Lakeshores, beaches. Often in gravelly substrates. 0 to 20 ft in elevation. Blooms June-August.

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
bristle-stalked sedge *Carex leptalea*	-	-	2B.2	Wetland. Bogs and fens, meadows and seeps, marshes, and swamps. Mostly known from bogs and wet meadows. 10 to 4,577 ft in elevation. Blooms March-July.
Lyngbye's sedge *Carex lyngbyei*	-	-	2B.2	Wetland. Marshes and swamps (brackish or freshwater). 0 to 656 ft in elevation. Blooms April-August.
northern meadow sedge *Carex praticola*	-	-	2B.2	Wetland. Meadows and seeps. Moist to wet meadows. 49 to 10,499 ft in elevation. Blooms May-July.
deceiving sedge *Carex saliniformis*	-	-	1B.2	Wetland. Coastal prairie, coastal scrub, meadows and seeps, marshes, and swamps (coastal salt). Mesic sites. 10 to 755 ft in elevation. Blooms June-July.
green yellow sedge *Carex viridula* ssp. *viridula*	-	-	2B.3	Wetland. Bogs and fens, marshes, and swamps (freshwater), north coast coniferous forest. Mesic sites. 0 to 5,594 ft in elevation. Blooms June-November.
Humboldt Bay owl's-clover *Castilleja ambigua* var. *humboldtiensis*	-	-	1B.2	Salt marsh, Wetland. Marshes and swamps. In coastal saltmarsh with *Spartina*, *Distichlis*, *Salicornia*, *Jaumea*. 0 to 66 ft in elevation. Blooms April-August.
Oregon coast paintbrush *Castilleja litoralis*	-	-	2B.2	Coastal bluff scrub, coastal dunes, coastal scrub. Sandy sites. 16 to 837 ft in elevation. Blooms June.
Mendocino Coast paintbrush *Castilleja mendocinensis*	-	-	1B.2	Coastal bluff scrub, coastal scrub, coastal prairie, closed-cone coniferous forest, coastal dunes. Often on sea bluffs or cliffs in coastal bluff scrub or prairie. 0 to 525 ft in elevation. Blooms April-August.
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *palustre*	-	-	1B.2	Salt marsh, Wetland. Coastal salt marsh. Usually in coastal salt marsh with *Salicornia*, *Distichlis*, *Jaumea*, *Spartina*, etc. 0 to 377 ft in elevation. Blooms June-October.
Whitney's farewell-to-spring *Clarkia amoena* ssp. *whitneyi*	-	-	1B.1	Coastal bluff scrub, coastal scrub. 33 to 328 ft in elevation. Blooms June-August.
round-headed Chinese-houses *Collinsia corymbosa*	-	-	1B.2	Coastal dunes. 33 to 98 ft in elevation. Blooms April-June.
bunchberry *Cornus canadensis*	-	-	2B.2	North coast coniferous forest, bogs and fens, meadows, and seeps. 295 to 6,299 ft in elevation. Blooms May-July.
naked flag moss *Discelium nudum*	-	-	2B.2	Coastal bluff scrub. Moss that grows on moist silty clay to fine sandy banks in somewhat shaded sites. 33 to 164 ft in elevation.
black crowberry *Empetrum nigrum*	-	-	2B.2	Coastal bluff scrub, coastal prairie. 10 to 49 ft in elevation. Blooms April-June.
Oregon fireweed *Epilobium oreganum*	-	-	1B.2	Ultramafic. Bogs and fens, lower montane coniferous forest, upper montane coniferous forest. In and near springs and bogs; at least sometimes on serpentine. 1,640 to 7,349 ft in elevation. Blooms June-September.
Waldo daisy *Erigeron bloomeri* var. *nudatus*	-	-	2B.3	Ultramafic. Lower montane coniferous forest, upper montane coniferous forest. In open areas on dry rocky outcrops on serpentine. 2,395 to 5,709 ft in elevation. Blooms June-July.
Mad River fleabane daisy *Erigeron maniopotamicus*	-	-	1B.2	Meadows and seeps (open and dry), lower montane coniferous forest. Open slopes, disturbed areas (road cuts); tan-colored, rocky soils. 4,199 to 4,938 ft in elevation. Blooms May-August.

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
bluff wallflower *Erysimum concinnum*	-	-	1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Coastal generalist within coastal habitat types. 10 to 197 ft in elevation. Blooms February-July.
Menzies' wallflower *Erysimum menziesii*	FE	SE	1B.1	Coastal dunes. Localized on dunes and coastal strand. 3 to 82 ft in elevation. Blooms March-September.
pink-margined monkeyflower *Erythranthe trinitiensis*	-	-	1B.3	Ultramafic. Lower montane coniferous forest, upper montane coniferous forest, cismontane woodland, meadows, and seeps. Often on serpentine and roadsides. 4,495 to 6,398 ft in elevation. Blooms June-August.
giant fawn lily *Erythronium oregonum*	-	-	2B.2	Ultramafic. Cismontane woodland, meadows, and seeps. Openings. Sometimes on serpentine; rocky sites. 984 to 4,708 ft in elevation. Blooms March-July.
coast fawn lily *Erythronium revolutum*	-	-	2B.2	Wetland. Bogs and fens, broad-leafed upland forest, north coast coniferous forest. Mesic sites; streambanks. 197 to 4,610 ft in elevation. Blooms March-August.
wayside aster *Eucephalus vialis*	-	-	1B.2	Lower montane coniferous forest, upper montane coniferous forest. Gravelly substrates. 1,952 to 4,938 ft in elevation. Blooms June-September.
minute pocket moss *Fissidens pauperculus*	-	-	1B.2	Redwood. North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and stream banks. 33 to 3,360 ft in elevation.
Klamath gentian *Gentiana plurisetosa*	-	-	1B.3	Wetland. Meadows and seeps, upper montane coniferous forest, lower montane coniferous forest. Meadows in red fir and yellow pine forests; mesic sites. 3,937 to 6,234 ft in elevation. Blooms July-September.
Pacific gilia *Gilia capitata* ssp. *pacifica*	-	-	1B.2	Coastal bluff scrub, chaparral, coastal prairie, valley, and foothill grassland. 16 to 4,413 ft in elevation. Blooms April-August.
dark-eyed gilia *Gilia millefoliata*	-	-	1B.2	Coastal dunes. 3 to 197 ft in elevation. Blooms April-July.
American manna grass *Glyceria grandis*	-	-	2B.3	Wetland. Bogs and fens, meadows and seeps, marshes, and swamps. Wet meadows, ditches, streams, and ponds, in valleys and lower elevations in the mountains. 197 to 6,709 ft in elevation. Blooms June-August.
buttercup-leaf suksdorfia *Hemieva ranunculifolia*	-	-	2B.2	Wetland. Upper montane coniferous forest, meadows, and seeps. Mesic sites; rocky. 4,921 to 8,202 ft in elevation. Blooms June-August.
short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	-	-	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats. 0 to 705 ft in elevation. Blooms March-June.
Yolla Bolly Mountains bird's-foot trefoil *Hosackia yollabolliensis*	-	-	1B.2	Upper montane coniferous forest, meadows, and seeps. 5,184 to 7,005 ft in elevation. Blooms June-August.
water howellia *Howellia aquatilis*	FT	-	2B.2	Wetland. Freshwater marshes and swamps. In clear ponds with other aquatics and surrounded by ponderosa pine forest and sometimes riparian associates. 3,593 to 4,528 ft in elevation. Blooms June.
California globe mallow *Iliamna latibracteata*	-	-	1B.2	North Coast coniferous forest, chaparral, lower montane coniferous forest, riparian scrub (streambanks). Seepage areas in silty clay loam. 197 to 6,562 ft in elevation. Blooms June-August.
Dudley's rush *Juncus dudleyi*	-	-	2B.3	Wetland. Lower montane coniferous forest (mesic). Wet areas in forest. 1,493 to 6,562 ft in elevation. Blooms July-August.

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
Sierra rush *Juncus nevadensis* var. *inventus*	-	-	2B.2	Wetland. Bogs and fens. 0 to 33 ft in elevation. Blooms July-November.
small groundcone *Kopsiopsis hookeri*	-	-	2B.3	North coast coniferous forest. Open woods, shrubby places, generally on *Gaultheria shallon*. 394 to 4,708 ft in elevation. Blooms April-August.
perennial goldfields *Lasthenia californica* ssp. *macrantha*	-	-	1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. 16 to 607 ft in elevation. Blooms January-November.
two-flowered pea *Lathyrus biflorus*	-	-	1B.1	Ultramafic. Lower montane coniferous forest. Endemic to serpentine. 4,495 to 4,544 ft in elevation. Blooms June-August.
seaside pea *Lathyrus japonicus*	-	-	2B.1	Coastal dunes. 10 to 213 ft in elevation. Blooms May-August.
marsh pea *Lathyrus palustris*	-	-	2B.2	Wetland. Bogs and fens, lower montane coniferous forest, marshes and swamps, north coast coniferous forest, coastal prairie, coastal scrub. Moist coastal areas. 7 to 459 ft in elevation. Blooms March-August.
beach layia *Layia carnosa*	FE	SE	1B.1	Coastal dunes, coastal scrub. On sparsely vegetated, semi-stabilized dunes, usually behind foredunes. 0 to 98 ft in elevation. Blooms March-July.
Heckner's lewisia *Lewisia cotyledon* var. *heckneri*	-	-	1B.2	Lower montane coniferous forest. Rocky places. 738 to 6,890 ft in elevation. Blooms May-July.
western lily *Lilium occidentale*	FE	SE	1B.1	Wetland. Coastal scrub, freshwater marsh, bogs and fens, coastal bluff scrub, coastal prairie, north coast coniferous forest, marshes, and swamps. Well-drained, old beach washes overlain with wind-blown alluvium and organic topsoil; usually near margins of Sitka spruce (*Picea sitchensis*). 10 to 361 ft in elevation. Blooms June-July.
The Lassics lupine *Lupinus constancei*	-	-	1B.2	Ultramafic. Lower montane coniferous forest. Serpentine barrens. 4,921 to 6,562 ft in elevation. Blooms July.
South Fork Mountain lupine *Lupinus elmeri*	-	-	1B.2	Lower montane coniferous forest. 4,396 to 5,906 ft in elevation. Blooms June-August.
inundated bog-clubmoss *Lycopodiella inundata*	-	-	2B.2	Wetland. Bogs and fens, lower montane coniferous forest, marshes, and swamps. Peat bogs, muddy depressions, pond margins. 148 to 4,019 ft in elevation. Blooms June-September.
northern microseris *Microseris borealis*	-	-	2B.1	Wetland. Bogs and fens, meadows and seeps, lower montane coniferous forest. 148 to 3,510 ft in elevation. Blooms June-September.
woodnymph *Moneses uniflora*	-	-	2B.2	Broadleafed upland forest, North coast coniferous forest. 328 to 3,609 ft in elevation. Blooms May-August.
ghost-pipe *Monotropa uniflora*	-	-	2B.2	Broadleaved upland forest, north coast coniferous forest. Often under redwoods or western hemlock. 49 to 2,805 ft in elevation. Blooms June-September.
Howell's montia *Montia howellii*	-	-	2B.2	Wetland. Meadows and seeps, north coast coniferous forest, vernal pools. Vernally wet sites; often on compacted soil. 33 to 3,297 ft in elevation. Blooms February-May.
Kneeland Prairie pennycress *Noccaea fendleri* ssp. *californica*	FE		1B.1	Ultramafic. Coastal prairie. Serpentine rock outcrops. 2493 to 2690 ft in elevation. Blooms May-June.

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
Wolf's evening-primrose *Oenothera wolfii*	-	-	1B.1	Coastal bluff scrub, coastal dunes, coastal prairie, lower montane coniferous forest. Sandy substrates; usually mesic sites. 0 to 410 ft in elevation. Blooms May-October.
seacoast ragwort *Packera bolanderi* var. *bolanderi*	-	-	2B.2	Coastal scrub, north coast coniferous forest. Sometimes along roadsides. 98 to 3,002 ft in elevation. Blooms January-August.
white-flowered rein orchid *Piperia candida*	-	-	1B.2	Ultramafic. North coast coniferous forest, lower montane coniferous forest, broad-leafed upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg. 148 to 5,299 ft in elevation. Blooms March-September.
Oregon polemonium *Polemonium carneum*	-	-	2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. 0 to 6,004 ft in elevation. Blooms April-September.
dwarf alkali grass *Puccinellia pumila*	-	-	2B.2	Wetland. Marshes and swamps. Mineral spring meadows and coastal salt marshes. 3 to 33 ft in elevation. Blooms July.
angel's hair lichen *Ramalina thrausta*	-	-	2B.1	North coast coniferous forest. On dead twigs and other lichens. 246 to 1,411 ft in elevation.
Tracy's romanzoffia *Romanzoffia tracyi*	-	-	2B.3	Coastal bluff scrub, coastal scrub. Rocky sites. 49 to 984 ft in elevation. Blooms March-May.
Columbia yellow cress *Rorippa columbiae*	-	-	1B.2	Wetland. Meadows and seeps, playas, vernal pools, lower montane coniferous forest. Moist sandy soil, low gravelly river banks, basaltic lava slopes. 3,937 to 5,906 ft in elevation. Blooms May-September.
Gasquet rose *Rosa gymnocarpa* var. *serpentina*	-	-	1B.3	Ultramafic. Chaparral, cismontane woodland. Serpentinite. Often on roadsides, sometime on ridges, streambanks, and in openings. 1,198 to 7,316 ft in elevation. Blooms April-August.
great burnet *Sanguisorba officinalis*	-	-	2B.2	Ultramafic, wetland. Bogs and fens, meadows and seeps, broad-leafed upland forest, marshes and swamps, north coast coniferous forest, riparian forest. Rocky serpentine seepage areas and along stream. 16 to 4,593 ft in elevation. Blooms July-October.
water bulrush *Schoenoplectus subterminalis*	-	-	2B.3	Wetland. Marshes and swamps, bogs, and fens. Montane lake margins, in shallow water. 2,461 to 7,382 ft in elevation. Blooms June-September.
Cascade stonecrop *Sedum divergens*	-	-	2B.3	Alpine boulder and rock field. Rocky alpine slopes and cool cliffs. 5,003 to 7,661 ft in elevation. Blooms July-September.
Siskiyou checkerbloom *Sidalcea malviflora* ssp. *patula*	-	-	1B.2	Coastal bluff scrub, coastal prairie, north coast coniferous forest. Open coastal forest; roadcuts. 16 to 4,117 ft in elevation. Blooms May-August.
coast checkerbloom *Sidalcea oregana* ssp. *eximia*	-	-	1B.2	Wetland. Meadows and seeps, north coast coniferous forest, lower montane coniferous forest. Near meadows, in gravelly soil. 16 to 5,922 ft in elevation. Blooms June-August.
Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	-	-	1B.1	Cismontane woodland, valley, and foothill grassland. Openings in woodland or in grassland. 1,001 to 1,001 ft in elevation. Blooms June.
western sand-spurrey *Spergularia canadensis* var. *occidentalis*	-	-	2B.1	Wetland. Marshes and swamps (coastal salt marshes). 0 to 10 ft in elevation. Blooms June-August.
robust false lupine *Thermopsis robusta*	-	-	1B.2	Ultramafic. North coast coniferous forest, broadleafed upland forest. Ridgetops; sometimes on serpentine. 1,198 to 4,610 ft in elevation. Blooms May-July.

Table 3.4-3 Special-status Plant Species Known to Occur in Humboldt County and their Potential for Occurrence

Species	Regulatory Status[1]			Habitat
	Federal	State	CRPR	
beaked tracyina *Tracyina rostrata*	-	-	1B.2	Cismontane woodland, valley, and foothill grassland. Open grassy meadows within oak woodland and grassland habitats. 295 to 2,592 ft in elevation. Blooms May-June.
cylindrical trichodon *Trichodon cylindricus*	-	-	2B.2	Broadleafed upland forest, upper montane coniferous forest. Moss growing in openings on sandy or clay soils on roadsides, stream banks, trails or in fields. 164 to 4,921 ft in elevation.
little-leaved huckleberry *Vaccinium scoparium*	-	-	2B.2	Subalpine coniferous forest. Rocky, subalpine woods. Sometimes serpentine. 3,396 to 7,218 ft in elevation. Blooms June-August.
oval-leaved viburnum *Viburnum ellipticum*	-	-	2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. 705 to 4,593 ft in elevation. Blooms May-June.
alpine marsh violet *Viola palustris*	-	-	2B.2	Wetland. Coastal scrub, bogs, and fens. Swampy, shrubby places in coastal scrub or coastal bogs. 0 to 492 ft in elevation. Blooms March-August.

Notes: CRPR = California Rare Plant Rank; CNDDB = California Natural Diversity Database

[1] Legal Status Definitions

Federal:
FC Candidate (legally protected by ESA)
FE Endangered (legally protected by ESA)
FT Threatened (legally protected by ESA)

State:
SE Endangered (legally protected by CESA)

California Rare Plant Ranks:
1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)
2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

Threat Ranks
0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

Sources: CNDDB 2017; CNPS 2017; Calflora 2017

CRITICAL HABITAT

Critical habitat is a term defined and used in ESA. It refers to specific geographic areas designated by USFWS or NMFS that contain features essential to the conservation of an endangered or threatened species and that may require special management and protection. Critical habitat for seven species, including three fish and four birds, is present within Humboldt County (Exhibit 3.4-5). Standard 3432.3 of the Humboldt County General Plan identifies that critical habitat is sensitive, and that changes to this habitat could result in population-level effects on protected species.

- Marbled murrelet

  There are approximately 263,428 acres of critical habitat for marbled murrelet in Humboldt County. Critical habitat is located throughout the county, including within US Forest Service (USFS) land (Six Rivers National Forest), Bureau of Land Management (BLM) land (Headwaters Forest Reserve and King Range National Conservation Area), State and National Park land (Prairie Creek Redwoods, Humboldt Lagoons, Humboldt Redwoods, and Richardson Grove State Parks; and Redwood National and State Park), as well as county property (Van Duzen County Park).

Exhibit 3.4-5 **Critical Habitat**

- Western snowy plover

  There are approximately 2,567 acres of critical habitat for western snowy plover in Humboldt County. Critical habitat is located in Prairie Creek Redwoods State Park, Humboldt Lagoons State Park, Little River State Beach, Clam Beach County Park, Mad River Beach County Park, coastline from the Humboldt Bay south spit to the southern edge of Centerville Beach, and a portion of the Eel River near Fortuna.

- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)

  Approximately 4,909 acres of proposed critical habitat for western yellow-billed cuckoo are located along an approximately 9-mile stretch of the Eel River, from SR 101 to the mouth of the river. The critical habitat includes high-quality riparian habitat, including Cock Robin Island.

- Tidewater goby

  There are approximately 2,988 acres of critical habitat for tidewater goby in Humboldt County. Critical habitat is located within Humboldt Lagoons State Park, north Humboldt Bay and associated sloughs, Elk River, Humboldt Bay National Wildlife Refuge, and tributaries to the Eel River.

- Chinook salmon

  Approximately 738 miles of critical habitat for Chinook salmon occurs in Humboldt County, including Redwood Creek, Maple Creek, Big Lagoon, Little River, Mad River, Jacoby Creek, Freshwater Slough, Elk River, Salmon Creek, Eel River, Bear River, Mattole River, Bear Creek, and all associated tributaries and sloughs.

- Steelhead

  Approximately 1,327 miles of critical habitat for steelhead occurs in Humboldt County, including Redwood Creek, Maple Creek, Big Lagoon, Little River, Mad River, Jacoby Creek, Freshwater Slough, Elk River, Salmon Creek, Eel River, Van Duzen River, Bear River, Mattole River, Bear Creek, and all associated tributaries and sloughs.

- Northern spotted owl

  There are approximately 236,079 acres of critical habitat for northern spotted owl in Humboldt County. Critical habitat is located throughout the county, including Six Rivers National Forest, the King Range National Conservation Area, and private land owned by Green Diamond Resource Company and others between SR 299 and SR 36.

SENSITIVE NATURAL COMMUNITIES

Sensitive habitat types include those that are of special concern to CDFW, or that are afforded specific consideration through CEQA, Section 1602 of the California Fish and Game Code, the Porter-Cologne Act, and Section 404 of the CWA, as discussed in Section 3.4.1, “Regulatory Setting,” above. Sensitive habitats may be of special concern to regulatory agencies and conservation organizations for a variety of reasons, including their locally or regionally declining status, or because they provide important habitat to common and special-status species.

CDFW maintains a list of plant communities that are native to California. Within that list, CDFW identifies special-status plant communities (i.e., sensitive natural communities), which it defines as communities that are of limited distribution statewide or within a county or region, and are often vulnerable to environmental effects of projects. These communities may or may not contain special-status species or their habitat. Special-status plant communities are tracked in the CNDDB. Twelve sensitive natural communities were reported in the CNDDB and occur within the County (Exhibit 3.4-6).

North Central Coast Summer Steelhead Stream

In Humboldt County, north central coast summer steelhead stream is present within the Van Duzen and little Van Duzen Rivers. These waterways are also included within designated critical habitat for this species.

Klamath/North Coast Interior Headwater Fishless Stream

In Humboldt County, there are three headwater fishless streams, including Allen Creek, Leary Creek, and a small creek southeast of the Hoopa Valley Reservation; all within Six Rivers National Forest. Headwater fishless streams are important refuges for native amphibian species to breed without risk of predation by native and non-native fish.

Klamath/North Coast Rainbow Trout Stream

In Humboldt County, Klamath/north coast rainbow trout stream is present in Six Rivers National Forest, within the north fork of Red Cap Creek (a tributary to the Klamath River), and the east fork of Horse Linto Creek (a tributary to the Trinity River).

Klamath/North Coast Fall/Winter Run Chinook Salmon River

In Humboldt County, Klamath/north coast fall/winter run Chinook salmon river is present in Six Rivers National Forest within Red Cap Creek and Horse Linto Creek; tributaries to the Klamath and Trinity Rivers, respectively. These tributaries are not included within designated critical habitat for this species.

Northern Foredune Grassland

The state rarity ranking for northern foredune grassland is S1.1, or very threatened, with less than 2,000 acres remaining in California. Northern foredune grassland is present within the Lanphere Dunes Unit of the Humboldt Bay National Wildlife Refuge. Threats to this habitat within the County include the spread of invasive plants, such as European beachgrass (*Ammophila arenaria*), iceplant (*Carpobrotus chilensis*), and yellow bush lupine (*Lupinus arboreus*).

Coastal Terrace Prairie

Coastal terrace prairie is present within Humboldt County in Table Bluff Ecological Reserve, which is a terrace on the southern end of Humboldt Bay that is managed as an Ecological Reserve by CDFW. The state rarity ranking for coastal terrace prairie is S2.1, or very threatened, with less than 10,000 acres remaining in California. Coastal terrace prairies contain native grassland, and typically feature a large diversity of native wildflowers. The state and federally endangered western lily (*Lilium occidentale*) has been found within the Table Bluff Ecological Reserve, along with other special-status plants like Humboldt Bay owl's-clover (*Castilleja ambigua* var. *humboldtiensis*), Point Reyes salty bird's beak (*Chloropyron maritimum* ssp. *palustre*), and coast checkerbloom (*Sidalcea oregana* ssp. *eximia*).

Sphagnum Bog

Sphagnum bog habitat is present in Humboldt County in an area south of Big Lagoon. This habitat contains features like other wetland habitats and also contains accumulated organic material, including moss from the genus *Sphagnum*. Bogs also typically occur on acidic soils, and thus are associated with plant species that tolerate acidic conditions. The state rarity ranking for sphagnum bog habitat is S1.2, or threatened, with less than 2,000 acres remaining in California.

Northern Coastal Salt Marsh

Northern coastal saltmarsh is present in Humboldt County in several locations with brackish wetlands along Humboldt Bay and the Eel River estuary. The state rarity ranking for northern coastal salt marsh is S3.2, or threatened, with only 10,000 to 50,000 acres remaining in California. This habitat is associated with cord grass, pickleweed, and other plant species that tolerate brackish conditions. Northern coastal salt marsh habitats in Humboldt County are threatened by the spread of the invasive dense flowered cord grass.

Exhibit 3.4-6 **Sensitive Natural Communities in Humboldt County**

Coastal and Valley Freshwater Marsh

The state rarity ranking for coastal and valley freshwater marsh is S2.1, or very threatened, with less than 10,000 acres remaining in California. This habitat often contains cattails, bulrushes, and sedges; like freshwater emergent wetland habitat. Coastal valley and freshwater marsh habitat occurs in shallow, standing, or slow-moving water at the edges of aquatic features. Coastal and valley freshwater marsh habitat is present in Humboldt County near the Mattole River and within Dry Lagoon in Humboldt Lagoons State Park. Dry Lagoon was formerly a functional lagoon, but was drained in the 1900's in an attempt to convert the land for agricultural purposes.

Sitka Spruce Forest

Sitka spruce is a coastal species that occurs in Humboldt County, often in mixed stands with coast redwood. Old growth Sitka spruce-dominated forest stands occur within Redwood National and State Park, Patrick's Point State Park, and a coastal area near south Humboldt Bay (CNDDB 2017, Exhibit 3.4-4). Old growth Sitka spruce forests were historically harvested extensively because of the tree's importance for timber and paper production, and because of that, only remnants of old growth forests remain. The state rarity ranking for Sitka spruce forest is S1.1, or very threatened with less than 2,000 acres remaining in California.

Upland Douglas Fir Forest

Douglas fir occurs throughout Humboldt County (Calflora 2017); however, upland Douglas fir forest refers to old growth forests, or stands of Douglas fir that are greater than 200 years old. There are several occurrences of old growth Douglas fir forest within Humboldt County (CNDDB 2017). Features of old growth Douglas fir forests include presence of Douglas fir trees with diameter at breast height (DBH) of 40 inches or greater, coarse woody debris on the forest floor, and large snags or dead trees (Franklin and Spies 1991). The state rarity ranking for upland Douglas fir forest is S3.1, or very threatened, with only 10,000 to 50,000 acres remaining in California. There are likely old growth Douglas fir forest stands in Humboldt County in addition to those reported in the CNDDB (Exhibit 3.4-4).

Coastal Douglas Fir Western Hemlock Forest

Old growth Douglas fir forest (see "Upland Douglas Fir Forest" description above) that also includes western hemlock (*Tsuga heterophylla*) is present near the Mattole River in coastal southern Humboldt County (CNDDB 2017). The state rarity ranking for coastal Douglas fir and western hemlock forest is S2.1, or very threatened with less than 10,000 acres remaining in California.

INVASIVE PLANT SPECIES AND NOXIOUS WEEDS

An invasive plant is one that is not native to a region, but rather is introduced, and has a tendency to crowd out native vegetation and thereby adversely affect the wildlife that feeds on it. There are many invasive plant species in Humboldt County and they occur throughout several different habitat types (Humboldt County Weed Management Area 2010). Coastal dune habitats are adversely affected by plants such as European beachgrass (*Ammophila arenaria*), iceplant (*Carpobrotus edulis*), and yellow bush lupine (*Lupinus arboreus*), that disrupt natural dune processes by stabilizing the dunes. Aggressive noxious weeds such as gorse (*Ulex europaeus*), jubata grass (*Cortaderia jubata*), pampas grass (*C. selloana*), scotch broom (*Cystisus scoparius*), French broom (*Genista monspessulana*), and knapweed (*Centaurea* sp.) can invade grasslands and exclude native grassland species. Invasive plant species such as English ivy (*Hedera helix*), knotweed (*Fallopia* sp. and *Persicaria wallichii*), and tree of heaven (*Ailanthus altissima*) can invade forest habitats, and exclude native understory species. Wetland habitats in the County are adversely affected by invasive plants such as purple loosestrife (*Lythrum salicaria*), and dense-flowered cord grass which excludes native cord grass species.

WATERS OF THE UNITED STATES AND STATE

The County includes significant portions of the Klamath River, Trinity River, Mad River, Van Duzen River, Mattole River, Eel River, Bear River, and Redwood Creek watersheds, and their tributaries (Exhibit 3.4-1).

Other major aquatic features within the County include Big Lagoon, Stone Lagoon, Freshwater Lagoon (all three within Humboldt Lagoons State Park), and Humboldt Bay. Humboldt Bay is the second largest estuarine system in California with an area of approximately 25 square miles. Many of these aquatic features have nearby associated wetland habitat, including saline and freshwater wetlands, and approximately 36,500 acres of sensitive riparian habitat (*See* section "Land Cover Types").

WILDLIFE MOVEMENT CORRIDORS

Humboldt County contains several large areas of relatively undisturbed wildlife habitat, including protected forest within Six Rivers National Forest, Redwood National and State Parks (among various other state parks in the County), the King Range National Conservation Area, and the major river systems throughout the county. While several rivers, including the Trinity, Klamath, and Mad Rivers are dammed, the dams do not affect the habitat connectivity within the County, as most major dams are located within Trinity County, Lake County, and the upper Klamath River basin. Critical mule deer winter habitat is present in the County, including CDFW's North Coast and Klamath Mountains and Cascade Range Deer Conservation Units (CDFW 2015, Exhibit 3.4-6).

Some of these important areas were mapped as Essential Connectivity Areas (ECA) for the California Essential Habitat Connectivity Project, which was commissioned by the California Department of Transportation (Caltrans) and CDFW with the purpose of making transportation and land-use planning more efficient and less costly, while helping reduce dangerous wildlife-vehicle collisions (Spencer et al., 2010, Exhibit 3.4-7). The ECAs were not developed for the purposes of defining areas subject to specific regulations by CDFW or other agencies. As shown in Exhibit 3.4-7, ECAs occur within large portions of Humboldt County, especially within the interior portion of the County. The ECAs are not regulatory delineations and are identified as lands likely important to wildlife movement between large, mostly natural areas at the statewide level. The ECAs form a functional network of wildlands that are important to the continued support of California's diverse natural communities.

HABITAT CONSERVATION PLANS

Currently, there are five HCPs within Humboldt County including two implemented by Green Diamond Resource (formerly Simpson Timber) Company, one implemented by Humboldt Redwood (formerly Pacific Lumber) Company, one by the Humboldt Bay Municipal Water District, and one by Regli Estates (Exhibit 3.4-8; Green Diamond Resource Company 1992, 2006; Humboldt Redwood Company 2014, Humboldt Bay Municipal Water District 2004, Regli Estates 1995). Green Diamond Resource Company has one HCP to cover impacts to aquatic species, and another to cover impacts to northern spotted owl. All three HCPs include issuance of incidental take permits for species covered under ESA or CESA.

Green Diamond Resource Company

Green Diamond Resource Company's aquatic species HCP (Green Diamond Resource Company 2006) was intended to conserve habitat for and mitigate impacts on six aquatic species within several hundred thousand acres of Green Diamond property, including Chinook salmon, Coho salmon, steelhead and residential rainbow trout, coast cutthroat trout, Pacific tailed frog, and southern torrent salamander. Covered activities under the aquatic HCP include timber operations and related management activities on Green Diamond property.

Green Diamond Resource Company's northern spotted owl HCP (Green Diamond Resource Company 1992, 2007) was intended to conserve habitat for and mitigate impacts on northern spotted owl within several hundred thousand acres of Green Diamond property. The HCP includes implementation of several mitigation measures to achieve this goal, including habitat management, nest site protection, pre-harvest nest surveys, a spotted owl research program (e.g., nest surveys, reproductive monitoring, banding, habitat modeling), habitat set-asides, and employee/contractor training.

Exhibit 3.4-7 **Essential Connectivity Areas**

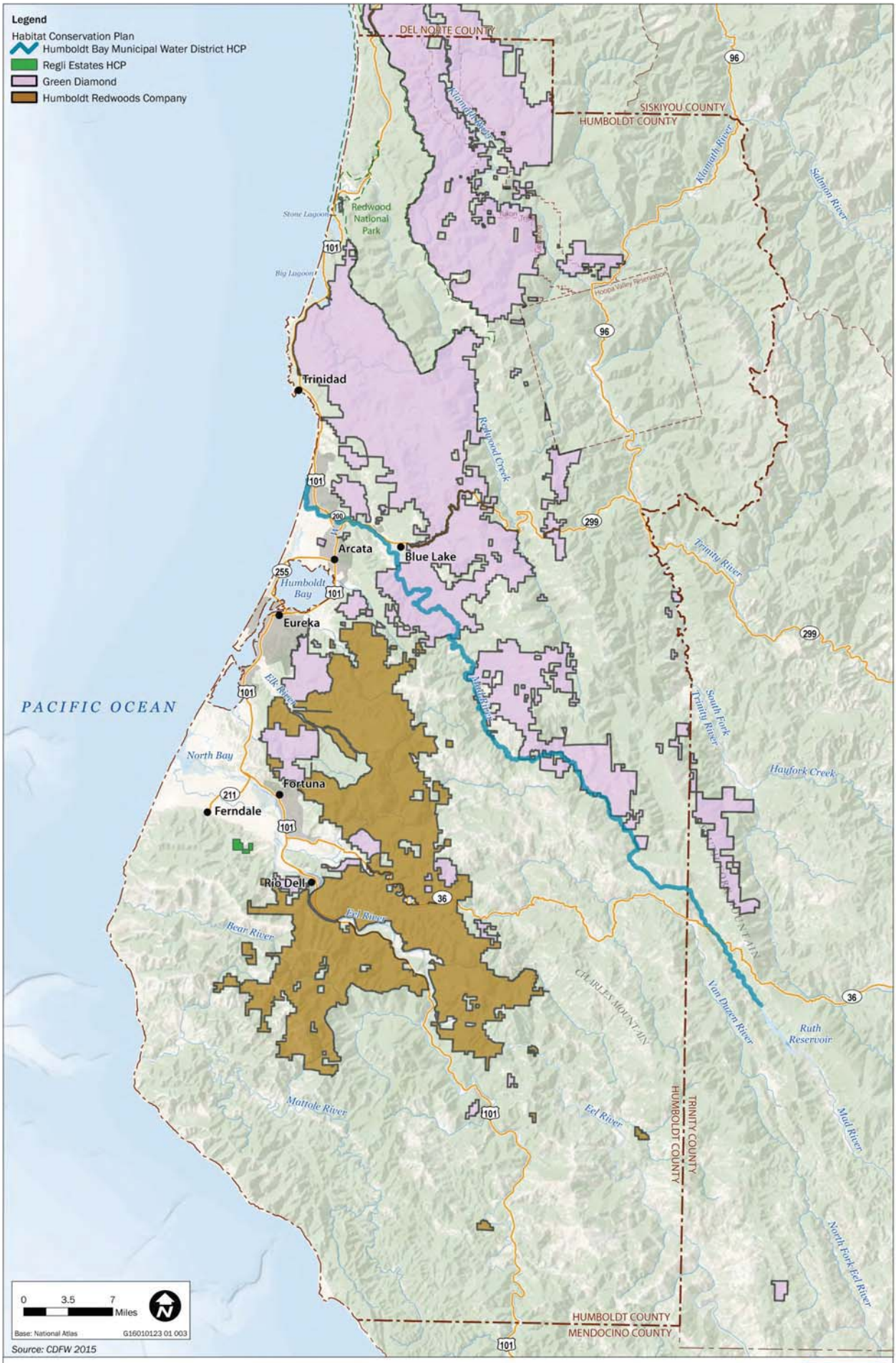

Exhibit 3.4-8 **Habitat Conservation Plan Areas in Humboldt County**

Humboldt Redwood Company

Humboldt Redwood Company's HCP (Humboldt Redwood Company 2014) focuses on impacts to marbled murrelet, northern spotted owl, coho salmon, Chinook salmon, coast cutthroat trout, steelhead, bald eagle, American peregrine falcon, western snowy plover, bank swallow, pacific fisher, red tree vole (*Arborimus longicaudus*), northern red-legged frog, foothill yellow-legged frog, tailed frog, southern torrent salamander, western pond turtle, and special-status plants. Covered activities under the HCP include timber management; maintenance, improvement, construction and closure of roads and landings; and operation of commercial rock quarries. Mitigation and minimization measures within the HCP focus mainly on habitat conservation and monitoring.

Humboldt Bay Municipal Water District

The Humboldt Bay Municipal Water District (HBMWD) HCP (Humboldt Bay Municipal Water District 2004) covers flow release and management, diversion, maintenance, and excavation activities by HBMWD within the Mad River from the river mouth to Matthews Dam in Trinity County. Covered species under the HCP include Chinook salmon, coho salmon, steelhead trout, and coast cutthroat trout.

Regli Estates

The Regli Estates HCP (Regli Estates 1995) covers approximately 500 acres of a private inheritance property in Humboldt County. Covered activities under the HCP include forest management, and covered species include marbled murrelet, northern spotted owl, bald eagle, and American peregrine falcon. The HCP covered incidental take for these species for 20 years.

EXISTING STRESSORS ON BIOLOGICAL RESOURCES IN HUMBOLDT COUNTY

Historic and modern development in Humboldt County that has resulted in adverse effects to natural resources in the region includes timber harvest (beginning in the mid-19th century), watershed alteration because of dam construction, mining, agricultural activities, urban development, and introduction of invasive plant and wildlife species. More recently, illegal cannabis cultivation operations within public and private lands have led to illegal water diversions, unpermitted removal of sensitive vegetation, and direct mortality to protected species from exposure to rodenticides and insecticides (Gabriel et al. 2012 and 2013). The magnitude of impacts from illegal cannabis operations to wildlife and plant species are difficult to fully quantify due to the clandestine nature of the sites.

3.4.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The analysis of potential impacts to biological resources resulting from project implementation under the proposed ordinance is based on the data review described previously in Section 3.4.2, "Environmental Setting." Potential cannabis operations under the proposed ordinance would not occur in the marine or estuarine environments within Humboldt County, nor in the incorporated areas of the county, including Trinidad, Eureka, Arcata, Blue Lake, Fortuna, Ferndale, and Rio Dell. The proposed ordinance also does not apply to tribal lands, or public lands managed by USFS, national and state parks, BLM, USFWS, or CDFW. Impact mechanisms for development under the proposed ordinance could include clearing of native vegetation; ground disturbance from construction of storage ponds, installation of irrigation systems, road construction, fencing, planting, and harvest activities; and operation of artificial lights and generators. Project implementation under the proposed ordinance may include conversion natural habitats. The reader is referred to Chapter 2, "Project Description," for a further description of foreseeable compliance responses to the proposed ordinance.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS;
- have a substantial adverse effect on federally protected waters of the United States, including wetlands, as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or
- substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

ISSUES NOT DISCUSSED FURTHER

Special-Status Species

Seven special-status wildlife species that were identified as having potential to occur within the County were determined to be unlikely to occur County upon review of species range and occurrence records. These species include black swift (*Cypseloides niger*), great gray owl (*Strix nebulosa*), Ridgway's rail (*Rallus longirostris obsoletus*), short-tailed albatross (*Phoebastria albatrus*), Lost River sucker (*Deltistes luxatus*), shortnose sucker (*Chasmistes brevirostris*), and Behren's silverspot butterfly (*Speyeria zerene behrensii*). Three additional marine species, including fork-tailed storm-petrel (*Oceanodroma furcata*), tufted puffin (*Fratercula cirrhata*), and Steller sea lion (*Eumetopias jubatus*) occur only within marine habitats, and therefore would not be subject to future development under the proposed ordinance. These species are not discussed further.

Consistency with Habitat Conservation Plans

The HCPs within the County are implemented by Green Diamond Resource Company, Humboldt Redwood Company, HBMWD, and the Regli Estate. Covered activities under these HCPs include timber harvest, other activities related to timber harvest including road construction and maintenance, and management of the Mad River (HBMWD). The HCPs cover activities conducted by private and municipal entities on mostly private land (Exhibit 3.4-8). Cannabis operations under the proposed ordinance do not qualify as covered activities under these HCPs. This issue is not discussed further.

IMPACT ANALYSIS

Impact 3.4-1: Disturbance to or loss of special-status wildlife species and habitat.

Potential land use conversion and development that may occur under the proposed ordinance could adversely affect several special-status wildlife species, including reptiles, amphibians, nesting birds, and mammals. Project implementation may include ground disturbance, vegetation removal, and overall conversion of wildlife habitat, which could result in the disturbance or loss of individuals and reduced breeding productivity of these species. Special-status wildlife species are protected under ESA, CESA, California Fish and Game Code, CEQA, or other regulations. The loss of special-status wildlife species and their habitat would be a **potentially significant** impact.

A total of 35 special-status wildlife species were identified as having potential to occur in County, including reptiles, amphibians, nesting birds, and mammals (Table 3.4-2). Conversion of wildlife habitat, ground disturbance, and vegetation removal as part of project implementation could result in the disturbance or loss special-status wildlife, if they are present. Potential effects of project implementation on special-status wildlife species known of with potential to occur within the County are discussed below.

Special-Status Amphibians

Foothill yellow-legged frog, northern red-legged frog, Pacific tailed frog, red-bellied newt, and southern torrent salamander are all CDFW species of special concern. Foothill yellow-legged frog, northern red-legged frog, Pacific tailed frog, and southern torrent salamander occur throughout the County, within suitable aquatic habitat (CNDDB 2017). Red-bellied newt occurs only in the southern portion of Humboldt County, within the Mattole River system (CNDDB 2017). Several performance standards related to water storage are included in the proposed ordinance, such as adequate storage pond setbacks from streams and wetlands, and escape pathways for wildlife. New cannabis-related development under the proposed ordinance could result in the loss of / injury to special-status amphibians, if the species occur at the site, through disturbance to suitable habitat during ground disturbance activities, such as construction of storage ponds and installation cultivation sites. This would be a **potentially significant** impact.

Mitigation 3.4-1a: Special-status amphibian preconstruction surveys and relocation.

The following shall be included as performance standards in the proposed ordinance for the protection of special-status amphibian species from new development related to cannabis activities.

- Forty-eight hours prior to proposed new development activities within 200 feet of any SMA or Other Wet Area, a preconstruction survey for special-status amphibians shall be conducted by a qualified biologist. The biologist shall be familiar with the life cycle of foothill yellow-legged frog, northern red-legged frog, Pacific tailed-frog, red-bellied newt, and southern torrent salamander, and will conduct appropriate surveys for the applicable life stages (i.e., eggs, larvae, adults).

- Preconstruction surveys for special-status amphibian species shall be conducted throughout the proposed construction area and a 400-foot buffer around the proposed development area. Surveys shall consist of “walk and turn” surveys of areas beneath surface objects (e.g., rocks, leaf litter, moss mats, coarse woody debris) for newts and salamanders, and visual searches for frogs.

- If red-bellied newt or southern torrent salamander or special status frogs are detected during the preconstruction survey, the proposed development area shall be relocated to be no closer than 200 feet from the occurrence(s) measured as a horizontal line perpendicular to, and moving away from, the SMA.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1a would reduce potential impacts on special-status amphibians to a **less-than-significant** level by requiring preconstruction surveys and the protection of special-status frogs,

newts, and salamanders from construction-related injury, mortality, or other disturbance when new cannabis facilities are developed near aquatic habitat.

Western Pond Turtle

Western pond turtle is a CDFW species of special concern. This species can be found in many different aquatic habitats, including ponds (natural or human-made), marshes, rivers, and irrigation ditches. Western pond turtle uses upland habitat for basking and egg-laying. There are several known occurrences of western pond turtle within the County, including along the Trinity, Van Duzen, Elk, and Eel Rivers, and within ponds and lakes in the County (CNDDB 2017). Several performance standards related to water storage are included in the proposed ordinance, such as adequate storage pond setbacks from streams and wetlands, and escape pathways for wildlife. New cannabis-related development activities under the proposed ordinance could result in the loss of or injury to western pond turtles, if the species occurs on the site, through disturbance to upland habitat during vegetation removal or ground disturbance activities, or disturbance to wetland habitat during construction of water storage ponds and other features. This would be a **potentially significant** impact.

Mitigation 3.4-1b: Western pond turtle preconstruction surveys and relocation.

The following shall be included as a performance standard in the proposed ordinance for the protection of western pond turtle from new development related to cannabis activities.

- Within 24 hours before beginning proposed new development activities within 200 feet of SMA or Other Wet Area, a qualified biologist shall survey areas of anticipated disturbance for the presence of western pond turtle. If pond turtles are found during the survey the proposed development area shall be relocated to be no closer than 200 feet from the occurrence(s) measured as a horizontal line perpendicular to, and moving away from, the SMA.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1b would reduce potential impacts on western pond turtle to a **less-than-significant** level by requiring preconstruction surveys and the protection of western pond turtles from cannabis development-related injury, mortality, or other disturbance.

Nesting Raptors

The County contains suitable nesting habitat and many known nesting occurrences for several raptor species, including American peregrine falcon, bald eagle, golden eagle, northern goshawk, northern spotted owl, and white-tailed kite. Peregrine falcon, bald eagle, golden eagle, and white-tailed kite are fully protected under California Fish and Game Code. Bald eagle is also listed as endangered under CESA. Northern spotted owl is listed as threatened under ESA and CESA, and is also a CDFW species of special concern. Northern goshawk is a CDFW species of special concern. Suitable nesting habitat for these species includes trees, snags, cliffs, and human-made structures (e.g., utility poles). Critical habitat for northern spotted owl is present within the County (Exhibit 3.4-5). Large portions of this habitat area are in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance.

Project implementation associated with potential impacts to habitat and vegetation removal could disturb nesting raptors if they are present, potentially resulting in nest abandonment, nest failure, or mortality of chicks or eggs. Additionally, human presence associated with construction of cultivation sites, roads, and cultivation activities could result in increased noise and visual disturbance to nesting raptors. The potential loss of raptors and their nests would be a **potentially significant** impact.

Mitigation 3.4-1c: Nesting raptor preconstruction survey and establishment of protective buffers.

The following shall be included as performance standards in the proposed ordinance for the protection of nesting raptors from new development related to cannabis activities.

- To minimize the potential for loss of nesting raptors, tree removal activities shall only occur during the nonbreeding season (September 1-January 31.
- Prior to removal of any trees, or ground-disturbing activities between February 1 and August 31, a qualified biologist shall conduct preconstruction surveys for nesting raptors, and shall identify active nests within 500 feet of the proposed development area. The surveys shall be conducted between February 1 and August 31.
- Impacts to nesting raptors shall be avoided by establishing appropriate buffers around active nest sites identified during preconstruction raptor surveys. The buffer areas shall be protected with construction fencing, and no activity shall occur within the buffer areas until a qualified biologist has determined, in coordination with CDFW, that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. CDFW guidelines recommend implementation of a 500-foot buffer for raptors, but the size of the buffer may be adjusted if a qualified biologist and the applicant, in consultation with CDFW, determine that such an adjustment would not be likely to adversely affect the nest. Monitoring of the nest by a qualified biologist during and after construction activities will be required if the activity has potential to adversely affect the nest.
- Trees shall not be removed during the breeding season for nesting raptors unless a survey by a qualified biologist verifies that there is not an active nest in the tree.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1c would reduce significant impacts on nesting raptors a **less-than-significant** level because active raptor nests would be avoided and protected from construction activities.

Other Special-Status Bird Species

Several additional special-status bird species could occur in the County, including bank swallow, little willow flycatcher, tricolored blackbird, western snowy plover, and western yellow-billed cuckoo. Bank swallow is listed as threatened under CESA. Little willow flycatcher is listed as endangered under CESA. Tricolored blackbird is a CDFW species of special concern, and is currently protected under an emergency listing by the California Fish and Game Commission while a petition for listing under CESA is considered. Western snowy plover is listed as threatened under ESA, and is also a CDFW species of special concern. Western yellow-billed cuckoo is listed as threatened under ESA, and as endangered under CESA. Critical habitat for western yellow-billed cuckoo is present within the County (Exhibit 3.4-5).

Suitable habitat for these species, including riparian habitat, mudflats, river banks, and grasslands is present throughout the County (Exhibit 3.4-1, 3.4-2, and 3.4-3). The Humboldt County Code addresses impacts to stream and riparian habitat within the County's Coastal Zone (Section 313-33.1), and to riverbank habitat along the Mad and Eel Rivers specifically (Section 313-33.1.8), The regulations outlined in the Humboldt County Code restrict most development within these sensitive habitats, but allow for some development in these protected areas, such as road crossing, pipeline installation, and maintenance activities. These activities could result in adverse effects to bird species that use riparian and riverbank habitat. Removal of vegetation, especially riparian vegetation, as well of conversion of riparian, riverine, mudflat, and grassland habitats could disturb nesting birds if they are present, potentially resulting in nest abandonment, nest failure, or mortality of chicks or eggs. Additionally, human presence associated with construction of cultivation sites, roads, and cultivation activities could result in increased noise and visual disturbance to nesting birds. This would be a **potentially significant** impact.

Mitigation 3.4-1d: Special-status nesting bird surveys and establishment of protective buffers.

The following shall be included as performance standards in the proposed ordinance for the protection of bank swallow, little willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo from new development related to cannabis activities. This will apply to any commercial cannabis activity that would result in the disturbance or loss of riparian, riverine, mudflat, or grassland habitats.

- To minimize the potential for disturbance or loss of bank swallow, little willow flycatcher, tricolored blackbird, western snowy plover, western yellow-billed cuckoo, or other bird nests, vegetation removal activities shall only occur during the nonbreeding season (September 1-January 31). Alteration of or disturbance to suitable river bank habitat (i.e., for bank swallow nests) and mudflat habitat (i.e., for western snowy plover) is prohibited because of limited habitat availability for this species.

- Prior to removal of any vegetation or any ground disturbance between February 1 and August 31, a qualified biologist shall conduct preconstruction surveys for nests on any structure or vegetation slated for removal, as well as for potential tricolored blackbird nesting habitat. The surveys shall be conducted no more than 14 days before construction commences. If no active nests or bank swallow colonies are found during focused surveys, no further action under this measure will be required. If active nests are located during the preconstruction surveys, the biologist shall notify the Planning Director and CDFW. If deemed necessary by the Planning Director in consultation with CDFW, modifications to the project design to avoid removal of occupied habitat while still achieving project objectives may be required. If the Planning Director determines in consultation with CDFW that avoidance is not feasible or conflicts with project objectives, construction shall be prohibited within a minimum of 100 feet of the nest to avoid disturbance until the nest or colony is no longer active.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1d would reduce significant impacts to a **less-than-significant** level because bank swallow, little willow flycatcher, tricolored blackbird, western snowy plover, western yellow-billed cuckoo, and other bird nests would be avoided and protected from new development related to cannabis activities.

Marbled Murrelet

Marbled murrelet is listed as threatened under ESA and endangered under CESA. Marbled murrelet is known to occur in inland coniferous forests throughout Humboldt County, including Prairie Creek Redwoods State Park, Redwood National and State Park, the Headwaters Forest Reserve, and Humboldt Redwoods State Park (CNDDB 2017). Marbled murrelets have been observed along the entire Humboldt County coastline, but typically occur in the greatest concentrations offshore of areas with intact old growth forests (eBird 2017). Critical habitat for this species is present within the County (Exhibit 3.4-5). Large portions of this habitat area are in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance.

New cannabis-related development under the proposed ordinance could still include removal of trees, which could result in the loss of marbled murrelet habitat, or direct loss of or disturbance to nesting marbled murrelets, if they are present, potentially resulting in nest abandonment, nest failure, or mortality of chicks or eggs. Additionally, human presence associated with construction of cultivation sites, roads, and cultivation activities could result in increased noise and visual disturbance to nesting murrelets. This would be a **potentially significant** impact.

Mitigation 3.4-1e: Marbled murrelet preconstruction habitat suitability surveys and establishment of protective buffers.

The following shall be included as performance standards in the proposed ordinance for the protection of marbled murrelet from new development related to cannabis activities.

- To avoid the potential for loss of or disturbance to marbled murrelet nests and habitat, removal of old growth habitat shall be prohibited, as outlined in Mitigation Measure 3.4-3, Sensitive natural communities, riparian habitat, old growth habitat, and wetland vegetation.

- Prior to removal of any trees, or ground-disturbing activities adjacent or within suitable habitat for marbled murrelet between April 15 and August 5, a qualified biologist, familiar with the life history of the marbled murrelet, shall conduct preconstruction surveys for nests within a 0.25-mile buffer around the site as described in *Methods for Surveying Marbled Murrelets in Forests: A Revised Protocol for Land Management and Research* (Evans Mack et. al 2003).

- If marbled murrelets are determined to be absent from the site, then no further mitigation is required.

    - If marbled murrelets are determined to be present within the site, a 0.25-mile buffer will be established around occupied nest sites. No project activity may occur within the 0.25-mile buffer areas until the end of marbled murrelet breeding season (August 6).

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1e would reduce significant impacts to a **less-than-significant** level because disturbance of marbled murrelet would be avoided through preconstruction surveys and, if found, establishment of a protective buffer.

Effects of Generator Noise on Special-Status Species

While the proposed ordinance would limit the operation of generators for cannabis cultivation operations, it would not prohibit their operation. Generator sound can range from approximately 52 decibels for the low end of a residential generator, to approximately 84 decibels for the high end of an industrial generator (USFWS 2006). Effects of anthropogenic noise on wildlife species is an issue that is complex and poorly-understood. Anthropogenic noise can result in elevated stress levels in wildlife species, including the northern spotted owl (Hayward et al. 2011). Stress in wildlife species can cause reduced overall fitness and reduced reproductive success, which could have far-reaching consequences for special-status, or ESA and CESA listed species. Sound disturbance to marbled murrelets can lead to a behavioral response, which can draw attention of predators (e.g., Steller's jay, common raven) to their cryptic nests (Hebert et al. 2006). While there has been concern for listed species like northern spotted owl and marbled murrelet, other avian species are also likely adversely affected by anthropogenic noise. Disturbance to or loss of marbled murrelet or spotted owl because of exposure to excessive project-generated sound could be a **potentially significant** impact.

Mitigation 3.4-1f: Generator noise reduction.

The ordinance requires generators not to increase existing ambient noise levels at the property line of the site. In addition, the noise standards shall include the following standards to protect wildlife (USFWS 2006).

- Project-generated sound must not exceed ambient nesting conditions by 20-25 decibels.

- Project-generated sound, when added to existing ambient conditions, must not exceed 90 decibels.

- Time of day adjustment: Marbled murrelet and northern spotted owl are most active during dawn and dusk. Within approximately 2 hours of sunrise and sunset, ambient sound levels are lower than during the middle of the day (by approximately 5-10 decibels). This will be accounted for when determining impacts of project-generated sound.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1f would reduce significant impacts to a **less-than-significant** level because project-generated sound would not exceed levels known to result in disturbance to avian forest species, such as marbled murrelet and northern spotted owl. Disturbance to these species would be avoided.

Effects of Nighttime Artificial Light On Special-Status Species

Cannabis cultivation operations under the proposed ordinance would be allowed to utilize artificial lighting systems for indoor and mixed-light cultivation. Artificial light can adversely affect many different wildlife species, especially nocturnal animals, such as bats. Bat behavior is affected by moonlight, so changes in light cycles can lead to changes in bat foraging behavior, emergence, roosting, breeding, and hibernation (Stone et al. 2015). Artificial light can also result in changes in amphibian mating behavior (Baker and Richardson 2006), and within coastal areas, can attract seabirds leading to "grounding" and potential mortality (Troy et al. 2011). Under the proposed ordinance, artificial lighting used for mixed-light cultivation or nurseries in a greenhouse would be prohibited from allowing light escapes between sunset and sunrise and any security light would be required to be shielded to avoid spillover lighting on adjacent areas. This would avoid adverse levels of artificial light and avoid disturbance to wildlife species such as bats, amphibians, and birds and would reduce the impact to **less than significant**.

American Badger

American badger, which is a CDFW species of special concern, prefers open habitats with friable soils. Potentially suitable habitat within the County includes the approximately 221,921 acres of grassland, and 53,954 acres of agricultural habitat. American badgers do not typically occur within the northwest portion of Humboldt County, from approximately Humboldt Bay to the Humboldt-Del Norte County border. The only known occurrence of American badger within the County was from 2007, near the Mattole River. Future cannabis-related activities under the proposed ordinance could result in conversion of suitable habitat, vegetation removal, and ground-disturbance activities, which could cause the direct loss of badgers if currently occupying burrows within the site. Loss of American badger because of project construction activities would be a **potentially significant** impact.

Mitigation Measure 3.4-1g: American badger preconstruction survey and establishment of protective buffers.

The following shall be included as performance standards in the proposed ordinance for the protection of the American badger from new development related to cannabis activities.

- Prior to the commencement of construction activities, a qualified wildlife biologist shall conduct surveys of the suitable grassland or agricultural habitats slated for conversion within the site to identify any American badger burrows/dens. These surveys shall be conducted not more than 30 days prior to the start of construction. If occupied burrows are not found, further mitigation shall not be required. If occupied burrows are found, impacts to active badger dens shall be avoided by establishing exclusion zones around all active badger dens, within which construction related activities shall be prohibited until denning activities are complete or the den is abandoned. A qualified biologist shall monitor each den once per week to track the status of the den and to determine when a den area has been cleared for construction.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1g would reduce impacts on American badger to a **less-than-significant** level because preconstruction surveys would be conducted and active badger dens would be protected from construction activities.

Fisher and Humboldt Marten

Fisher is a CDFW species of special concern and is a candidate for listing under the ESA. Humboldt marten is also a CDFW species of special concern and is a candidate for listing under the CESA. Fisher and Humboldt marten are both mesocarnivores within the mustelid or weasel family. Suitable habitat for these species includes old growth or mature coniferous forests, with high percent canopy cover, and sufficient coarse

woody debris on the forest floor. Dens for both species can include cavities within live trees or snags, rock piles, or woody debris piles. Fishers typically choose the largest feature within an area for denning. Large portions of this habitat area is in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance.

Fishers, martens, and other carnivores (e.g. black bear) in Humboldt County and surrounding counties have experienced highly-publicized mortality because of exposure to rodenticides and insecticides used on illegal cannabis "trespass grow" sites (Gabriel et al. 2012 and 2013). Second-generation anticoagulant rodenticides (e.g., those containing ingredients such as brodifacoum, bromadiolone, difethialone, and difenacoum) are used inappropriately and illegally within these "trespass grow" sites and carnivores can be exposed either directly (e.g., through poisoned bait), or indirectly after eating rodents that have been targeted by the poisons. Use of these rodenticides, which are restricted in California, requires licensing through the California Department of Pesticide Regulation (CDPR). The proposed ordinance requires adherence to California state law and to CDPR regulations that specifies proper application and storage of pesticides, rodenticides, and insecticides to protect human health and the environment. Proper licensed use of these pest control substances would preclude impacts to fishers, martens, and other carnivores and the impact would be **less than significant**. Mitigation is not required.

Future cannabis-related activities under the proposed ordinance could result in loss of suitable habitat for fisher and Humboldt marten because of tree or other vegetation removal. Vegetation removal could also result in disturbance or direct loss to individuals or active dens. This would be a **potentially significant** impact.

Mitigation Measure 3.4-1h: Fisher and Humboldt marten preconstruction survey and preservation of active den sites.

The following shall be included as performance standards in the proposed ordinance for the protection of the fisher and Humboldt marten from new development related to cannabis activities.

- To minimize the potential for loss of or disturbance to fisher and Humboldt marten habitat and dens, removal of old growth habitat shall be prohibited, as outlined in Mitigation Measure 3.4-3, Sensitive natural communities, riparian habitat, old growth habitat, and wetland vegetation.

- Prior to commencement of from new development related to cannabis activities occurring within the fisher and Humboldt marten denning season (March 1 to July 31), including tree removal (non-old growth), a qualified wildlife biologist will conduct preconstruction surveys of all suitable habitat within the site, and will identify sightings of individual fishers or martens, as well as potential dens.

- If individuals or potential or occupied dens are not found, further mitigation will not be required.

- If fisher or Humboldt marten are identified or if potential dens of these species are located, an appropriate method shall be used by a qualified wildlife biologist to confirm whether a fisher or marten is occupying the den. This may involve use of remote field cameras, track plates, or hair snares. Other devices such as fiber optic scope may be utilized to determine occupancy. If no fisher or marten occupies the potential den, the entrance will be temporarily blocked so that no other animals occupy the area during the construction period but only after it has been fully inspected. The blockage will be removed once construction activities have been completed.

- If a den is found to be occupied by a fisher or marten, a no-disturbance buffer will be placed around the occupied den location. The no-disturbance buffer will include the den tree (or other structure) plus a suitable buffer as determined by the biologist in coordination with USFWS and CDFW. Construction activities in the no-disturbance buffer will be avoided until the nest is unoccupied as determined by a qualified wildlife biologist in coordination with USFWS and CDFW.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1h would reduce impacts on fisher and Humboldt marten to a **less-than-significant** level because preconstruction surveys would be conducted and active dens would be protected from construction activities.

Special-Status Bats

Two special-status bat species, pallid bat (*Antrozous pallidus*) and Townsend's big-eared bat (*Corynorhinus townsendii*), could occur within the County. Both species are CDFW species of special concern. These species use a variety of habitats to roost, including caves, crevices, mines, hollow trees, and buildings. Potentially suitable roosting habitat could be present within future cannabis operation sites. Tree and building removal activities could result in the direct loss of pallid bat and Townsend's big-eared bat roosts and individuals. This would be a **potentially significant** impact.

Mitigation Measure 3.4-1i: Preconstruction bat survey and exclusion.

The following shall be included as performance standards in the proposed ordinance for the protection of the pallid bat and Townsend's big-eared bat from new development related to cannabis activities.

- Before commencing any new development related to cannabis activities, a qualified biologist shall conduct surveys for roosting bats. If evidence of bat use is observed, the species and number of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts. If no evidence of bat roosts is found, then no further study will be required.

- If pallid bats or Townsend's big-eared bats are found in the surveys, a mitigation program addressing mitigation for the specific occurrence shall be submitted to the Planning Director and CDFW by a qualified biologist subject to the review and approval of the Planning Director in consultation with CDFW. Implementation of the mitigation plan shall be a condition of project approval. At a minimum, the mitigation plan shall establish a 400-foot buffer area around the nest during hibernation or while females in maternity colonies are nursing young.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1i would reduce impacts on special-status bats to a **less-than-significant** level because preconstruction surveys would be conducted and active bat roosts would be protected from new development related to cannabis activities.

Special-Status Voles

Two special-status vole species, Sonoma tree vole (*Arborimus pomo*) and white-footed vole (*Arborimus albipes*), could occur in the County. Both species are CDFW species of special concern. These species occur in coniferous forest, riparian forest, and montane-hardwood conifer forest, usually in areas near streams with dense shrubs. Sonoma tree vole nests in trees using Douglas fir needles, while white-footed vole nests within trees or on the ground under stumps, rocks, or logs. Large portions of this habitat area are in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance.

New cannabis-related development activities under the proposed ordinance could include removal of trees and other vegetation, which could result in the loss of special-status vole habitat, or direct loss of or injury to voles. This would be a **potentially significant** impact.

Mitigation Measure 3.4-1j: Preconstruction vole survey and relocation.

The following shall be included as performance standards in the proposed ordinance for the protection of the Sonoma tree vole and white-footed vole from new development related to cannabis activities.

- To minimize the potential for loss of or disturbance to vole habitat and nests, removal of old growth habitat shall be prohibited, as outlined in Mitigation Measure 3.4-3 Sensitive natural communities, riparian habitat, old growth habitat, and wetland vegetation.

- Before commencing any tree or other vegetation removal activities, or ground-disturbance, a qualified biologist shall conduct surveys for vole nests (e.g., nest searching within trees on the site, and confirming that nests belong to voles rather than squirrels or birds). If no evidence of vole nests is found, then no further study shall be required. A report summarizing the results of the surveys shall be prepared and submitted to the Planning Director and shall be subject to his review and approval in consultation with CDFW.

- If occupied trees or nests are identified within 100 feet of the site, the biologist shall determine whether project development activities will adversely affect the voles, based on factors such as noise level of development activities, or line of sight between the tree and the disturbance source. If it is determined that development activities would not affect the voles, then development can proceed without protective measures.

- If the biologist determines that development activities would likely disturb voles, the proposed area of disturbance shall be relocated a minimum of 200 feet from the nest.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-1j would reduce impacts on special-status voles to a **less-than-significant** level because preconstruction surveys would be conducted and active vole nests would be protected from new development related to cannabis activities.

Roosevelt Elk

Roosevelt elk is not a special-status species, but was identified as a sensitive resource in the Humboldt County General Plan and under County Code (Section 313-20.1). Roosevelt elk have a limited range within Humboldt County, and occur primarily within Redwood National and State Park, from Freshwater Lagoon to the Klamath River. General occurrence locations include Gold Bluffs Beach, Prairie Creek Redwoods State Park, Elk Meadow, Lower Redwood Creek, the Orick Valley, and the Bald Hills. Suitable habitat for this species includes deciduous and conifer forests, riparian areas, and meadows. Future cannabis operations under the proposed ordinance cannot occur within most of the elk's range because most of the land within the range is managed by Redwood National and State Park. There is the potential for future cannabis operations under the proposed ordinance near Orick, which is within the range of Roosevelt elk. However, this area limited to a small area within mostly existing agricultural land, which is not preferred elk habitat. While Roosevelt elk could occur within agricultural habitat, development of that habitat into cannabis operations would not significantly adversely affect the species, and would not affect the quality of remaining habitat within its range. Because most of the Roosevelt elk's range would be outside of land areas subject to the proposed ordinance, impacts would be **less than significant**. Further mitigation is not required.

Mitigation Measures

No mitigation is required.

Impact 3.4-2: Disturbance to or loss of special-status fisheries.

Surface water diversions from new commercial cannabis cultivation that may occur under the proposed ordinance could adversely affect several special-status fish species. Special-status fish species are protected under ESA, CESA, or other regulations. The alteration of surface water conditions that support special-status fish species would be a **potentially significant** impact.

Nine special-status fish species are known to occur in the County, including Chinook salmon (California coastal ESU and upper Klamath and Trinity Rivers ESU), coast cutthroat trout, coho salmon, eulachon, green sturgeon, longfin smelt, summer-run steelhead trout, and tidewater goby. Critical habitat for Chinook salmon

and steelhead trout is present within the County (Exhibit 3.4-5). Cannabis operations are required to comply with the North Coast RWQCB Order, which requires setback areas of at least 50 feet of surface water, and prohibits cultivation sites on slopes greater than 35 percent to prevent erosion and degradation of water quality. In addition, the County's SMA requirements require 50-foot to 100-foot setbacks of new development from streams and wetlands. This order and the County's SMA requirements would help prevent direct effects to special-status fish species because disturbance to river or stream banks and introduction of silt discharge would be avoided. Indirect effects to special-status fish would also partly be avoided because improper stream diversion would be prevented. Additionally, the Order prohibits surface water diversion from May 15 to October 31. Humboldt County Code Coastal Zoning regulations prohibit withdrawal of water from anadromous fish streams if such activity is likely to result in adverse effects to the fish species (Section 313-124). These existing requirements would help prevent disturbance, both direct and indirect, to special-status fish species, however, these measures alone would not entirely prevent disturbance, both direct and indirect, to special-status fish species, and this impact is considered **potentially significant.** The reader is referred to Section 3.8, "Hydrology and Water Quality," for a further discussion of potential alteration in surface water flows and water quality from cannabis operations.

Mitigation 3.4-2: Implement Mitigation Measure 3.8-5: Implement water diversion restrictions and monitoring and reporting requirements.

Significance after Mitigation

When State Water Board Policy is adopted, Mitigation Measure 3.8-5 will require cannabis-related surface water diversions to meet flow rate standards during a limited period of time through the year, which correlates to the greater level of water availability within watersheds in Humboldt County. Monitoring of flow and inspection and repair of leaks and old equipment will ensure that cannabis cultivation activities are consistent with permitted diversion rates established by legal water rights. Because implementation of this mitigation measure would ensure that Numeric Flow Requirements are met throughout Humboldt County, this impact would be **less than significant**. Even if the State Water Board's policy on water diversion is not yet approved prior to adoption of this ordinance, this mitigation is reasonably protective of surface water resources because it would restrict diversions to ensure that Numeric Flow Requirements are met and beneficial uses (including fisheries) are protected that are based on information from the State Water Board.

Impact 3.4-3: Disturbance to or loss of special-status plant species and habitat.

Potential land use conversion and development under the proposed ordinance could result in disturbance or loss of several special-status plant species, if they are present. Because the loss of special-status plants can substantially affect the abundance, distribution, and viability of local and regional populations of these species, this would be a **potentially significant** impact.

A total of 91 special-status plants were identified as having potential to occur within the County (Table 3.4-3). These plant species occur in a wide variety of habitat types, including coniferous forests, chaparral, scrub, coastal dunes, grasslands, wetlands, marshes, and riparian habitats.

Cannabis-related activities may include ground disturbance, vegetation removal, and conversion of wetland habitat, which could result in the direct loss of special-status plants or their habitat if they are present. The loss of special-status plants and their habitat can substantially affect the abundance, distribution, and viability of local and regional populations of these species. Therefore, project-related loss of special-status plant species would be a **potentially significant** impact.

Additionally, introduction or spread of invasive plants could adversely affect special-status plant species by excluding them from suitable habitat. Loss of special-status plants or their habitat due to introduction or spread of invasive plant species would be a **potentially significant** impact.

Mitigation 3.4-3a: Special-status plants.

The following shall be included as performance standards in the proposed ordinance for the protection of special-status plant species from new development related to cannabis activities.

- Prior to commencement of new development related to cannabis activities and during the blooming period for the special-status plant species with potential to occur in the site, a qualified botanist will conduct protocol-level surveys for special-status plants in all proposed disturbance areas.
- If special-status plants are not found, the botanist will document the findings in a letter report to USFWS, CDFW, and the applicant and no further mitigation will be required.
- If special-status plant species are found that cannot be avoided, the applicant, as part of its application to the County, shall retain a qualified botanist to consult with CDFW and/or USFWS (as appropriate, depending on species status) to determine the appropriate mitigation measures for direct and indirect impacts through a Mitigation and Monitoring Plan. The applicant shall be responsible for implementing the approved Mitigation and Monitoring Plan to the satisfaction of the Planning Director in consultation with, CDFW, and/or USFWS to achieve a 2:1 replacement ratio of habitat and individuals. Mitigation measures may include preserving and enhancing existing populations, creation of off-site populations on project mitigation sites through seed collection or transplantation, and/or restoring or creating suitable habitat in sufficient quantities to achieve a 2:1 replacement ratio of habitat and individuals.
- If relocation efforts are part of the Mitigation and Monitoring Plan, the plan shall include details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection, and management, monitoring and reporting requirements, success criteria, and remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements.
- Success criteria for preserved and compensatory populations shall include:
  - The extent of occupied area and plant density (number of plants per unit area) in compensatory populations will be equal to or greater than the affected occupied habitat.
  - Compensatory and preserved populations will be self-producing. Populations will be considered self-producing when:
    - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
    - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the project vicinity.
  - If off-site mitigation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures shall be included in the mitigation plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long term viable populations.

Mitigation 3.4-3b: Invasive plant species.

The following shall be included as performance standards in the proposed ordinance to avoid the introduction or spread of plants classified as invasive plant species by the California Invasive Plant Council.

- All invasive plant species shall be removed from the site using measures appropriate to the species. For example, species that cannot easily re-root, re-sprout, or disperse seeds may be left on site in a debris pile. Species that re-sprout readily (e.g., English ivy) or disperse seeds (e.g., Pampas grass) should be hauled off-site and disposed of appropriately at a landfill site.

- Heavy equipment and other machinery shall be inspected for the presence of invasive species prior to on-site use, and shall be cleaned prior to entering the site, to reduce the risk of introducing invasive plant species.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-3a and 3.4-3b would reduce significant impacts on special-status plants to **less-than-significant** levels because it would require applicants to identify and avoid special-status plants or provide compensation for the loss of special-status plants through enhancement of existing populations, creation and management of off-site populations, conservation easements, or other appropriate measures and would prevent the spread of invasive weeds.

Impact 3.4-4: Disturbance to or loss of riparian habitat, old growth habitat, or other sensitive natural communities.

Potential land use conversion and development that may be approved under the proposed ordinance could adversely affect riparian habitat, old growth habitat, and other sensitive natural communities if they are present on the site. Construction-related activities, including ground disturbance, old growth habitat removal, removal of riparian vegetation, or disturbance of stream and river habitat would be a **potentially significant** impact.

Riparian habitat within the County can be found adjacent to aquatic habitat such as streams and rivers. A total of 12 sensitive natural communities are also present, including fish stream habitat (north central coast summer steelhead stream, Klamath/north coast interior headwater fishless stream, Klamath/north coast rainbow trout stream, and Klamath/north coast fall/winter run chinook salmon river), and several terrestrial and aquatic plant communities (northern foredune grassland, coastal terrace prairie, sphagnum bog, northern coastal salt marsh, coastal and valley freshwater marsh, Sitka spruce forest, upland Douglas fir forest, and coastal Douglas fir western hemlock forest (*see* section "Sensitive Natural Communities" for detailed descriptions of communities). The reader is referred to Section 3.8, "Hydrology and Water Quality," for a further discussion of potential alteration in surface water flows and volumes from cannabis operations.

Large portions of this habitat area is in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance. The proposed ordinance also includes a retirement, remediation, and relocation program, which encourages relocation of existing cultivation sites within certain lands zones (e.g., commercial timberland, timber production zones, forestry recreation zones) to more appropriate zones. The existing sites would then be retired and remediated. The existing sites could contain sensitive habitats, and remediation could have an overall positive effect on the habitat.

Riparian habitat occurs within areas of existing and proposed new cannabis cultivation sites, including areas near the Eel, Mad, and Klamath Rivers, and Redwood Creek. Steams supporting riparian and wetland vegetation are regulated by CDFW under Section 1600-1616 of the California Fish and Game Code, which provides for the protection of fish, wildlife, and native plant resources. Development under the CCLOU could result in vegetation removal or trampling, fill of wetlands, hydrologic changes, deposition of dust or debris, soil compaction, or other disturbances that could temporarily affect the condition and function of sensitive habitats. Development of cannabis-related uses under the proposed ordinance must comply with the North Coast RWQCB Order, which prohibits cannabis cultivation within at least 50 feet of all surface water. Additionally, County Code contains regulations regarding development within riparian and stream habitat through the County's General Plan and Zoning Ordinance protecting "Streamside Management Areas (Section 3432 of the Framework Plan). This would prevent some, but possibly not all impacts to riparian habitat. Additionally, any project-related construction adjacent to wetlands or other sensitive habitat could similarly indirectly or directly affect those resources unless effective best management practices (BMPs) and other appropriate resource protection measures are implemented.

Old growth forest habitat, including Sika spruce, Douglas fir, and redwood, occurs throughout the County (Exhibit 3.4-4). Old growth and late-successional forests include features such as very large trees, large snags,

complex canopy structure (i.e., understory, midstory, overstory), and coarse woody debris (e.g. large logs) on the forest floor; all features that provide unique habitat for many wildlife species. Many special-status wildlife species, including fisher, marten, marbled murrelet, and Sonoma tree vole use old growth forest habitat for nesting and movement corridors. Loss of, or disturbance to sensitive habitats, including sensitive natural communities, riparian habitat, and old growth habitat, would be a **potentially significant** impact.

Mitigation 3.4-4: Sensitive natural communities, riparian habitat, and wetland vegetation.

The following shall be included as performance standards in the proposed ordinance for the protection of sensitive natural communities and riparian habitat.

- For projects that could disturb sensitive natural communities or riparian habitat, the application shall include a report prepared by a qualified biologist that surveys the site for these sensitive resources, including riparian habitat associated with aquatic features; old growth Sitka spruce, Douglas fir, and redwood forests; special-status fish stream habitats; marsh habitats; and northern foredune grassland near Humboldt Bay and the Mattole River; and coastal terrace prairie within Table Bluff Ecological Reserve.

- The report shall include requirements that before development activities commence, all sensitive areas shall be flagged or fenced with brightly visible construction flagging and/or fencing under the direction of the qualified biologist to require that grading, excavation, other ground-disturbing activities, and vegetation removal will not occur within these areas. Foot traffic by construction personnel shall also be limited in these areas to prevent the introduction of invasive or weedy species. Periodic inspections during construction shall be conducted by the monitoring biologist to maintain the integrity of exclusion fencing/flagging throughout the period of construction involving ground disturbance.

- If the report documents that site development would affect the bed, bank, channel, or associated riparian habitat subject to CDFW jurisdiction under Fish and Game Code Section 1602, a Streambed Alteration Notification shall be submitted to CDFW, pursuant to Section 1600 et seq. of the California Fish and Game Code. If proposed activities are determined to be subject to CDFW jurisdiction, the project proponent shall abide by the conditions of any executed agreement prior to the issuance of a grading permit by Humboldt County.

- Subject to the review and approval of the Planning Director in consultation with CDFW applicants shall compensate for permanent loss of riparian habitat at a minimum of a 2:1 ratio through contributions to a CDFW approved wetland mitigation bank or through the development and implementation of a Compensatory Stream and Riparian Mitigation and Monitoring Plan for creating or restoring in-kind habitat in the surrounding area (such as the proposed ordinance site reconfiguration criteria for existing cultivation sites). If mitigation credits are not available, stream and riparian habitat compensation shall include establishment of riparian vegetation on currently unvegetated bank portions of streams affected by the project and enhancement of existing riparian habitat through removal of nonnative species, where appropriate, and planting additional native riparian plants to increase cover, continuity, and width of the existing riparian corridor along streams in the site and surrounding areas. Construction activities and compensatory mitigation shall be conducted in accordance with the terms of a streambed alteration agreement as required under Section 1602 of the Fish and Game Code as well as the Regional Water Quality Control Board North Coast Region Order R1-2015-0023.

The Compensatory Stream and Riparian Mitigation and Monitoring Plan shall include the following:

- identification of compensatory mitigation sites and criteria for selecting these mitigation sites;

- in kind reference habitats for comparison with compensatory riparian habitats (using performance and success criteria) to document success;

- monitoring protocol, including schedule and annual report requirements (Compensatory habitat will be monitored for a minimum of 5 years from completion of mitigation, or human intervention [including

recontouring and grading], or until the success criteria identified in the approved mitigation plan have been met, whichever is longer.);

- ecological performance standards, based on the best available science and including specifications for native riparian plant densities, species composition, amount of dead woody vegetation gaps and bare ground, and survivorship; at a minimum, compensatory mitigation planting sites must achieve 80 percent survival of planted riparian trees and shrubs by the end of the five-year maintenance and monitoring period or dead and dying trees will be replaced and monitoring continued until 80 percent survivorship is achieved;

- corrective measures if performance standards are not met;

- responsible parties for monitoring and preparing reports; and

- responsible parties for receiving and reviewing reports and for verifying success or prescribing implementation or corrective actions.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-4 would reduce significant impacts to sensitive natural communities and riparian habitat to **less-than-significant** levels because it would require applicants to identify and avoid sensitive resources, or provide compensation for the loss of riparian habitat through enhancement of existing populations, creation and management of off-site populations, conservation easements, or other appropriate measures.

Impact 3.4-5: Disturbance to or loss of waters of the United States.

Potential land use conversion and development under the proposed ordinance could adversely affect waters of the United States, such as streams, rivers, lakes, and wetlands. This would be a **potentially significant** impact.

The County contains approximately 22,799 acres of aquatic habitat, including major rivers (e.g. Klamath, Trinity, Mad, Eel, and Mattole) and their tributaries, Humboldt Bay, lagoons, and lakes; as well as associated wetland habitat. Future development under the proposed ordinance must comply with the North Coast RWQCB Order, which prohibits cannabis cultivation within at least 50 feet of all surface water features. This requirement would prevent most disturbance to surface waters such as streams, rivers, lagoons, and lakes. Additionally, County Code contains regulations regarding development within riparian and stream habitat through the County's General Plan and Zoning Ordinance protecting "Streamside Management Areas (Section 3432 of the Framework Plan). However, future cannabis operations under the proposed ordinance could result in the conversion of wetland habitat where such habitat occurs on the site. New development related to cannabis activities on the site, including vegetation removal and other ground disturbance, could result in the loss or degradation wetlands or other waters of the United States through fill or other disturbances. This would be a **potentially significant** impact.

Mitigation 3.4-5: Waters of the United States.

The following shall be included as performance standards in the proposed ordinance for the protection of waters of the United States from new development related to cannabis activities.

- The application shall include a report prepared by a qualified biologist that surveys the site for sensitive resources, including wetlands, streams, and rivers. Wetlands and other waters of the United States are of special concern to resource agencies and are afforded specific consideration, based on Section 404 of the Clean Water Act and other applicable regulations.

- If the report documents waters of the United States to be present, a delineation of waters of the United States, including wetlands that would be affected by the project, shall be prepared by a qualified biologist

through the formal Section 404 wetland delineation process. The delineation shall be submitted to and verified by USACE.

- If, based on the verified delineation, it is determined that fill of waters of the United States would result from implementation of the project, authorization for such fill will be secured from USACE through the Section 404 permitting process.

- Any waters of the United States that would be affected by site development shall be replaced or restored on a "no-net-loss" basis in accordance with USACE mitigation guidelines (or the applicable USACE guidelines in place at the time of construction). In association with the Section 404 permit (if applicable) and prior to the issuance of any grading permit, Section 401 Water Quality Certification from the RWQCB will be obtained.

- USACE may not issue a Section 404 permit for activities associated with cannabis cultivation. If a Section 404 permit cannot be obtained, then the applicant shall modify the proposed project to avoid any wetlands or other waters of the United States by providing a buffer of at least 50 feet around these features.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-5 would reduce impacts to wetlands and other waters of the United States to a **less-than-significant** level because it would require no net loss of functions and acreage of wetlands and other waters through implementation of USACE mitigation guidelines.

Impact 3.4-6: Interference with resident or migratory wildlife corridors or native wildlife nursery sites.

Potential land use conversion and development under the proposed ordinance could adversely affect resident or migratory wildlife corridors through habitat fragmentation, degradation of aquatic habitat (e.g., streams and rivers), or blockage of important wildlife migration paths. Impacts to movement corridors and habitat connectivity for these species would be **potentially significant**.

Aquatic Corridors

Aquatic wildlife movement corridors within the County include all major rivers and their tributaries. Several anadromous fish species, including steelhead, Coho salmon, and Chinook salmon, have runs within Humboldt County's rivers and streams from the spring to the fall. Adverse effects to these aquatic wildlife corridors could include degradation to streams and rivers (e.g., inadvertent fill) or improper surface water diversion which could create isolated pools which could decrease survival of young salmonids.

The North Coast RWQCB Order R1-2015-0023, *General Waiver of Waste Discharge Requirements and General Water Quality Certification and Monitoring and Reporting Program for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region*, establishes water resource protection requirements for cannabis cultivation operations (such as the use of best management practices intended to protect aquatic habitat and water quality). These requirements include a setback for cultivation activities of at least 50 feet from any surface water sources. Additionally, the proposed ordinance restricts surface water diversion from May 15th to October 31st to allow for optimal flows for special-status fish species. The County's Coastal Zoning regulations also prohibit withdrawal of water from anadromous fish streams if such activity is likely to result in adverse effects to the fish species (Section 313-124). The reader is referred to Section 3.8, "Hydrology and Water Quality," for a further discussion of potential alteration in surface water flows and water quality from cannabis operations.

Any future proposed construction of surface water diversion infrastructure or stream crossing could adversely affect resident or migratory wildlife corridors through habitat fragmentation, degradation of aquatic habitat (e.g., streams and rivers), or blockage of important wildlife migration paths. Impacts to movement corridors and habitat connectivity for these species would be **potentially significant** and would require approval and permits from CDFW, RWQCB, and USACE. Implementation of the requirements outlined above in Mitigation

Measure 3.4-5 would sufficiently mitigate for project-related adverse effects to aquatic wildlife movement corridors, and would result in **less-than-significant** impacts. No further mitigation is required.

Mitigation 3.4-6a: Implement Mitigation Measure 3.4-5: Waters of the United States.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-6a would reduce impacts to aquatic corridors to a **less-than-significant** level because it would require approval and permits from CDFW, RWQCB, and USACE and result in no net loss of functions and acreage of wetlands, including aquatic corridors through implementation of USACE mitigation guidelines.

Terrestrial Corridors

The County contains a portion of migratory winter range for mule deer, including area near the Klamath, Trinity, and Mad Rivers, as well as Redwood Creek (Exhibit 3.4-6). Additionally, resident mountain lions range includes most of the County. Mountain lions occupy a variety of habitats but are most abundant in riparian habitats. Habitat use is typically associated with prey availability. Mule deer make up a large percentage of mountain lion diet. Mountain lion home ranges can be greater than 200 square miles, though home ranges typically range from 5 to 100 square miles (Allen et al. 2015). Existing and proposed cannabis cultivation site locations overlap with migratory deer winter ranges and thus also overlap with mountain lion home ranges. Conditions within the County include existing barriers to movement for these species, including roads and highways (e.g., SR 96, SR 299, and SR 36), fencing, and urban development in unincorporated communities like Willow Creek. Future cannabis activities under the proposed ordinance would likely not significantly alter the habitat quality and connectivity within the range of these species, as most development involves fencing in the immediate vicinity of the cannabis activity, leaving adjacent areas free from barriers. Additionally, the North Coast RWQCB Order prohibits cannabis cultivation within at least 50 feet of any surface water. Deer migration areas, and thus mountain lion occurrences, are largely associated with waterways and riparian areas within the County. By requiring compliance with the North Coast RWQCB Order through establishment of stream setbacks, development under the proposed ordinance would have a less-than-significant impact on migratory corridors for mule deer and mountain lion. No further mitigation is required.

Terrestrial wildlife movement corridors within the County, or essential connectivity areas, include much of the relatively intact natural landscape blocks within Redwood National and State Park, and national forest land. Forest species such as fisher and Humboldt marten require large contiguous blocks of forest habitat with a high degree of canopy cover, large structural features (e.g., logs, rock piles, snags), and a dense shrub layer (Sauder and Rachlow 2014 and Zielinski et al. 2001). Home ranges can be up to 36 square miles for fisher, and up to 3 square miles for Humboldt marten. Future cannabis operations under the proposed ordinance could result in tree and understory vegetation removal, forest floor clearing, and overall fragmentation of suitable habitat for fisher and Humboldt marten. If the character of previously occupied forest habitat changes, it is likely that these species would no longer use the habitat. Martens will avoid forest habitats without complex understory structure, which can result in decreased foraging success and increased vulnerability to predation (Moriarty 2016). Cannabis cultivation construction activities could exclude fisher or Humboldt marten from previously occupied habitat, thus limiting the full range of the species, or limiting access to nesting dens. Because suitable habitat for these species includes old growth habitat and large structural features like snags, the habitat, if lost, would not be replaced. This would be a **potentially significant** impact.

Mitigation 3.4-6b: Retention of fisher and Humboldt marten habitat features

The following shall be included as performance standards in the proposed ordinance for the protection of the habitat for fisher and Humboldt marten.

- To minimize the potential for loss of or disturbance to fisher and Humboldt marten habitat, removal of old growth habitat shall be prohibited, as outlined in Mitigation Measure 3.4-3, Sensitive natural communities, riparian habitat, and wetland vegetation.

- Habitat features within non-old growth habitat, such as large trees, large snags, coarse woody debris, and understory vegetation (e.g., shrubs) shall be retained within the site to the extent feasible, to maintain connectivity of fisher and marten habitat.

Significance after Mitigation

Implementation of Mitigation Measure 3.4-6b would reduce impacts to terrestrial wildlife movement corridors to a **less-than-significant** level because it would prohibit removal of old growth habitat, and would retain features critical for habitat connectivity for the fisher and Humboldt marten.

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3.5 CULTURAL RESOURCES AND CALIFORNIA TRIBAL CULTURAL RESOURCES

This section analyzes and evaluates the potential impacts of the proposed ordinance on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include pre-historic resources, historic-era resources, and "tribal cultural resources" (the latter as defined by Assembly Bill [AB] 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or architectural) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges). Tribal cultural resources were added as a resource subject to review under CEQA, effective January 1, 2015 under AB 52. This is a new category of resources under CEQA and includes site features, places, cultural landscapes, sacred places, or objects, which are of cultural value to a Tribe.

Two comment letters related to archaeological, historical, or tribal cultural resources were received in response to the notice of preparation (NOP) from the Wiyot Tribe and the Karuk Tribe.

3.5.1 Regulatory Setting

FEDERAL

National Historic Preservation Act

Among those statutes enacted by Congress that affect historic properties, the National Historic Preservation Act of 1966 (NHPA) is the most significant law that addresses historic preservation. One of the most important provisions of the NHPA is the establishment of the National Register of Historic Places (NRHP), the official designation of historical resources. Districts, sites, buildings, structures, and objects are eligible for listing in the Register. Nominations are listed if they are significant in American history, architecture, archeology, engineering, and culture. The NRHP is administered by the National Park Service. To be eligible, a property must be significant under criteria A through D (described below), and ordinarily be 50 years of age or more.

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

Listing in the NRHP does not entail specific protection or assistance for a property but it does guarantee recognition in planning for federal or federally-assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. Additionally, project effects on properties listed in the NRHP must be evaluated under CEQA.

Once a heritage resource has been recorded and if it is determined to be significant, the potential impacts (or effects) of a project on a heritage property are assessed. Federal regulatory impact thresholds are

contained in Section 106 of the NHPA and accompanying regulations (36 Code of Federal Regulations [CFR] Part 800). Section 106 requires that federal agencies consider the effects of their actions on significant archaeological properties prior to implementing a project or "undertaking." The criteria of effect are found in 36 CFR 800.0(a) and state that:

> An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the National Register.

The Advisory Council's regulations require that the federal agency apply the criteria of adverse effect to historic properties that will be affected by a proposed undertaking (36 CFR 800.9b). An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association, or the quality of data suitable for scientific analysis. These seven aspects of integrity are described as:

- Location. Integrity of location refers to whether a property remains where it was originally constructed or was relocated.
- Design. Integrity of design refers to whether a property has maintained its original configuration of elements and style that characterize its plan, massing, and structure. Changes made after original construction can acquire significance in their own right.
- Setting. Integrity of setting refers to the physical environment surrounding a property that informs the characterization of the place.
- Materials. Integrity of materials refers to the physical components of a property, their arrangement or pattern, and their authentic expression of a particular time period.
- Workmanship. Integrity of workmanship refers to whether the physical elements of a structure express the original craftsmanship, technology and aesthetic principles of a particular people, place or culture at a particular time period.
- Feeling. Integrity of feeling refers to the property's ability to convey the historical sense of a particular time period.
- Association. Integrity of association refers to the property's significance defined by a connection to a particular important event, person, or design.

The National Register Bulletin also provides guidance in the evaluation of archaeological site significance. If a heritage property cannot be placed within a particular theme or time period, and thereby lacks "focus," it is considered not eligible for the NRHP. In further expanding upon the generalized National Register criteria, evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, flumes, etc.) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length; (2) presence of distinctive engineering features and associated properties; (3) structural integrity; and (4) setting. The highest probability for National Register eligibility exists within the intact, longer segments, where multiple criteria coincide.

STATE

California Register of Historical Resources

All properties listed in or formally determined eligible for listing in the NRHP are eligible for the California Register of Historical Resources (CRHR). The CRHR is a listing of State of California resources that are significant within the context of California's history. The CRHR is a statewide program of similar scope and with similar criteria for inclusion as those used for the NRHP. In addition, properties designated under municipal or county ordinances are also eligible for listing in the CRHR.

California Historical Landmarks (CHL), buildings, structures, sites, or places that have been determined to have statewide historical significance, are also automatically listed in the CRHR. California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR.

A historic resource must be significant at the local, state, or national level under one or more of the criteria defined in the California Code of Regulations (CCR) Title 15, Chapter 11.5, Section 4850. The CRHR criteria are similar to the NRHP criteria and are tied to CEQA because any resource that meets the criteria below is considered a historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

1. Is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

2. Is associated with the lives of persons important to local, California, or national history.

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Similar to the NRHP, a resource must meet one of the above criteria and retain integrity. The CRHR uses the same seven aspects of integrity as the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on both "historical resources" and "unique archaeological resources." Pursuant to Public Resources Code (PRC) Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether proposed projects would have effects on unique archaeological resources.

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC, Section 21084.1; determining significant impacts to historical and archaeological resources is described in the State CEQA Guidelines, Sections 15064.5[a] and [b]). Under State CEQA Guidelines Section 15064.5(a), historical resources include the following:

1. A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (PRC, Section 5024.1).

2. A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, will be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource will be considered by the lead agency to be historically significant if

the resource meets the criteria for listing in the California Register of Historical Resources (Public Resources Code, Section 5024.1), including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

b) Is associated with the lives of persons important in our past;

c) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

d) Has yielded, or may be likely to yield, information important in prehistory or history.

4. The fact that a resource is not listed in or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in PRC Section 5020.1(j) or 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects will affect unique archaeological resources. Public Resources Code, Section 21083.2, subdivision (g), states that unique archaeological resource means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects will impact tribal cultural resources. Public Resources Code, Section 21074 states the following:

a) "Tribal cultural resources" are either of the following:

   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Health and Safety Code, Sections 7052 and 7050.5

Section 7052 of the Health and Safety Code states that the disturbance of Native American cemeteries is a felony. Section 7050.5 requires that construction or excavation be stopped near discovered human remains until the coroner can determine whether the remains are those of a Native American. If determined to be Native American, the coroner must contact the California Native American Heritage Commission (NAHC).

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural and Sacred Sites Act applies to both State and private lands. The Act requires that upon discovery of human remains, that construction or excavation activity cease and that the county coroner be notified. If the remains are of a Native American, the coroner must notify the NAHC. The NAHC then notifies those persons most likely to be descended from the Native American's remains. The Act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Public Resource Code, Section 5097

PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal land. The disposition of Native American burial falls within the jurisdiction of the NAHC. Section 5097.5 of the Code states the following:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

Public Resources Code Section 5024 and 5024.5

The California State Legislature enacted PRC Section 5024 and 5024.5 as part of a larger effort to establish a state program to preserve historical resources. These sections of the code require state agencies to take actions to ensure preservation of state-owned historical resources under their jurisdictions. These actions include evaluating resources for NRHP eligibility and California Historical Landmark eligibility, maintaining an inventory of eligible and listed resources, and managing these historical resources so that that they will retain their historic characteristics.

PRC Section 5024(f) requires state agencies to submit to the State Historic Preservation Officer (SHPO) for comment documentation for any project having the potential to affect historical resources under its jurisdiction listed in or potentially eligible for inclusion in the NRHP, or are registered or eligible for registration as California Historical Landmarks. The SHPO has 30 days after receipt of the notice for review and comment.

Assembly Bill 52

AB 52, signed by Governor Edmund G. Brown, Jr., in September of 2014, establishes a new class of resources under CEQA: "tribal cultural resources" (TCRs). AB 52, as provided in PRC Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete, prior to the issuance of an NOP of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration. AB 52 also required revision to CEQA Appendix G, the environmental checklist. This revision would create a new category for TCRs. As defined in PRC Section 21074, to be considered a TCR, a resource must be either:

1. listed or determined to be eligible for listing, on the national, state, or local register of historic resources; or

2. a resource that the lead agency determines, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource pursuant to the criteria in PRC Section 50241(c). PRC Section 5024.1(c) provides that a resource meets criteria for listing as an historic resource in the California Register if any of the following apply:

   (1) It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

   (2) It is associated with the lives of persons important in our past.

   (3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

   (4) It has yielded, or may be likely to yield, information important in prehistory or history.

LOCAL

Humboldt County General Plan

According to the goal stated in Section 3530 of the Humboldt County General Plan, the policies regarding historical and archaeological resources are established "To provide for the protection and enhancement of cultural resources for the historic, scientific, educational, and social contributions they render to the present generation and to generations that follow." These policies are stated in Section 3531 and consist of the following:

1. Cultural resources (including but not limited to archaeological, paleontological and architectural sites, grave sites and cemeteries) shall be identified where feasible, assessed as to significance, and if found to be significant, protected from loss or destruction.

2. Concerned citizens, historical organizations and applicable agencies shall be consulted during project review for the identification and protection of cultural resources.

3. Projects located in areas found to have cultural resources shall be conditioned and designed to avoid loss or degradation of these resources.

4. Expert opinions and field reconnaissance at the applicant's expense may be required during environmental assessment to determine the presence, extent, and condition of cultural resources and the likely impact upon such resources.

5. Archaeological and paleontological resources shall not be knowingly destroyed or lost through a discretionary action unless: A) the site or resource has been found to be of insignificant value by relevant experts and representatives of the cultural resources community, or B) there is an overriding public benefit from the project and compensating mitigation to offset the loss is made part of the project.

6. Mitigation measures shall be required where new development would adversely impact archaeological or paleontological resources.

Humboldt County Code

The Humboldt County Code established mitigation measure measures to address development within Archaeological Resources Areas, but within and outside of the Shelter Cove area.

Areas designated as "A" on the Zoning Maps, outside of Shelter Cove:

16.1.4 Required Mitigation. Measures to mitigate adverse environmental effects of development within Archaeological Resource Areas shall include, but are not limited to, the following:

16.1.4.1 Relocate planned structures and roads to avoid or mitigate impacts on archaeological sites;

16.1.4.2 Provide protective cover for sites that cannot be avoided;

16.1.4.3 Where appropriate, and providing all parties concerned approve, the removal or transfer of culturally significant material by a professional archaeologist shall be permitted.

16.1.5 Additional Requirements for the Protection of Native American Graves, Burial Grounds, Cemeteries and Ceremonial Sites. Notwithstanding the other provisions of this Chapter, whenever a development will involve activities which may adversely affect Native American graves, cemeteries, burial grounds, or ceremonial sites, the County will follow or impose the following requirements:

16.1.5.1 Consultation with Indian Associations: Prior to final approval or authorization of such development, the County shall consult with representatives of the Northwest Information Center of the California Archaeological Inventory (NICCAI), Department of Anthropology, Sonoma State University, and the Native American Heritage Commission (NAHC) and any known interested Native Americans. Such consultation will be directed to the questions of whether the project or operation will adversely affect Indian graves, cemeteries, burial grounds, or ceremonial sites, and whether there are reasonable alternative means of accomplishing the project or operation which would not adversely affect such graves, cemeteries, burial grounds or ceremonial sites.

16.1.5.2 Required Mitigation Action: Based upon the information and recommendations received during the review (see, subsection 16.1.5.1), the project application shall be acted on in a manner that provides the best feasible protection to cultural sites.

Areas designated as "A," within Shelter Cove:

16.2.4 Required Mitigation. Measures to mitigate adverse environmental effects of development within Special Archaeological Resources Areas for Shelter Cove shall include, but are not limited to, the following:

16.2.4.1 Site planned improvements to avoid or mitigate impacts on archaeological sites;

16.2.4.2 Provide protective cover for sites that cannot be avoided;

16.2.4.3 Where appropriate and with concurrence of responsible agencies, the removal or transfer of culturally significant material by professional archaeologists shall be permitted.

16.2.5 Procedures for Determining Required Mitigation.

16.2.5.1 Prior to final development approval or authorization, the County shall condition the Coastal Development Permit to include an agreement to stop work in the event of discovery of any archaeological resources during construction. Said agreement shall provide for work stoppage on the affected resource area until a qualified archaeologist can determine the significance of the resource and suggest appropriate mitigation measures. The agreement shall not require an applicant to stop work for a period in excess of five (5) days, but shall provide an assurance that opportunity for reasonable mitigation to be carried out will be provided in the event significant archaeological resources are encountered.

16.2.5.2 The stop-work agreement requirement (see subsection 16.2.5.1) may be waived where responsible referral agencies have indicated such an agreement is not necessary or appropriate.

16.2.5.3 On lands designated "A" on the Shelter Cove Coastal Zoning Maps, the County shall, prior to authorization or approval of development, consult with representatives of the Northwest Information Center of the California Archaeological Inventory (NICCAI), Department of Anthropology, Sonoma State University, the Native American Heritage Commission (NAHC), any known interested Native Americans, and the Bureau of Land Management staff archaeologist assigned to the King Range Area. Such consultation shall be directed at determining whether or not the proposed project would adversely affect significant archaeological or cultural heritage resources.

16.2.5.4 Where the response to the above consultation provides substantial information which indicates that significant archaeological resources would be adversely affected, the County, where feasible, shall require the project to avoid the significant resources and to allow for permanent protection of such resources.

16.2.5.5 Where avoidance of such resources is not feasible, a plan of excavation shall be required to be prepared and carried out for the portions of the site that would be disturbed or covered by improvements such as foundations, drive-ways, and utility hookups.

16.2.5.6 The plan of excavation shall:

16.2.5.6.1 Be prepared by a qualified archaeologist;

16.2.5.6.2 Be compatible with preservation and recovery work on adjacent lots;

16.2.5.6.3 Be based on a review of area specific literature;

16.2.5.6.4 Be peer reviewed by the above-mentioned referral agencies;

16.2.5.6.5 Be a brief summary of the excavation proposed as part of a mitigation plan;

16.2.5.6.6 List and briefly discuss the important information the archaeological resources contain or are likely to contain;

16.2.5.6.7 Explain how the information should be recorded to be useful in addressing scientifically valid research questions and other concerns identified in the plan prepared pursuant to this section;

16.2.5.6.8 Explain the methods of analysis and, if feasible, display of excavated materials;

16.2.5.6.9 Provide for final report preparation and distribution;

16.2.5.6.10 Explain the estimated cost of and time required to complete all activities undertaken under the plan; and

16.2.5.6.11 Be available for review only on a "need-to-know" basis.

16.2.5.7 Where the cost of carrying out the excavation is neither feasible nor reasonable, the County shall determine the appropriate limits on mitigation in accordance with California Environmental Quality Act guidelines, as may be applicable at the time of project review.

3.5.2 Environmental Setting

The primary sources of information for this section are the *A Class I Cultural Resources Overview and Existing Information Inventory for the Northwest California Integrated Resource Management Plan, BLM Redding and Arcata Field Offices* (Far Western 2016), and the *Humboldt County General Plan Revised Draft EIR Chapter 3.13, Cultural Resources* (Humboldt County 2017).

REGIONAL PREHISTORY

The chronological sequence of the North Coast is ordered around a series of patterns beginning with the Paleoindian interval (13,400–8850 calibrated years before present [cal BP]). The next cultural historical unit is the Borax Lake Pattern (8850–5700 cal BP), followed by the Squaw Creek Pattern (ca. 5700–4500 cal BP), Mendocino Pattern (4500–1500 cal BP), and Tuluwat Pattern, post-dating 1500 cal BP.

Paleoindian Period (13,400–12,800 cal BP)

The Paleoindian Period is the earliest cultural manifestation along the North Coast and Klamath Mountains/North Coast Ranges, and is illustrated by the fluted (Clovis-like) projectile points and chipped stone crescents. These have been found at the Borax Lake site near Clear Lake; however, well-defined assemblages have not been found elsewhere in northwest California. Fluted points have been discovered near the coast in Mendocino County and in Siskiyou County, but in isolated contexts lacking strong associations with well-dated strata or other artifacts.

Borax Lake Pattern (10,000–6300 cal BP)

Much more is known about the Borax Lake Pattern, as archaeological manifestations have been discovered and studied throughout the interior of Northwest California. Borax Lake Pattern sites extend from Clear Lake Basin north into Humboldt and Trinity counties, with many located in upland habitats. These assemblages include serrated bifaces, ovoid flake tools, handstones, millingslabs, and edge-flaked spalls. This diversified assemblage is commonly found in sites located across a wide range of environmental contexts, including ridgetops between 4,500 and 6,000 feet along Pilot Ridge and South Fork Mountain, in upland areas within Mendocino County, and along terraces adjacent to the Trinity River. Obsidian hydration data collected from both upland and lowland settings indicate that the pattern may have persisted in Humboldt and Trinity counties until roughly 5000 cal BP.

Borax Lake Pattern sites are rare on the coast, largely because of sea level rise that has inundated most near-shore habitats dating to this interval. One exception is a site located near McKinleyville about 1.5 kilometers from the coast, where Borax Lake Pattern artifacts have been found; consisting of both flaked and ground stone tools, but no evidence for marine resource use (e.g., no shellfish remains). Due to the widespread prairie and marshland habitats in the area, and the large number of projectile points and butchering tools found, hunting and processing of large game (predominately Roosevelt elk) was probably a major activity at the site.

Mendocino Pattern (4500–1500 cal BP)

The Mendocino Pattern first appears around 5,000 years ago in a limited number of places in Northwest California, but is not common until after about 4000 cal BP. Common artifacts include side-notched, corner-notched, and concave-base dart points (of the Willits and Mendocino series), handstones and millingslabs, various types of flake tools and cobble tools, and, in some cases, a limited number of cobble mortars and pestles.

The earliest manifestations of the Mendocino Pattern in the more northerly areas come from a variety of coastal and interior settings. Coastal evidence is available from Point St. George, Humboldt Bay, and the King Range of southern Humboldt County, but none of these sites pre-date 2500 cal BP. The sites appear to represent temporary hunting camps or seasonal encampments by people with a terrestrial orientation.

Up in the northern mountains, most of the sites are specialized hunting camps, which is significantly different from the earlier Borax Lake Pattern where the uplands were dominated by residential sites. The Mendocino Pattern hunting camps represent logistical forays from more substantial residential sites in the lowlands. Rather than representing a mobile system of settlement like the more southerly areas, a sedentary settlement system supported by the intensive harvest and storage of salmon and acorns emerged at about 2500 cal BP.

Tuluwat Pattern (post-1500 cal BP)

After 1500 BP, several major changes occurred in northwestern California and southwestern Oregon, especially along the coast on Humboldt Bay and areas to the north. Site frequency increases dramatically, and many locations were used as permanent villages for the first time. Artifact assemblages are increasingly diverse and include many specialized woodworking tools (e.g., adzes, mauls, and wedges) used for the construction of substantial plank houses and canoes. Excavations at multiple sites north of Cape Mendocino, where offshore rocks and islands are plentiful, have yielded high frequencies of Tuluwat barbed projectile points and thin concave-based points used to tip composite harpoons used for taking both marine mammals and fish.

Ground and polished stone artifacts are also quite abundant, some exhibiting a great deal of artistic elaboration. Flanged pestles, well-made mauls (used with antler wedges), and notched net sinkers are common, while steatite bowls, zoöform clubs, and polished stone adze handles have also been found. Fishing gear is common, represented by various bone and antler spears, harpoons, and hooks. Shellfish were also important contributors to the diet but, unlike central and southern California, species from relatively deep in the intertidal like red abalone are essentially absent from the archaeological record.

ETHNOGRAPHY

Before European settlement, the Humboldt County area was one of the most culturally diverse regions of California, and was home to nearly a dozen distinct peoples. In large part, Native American tribes occupied distinct areas conforming largely to the natural watershed basins. Most tribes were Athabascan speakers and hill people who built permanent homes along rivers. The Yurok and Wiyot spoke Algonquian languages and settled along both coasts and rivers. The Karuk were Hokan-speaking and lived in mountainous territory.

Peoples that settled north of the Eel complex watersheds are grouped together as Northwest California cultures. This group includes the Hokan- and Algonquian-speaking tribes, as well as the Hupa, Chilula, and Sinkyone.

Villages were clustered around lagoons, sloughs, and river mouths along the coast. Inland settlements were usually along streams, sometimes on terraces above floodways; the Yurok sometimes built on steep slopes. Seasonal migration was common; for example, the Chilula built permanent villages on flats along Redwood Creek, but moved up to higher ridges in summer and fall. Most groups tended to build along the side of a river or hill that received more sun and on hillsides where timber was less dense.

Although some tribes to the south practiced cremation, Northwest California tribes generally buried their dead and cemeteries were established near the permanent (wintertime) villages. Bodies were buried in plank-lined graves, although it is believed that the Mattole cremated people killed in war and buried all others.

The Hoopa claimed food-rich lands (where acorns and manzanita were plentiful), but shared right-of-way with other groups; the Yurok established privately owned land. Tribes located along the coast or near rivers, and relied on fish and sea mammals as their primary source of food. Food was obtained by a variety of means, including hunting, fishing, and gathering greens, depending on seasonal availability. Archaeologically significant sites have been identified by the presence of refuse from marine life, debris from stone toolmaking, mortar, and tools.

The Hoopa Valley Tribal Reservation was created through an agreement between the Hoopa Tribe and the United States Federal Government in 1876. The Reservation, described as area 6 miles on either side of the

Trinity River from the mouth of the Klamath River to the point where the river enters the Hoopa Valley, 12 miles from the confluence.

The United States Federal Government established the Yurok Reservation in 1855. The 84.7-square-mile reservation is located in parts of Del Norte and Humboldt counties, on a 44-mile stretch of the Klamath River.

REGIONAL HISTORY

It was along the coast that the non-native history of Humboldt County began, first with sporadic visits by Spanish and English mariners and then by explorers and fur trappers from Spain, Russia, England, and the United States. The search for a northern sea route between the Old World and the New, and for safe harbors along the way, became a primary objective for Spain and England within half a century after the European "discovery" of North America. Finally, in 1775, Spanish sailors under the command of Lieutenant Bruno de Heceta and Juan Ferdinand de Bodega y Quadra came ashore at Trinidad Head on Cape Mendocino. Although there are several other accounts of explorations along the far northern California coast, the dearth of detailed records for this period suggests that these early visitors did not venture far from shore or have prolonged encounters with the local native populations.

Trappers and Explorers

The histories of the North West Company, the Russian-American Company, and the Hudson's Bay Company in northern California are well known. Within two years of Lewis and Clark's famed explorations, fur trading companies were landing at Humboldt Bay. In an atlas and explanatory volume compiled by a Russian named Tebenkof in 1848, credit for the "discovery" of Humboldt Bay around 1806 is given to Captain Johnathan Winship, "an American, in an American vessel, with an American crew—but all…temporarily in the service of the Russian American Company." Within a decade, the fur trappers had greatly diminished the sea otter population on the coast, and the Russian-American Company withdrew, leaving the region to the British and American trappers. While it is not mentioned in most histories, the loss of sea otters likely deprived the region's Native populations of an important source of food and pelts.

The early trappers were followed in the 1840s by settlers encouraged to emigrate to the far west in response to federal land policies, such as the Preemption Act of1841, which encouraged the transfer of lands from the public to the private domain. During this time, the United States became interested in annexation of California and sent "scientific expeditions" to the Pacific Coast, beginning in 1841 with Navy Lt. Charles Wilkes. Even so, until 1846 Alta California remained primarily a Mexican territory, and most of the population was of Mexican, Spanish, or Native American ancestry.

The discovery of gold on the American River in Coloma, El Dorado County, in 1848 had a more indirect effect on the coastal region. Although there was a short-lived "rush" at Gold Bluffs, where gold existed in the sands on the beach, no one was ever able to find a practical, cost-effective way to separate it out. Instead, the mining "pay dirt" for early Coast Range towns like Trinidad, Union (now Arcata), and Eureka were as entry points and supply centers for the Trinity and Klamath River mines. By 1852 Union/Arcata led the trade, bringing in more than half a million dollars in 1855 alone.

The discovery of gold in several areas of northern California brought the region to the attention of the United States government. After California was granted statehood in 1850, many in the US government began to push for the opening of western lands to independent farmers. In the North Coast Ranges, the 1860s saw the expansion of small farms and dairies into the fertile valleys and prairie lands of Humboldt and Mendocino Counties, especially along the Eel, Bear, and Mattole Rivers. Stock raising was the main agricultural activity for much of Humboldt and Mendocino Counties, as cattle and sheep ranchers expanded into the upland prairies and mountains east of the redwood belt. In the nineteenth century, ranchers had essentially free and unregulated access to grazing lands. Although small family farms and dairies were the norm in the early years, a few large ranching operations were established, notably the 250,000-acre Russ family dairy and stock ranches. Ranching also stimulated other, related businesses like tanneries, creameries, and woolen mills.

Native Resistance

The Homestead Act of 1862 and the resulting flood of settlers to northwestern California worsened an already grim reality for the Native American peoples living here. Almost as soon as the first explorers had entered the region, tensions arose between them and the Native populations. Multiple massacres of Native people took place across northwestern California, including the 1859–1860 "Mendocino War" that resulted in the deaths of hundreds of Yuki and other Indian people in the Round Valley vicinity; the 1860 massacre of nearly an entire Wyot village on Tuluwat (Gunther) Island in Humboldt Bay; and the near-annihilation of almost the entire Sinkyone tribe at Needle Rock on the Mendocino Coast.

Retaliations by Native people raised panic among whites, who lobbied for protection from the military. As a result, approximately 13 US military forts were established in northwestern California between 1850 and 1865 (Table 3.5-1). The first three forts were established in the interior (Siskiyou, Shasta, and Tehama Counties), with the rest in the North Coast Ranges and Klamath Mountains. The US Army and the California Volunteers, often assisted by local ranchers and settlers launched attacks from these camps, driving Native Americans to take refuge higher in the mountains.

Table 3.5-1 Military Forts in Northwest California.

Name	Region (Location)	Dates
Fort Jones	Upper Klamath (Central Siskiyou County)	1850–1858
Fort Reading	Upper Sacramento Valley (Anderson)	1852–1867
Fort Vose	Upper Sacramento Valley (Nome Lackee Indian Reservation, Tehama County)	1855–1858
Fort Ter Waw	North Coast Ranges (Del Norte County)	1857–1862
Fort Gaston	Klamath Mountains/High North Coast Ranges (Hoopa Valley Indian Reservation)	1858–1892
Fort Seward	Klamath Mountains/High North Coast Ranges (Eel River)	1861–1862
Fort Baker	North Coast Ranges/Klamath Mountains (Humboldt County)	1862–1865
Fort Wright	Klamath Mountains/High North Coast Ranges (Round Valley)	1862–1866
Fort Anderson	North Coast Ranges (Redwood Creek)	1862–1866
Camp Lincoln	North Coast Ranges (Del Norte County)	1862–1869
Camp Grant	North Coast Ranges (Weott)	1863–1865
Fort Iaqua	North Coast Ranges (Humboldt County)	1863–1866
Fort Humboldt	North Coast Ranges (Eureka)	1863–1867

Far Western. 2016. A Class I Cultural Resources Overview and Existing Information Inventory for the Northwest California Integrated Resource Management Plan, BLM Redding and Arcata Field Offices

Logging and Lumbering

In nineteenth- and early twentieth-century California, mining, logging, and settlement went hand-in-hand. Mining—particularly lode mining—required vast quantities of wood for timber shoring, headframes, steam power, and building construction. Much of the lumber was used to build flumes in the river canyon, to carry water to the placers and to power hydraulic monitors. Gradually the scale and intensity of logging in all forested areas of northwestern California evolved from water-powered sawmills and oxen to transport the logs to the mills, to steam-driven sawmills, steam donkeys, and logging railroads.

Logging the Redwoods

Redwood lumbering in the North Coast Ranges began in the 1850s and quickly became one of the most important economic activities, especially in Humboldt and northern Mendocino counties. The first sawmills sprang up along Humboldt Bay in 1850, and though many failed within a year, by 1860 Humboldt had become the second-ranking county in California in the production of lumber, sawing 30,000,000 board feet annually. Not only redwoods were logged, however. As the local industry expanded, lumber companies also cut stands of Port Orford cedar, Douglas-fir, tanoak, and several species of pine. In the early years, horse-drawn carts carried the logs to the edge of Humboldt Bay; eventually they were replaced by machinery, as the lumber companies built the first railroads in California. By 1854–1855 there were already 20 miles of these railways in Humboldt County, and more were constructed as the closer timber stands were cut over and the lumber companies had to go farther afield.

Railroad Logging

Railroads in California's timberlands began as a way to access remote regions that had no developed road systems, and expanded to reach increasingly distant timber stands. This created a need for remote camps for the workers and a system for transporting the logs. Logging railroads served both purposes, moving portable camp structures into the woods and logs back out to the mills. Many logging railroad systems were active in the North Coast region, including a two-mile-long rail system from Union (Arcata) to Humboldt Bay that was later incorporated into the Arcata and Mad River Railroad; the McKay & Company Railroad; and the short-line Freshwater Railroad. The latter was eventually acquired by the Pacific Lumber Company and operated into the 1940s. The Oregon & Eureka Railroad operated for only nine years (1903–1911).

Maritime Activities

Fishing and Whaling

The salmon fishery and canning industry on the North Coast are well known. What is less commonly known, however, is that whaling was also a busy industry along the California coast throughout the second half of the nineteenth century. Before 1850, the coastal whaling industry took precedence, followed by the state's salmon fisheries. California's early whaling and fishing industries were dependent on the exportation of their products. The whaling industry created facilities on land. There are two whaling stations in the County: Trinidad Bay, used for an unknown period beginning in 1861; and Buhne Point in Humboldt Bay, from 1855 to an unknown end-date. The whaling industry continued sporadically in California until 1972.

Shipping

As early as the 1850s, Humboldt Bay developed a small export lumber industry. The lack of a good road system meant that sawmills had to be close to the bay for ease of shipment of finished redwood lumber from the Humboldt and Mendocino coasts to San Francisco. A fleet of lumber schooners were used for transport until the construction of a railroad between Eureka and San Francisco in 1914. Even then, shipping remained a primary mode of transport for the local redwood industry. In addition to redwood, these ports processed and shipped bark from the tanoak or tanbark oak tree, a common understory species in redwood forests. The bark, rich in tannins, was used to tan leather goods, and by the late nineteenth century the harvesting and shipping of tanbark was a major economic activity along the North Coast.

Aids to Navigation

To aid in shipping and navigation in general, various entities and individuals built lighthouses along the California coast. Within the County, these include the Cape Mendocino Light (1868–1970s, subsequently dismantled and reassembled at Mal Coombs Park in Shelter Cove), the Punta Gorda Light (1912–1951), the Point St. George Reef Light (1982–1975), the Humboldt Harbor Light (North Spit, 1856–1892; abandoned and replaced by the Table Bluff Light), the Table Bluff Light (1892–1961), and the Trinidad Head Light.

Recent History

Up to and through World War II, the County's population (primarily Swiss-Italian, Portuguese, and people of Slavic origins) and work (logging and cattle and sheep operations) remained stable. The natural resources of the North Coast continued to provide livelihoods for most of Humboldt County's people. Large timber

companies kept people employed; however, the end of World War II changed that stability. A new Doug fir/plywood industry brought woods and mill workers from Oregon and Washington. Gypo loggers and seat-of-the-pants mills were established. Workers from Arkansas and Oklahoma found ready work. On the peninsula, Manila became a settlement of these folks, many of whom brought home the scrap wood from the mill at Samoa to build their houses. In 1947, Arcata was a lumber boom town with 30 mills in operation. Railroad shipments of lumber broke records year after year (Van Kirk 1999).

Timber dominated the economic and political life of the county into the 1970s. College students, back-to-the-land refugees, and environmentalists brought a new perspective to resource use. What had once been a resource-extractive economy became a more diverse economy that included education, health and social services, resource protection and restoration, and government. And new groups of immigrants arrived, notably Hispanic workers and their families and refugees from countries affected by the Vietnam War (Van Kirk 1999).

NATIVE AMERICAN OUTREACH AND CONSULTATION

Assembly Bill 52 Consultation

AB 52 applies to those projects for which a lead agency had issued a NOP of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration on or after July 1, 2015. Therefore, the requirements of AB 52 apply to the project. Based on a list of tribes that had expressed interest in notification regarding future projects within the county pursuant to AB 52, the County sent letters to the following tribes on June 23, 2017:

Table 3.5-2 Summary of AB 52 Consultation

Native American Contact Name	Native American Contact Group	Date of Initial Letter	Date(s) Reply Received	Date of Follow-up Phone Call/ Email/Meeting	Comment
Barry Brenard, Chairperson	Bear River Band of the Rohnerville Rancheria	June 23, 2017	No Response		Erika Collins, Bear River has been invited to attend meeting with Blue Lake Rancheria on September 6, 2017.
Virgil Moorehead, Tribal Chairperson	Big Lagoon Rancheria	June 23, 2017	No Response		
Claudia Brundin, Tribal Chairperson	Blue Lake Rancheria	June 23, 2017	July 14, 2017 letter requesting consultation	Meeting scheduled for September 6, 2017	
Ryan P. Jackson, Chairperson	Hoopa Valley Tribe	June 23, 2017	No Response		
Russell Atteberry, Chairperson	Karuk Tribe	June 23, 2017	May 2, 2017 letter requesting consultation	Karuk Resources Advisory Board (K.R.A.B.) Meeting August 1, 2017	K.R.A.B. meeting was attended by several members of the Tribal Council, including Renee Stauffer, Joshua Saxon, and Alvis Johnson. Support expressed for ceremonial area setbacks, as well as water source and roadshed performance standards of the proposed ordinance.
James Russ, President	Round Valley Indian Tribes of the Round Valley Reservation	June 23, 2017	No Response		
Hawk Rosales, Director	Intertribal Sinkyone Wilderness Council	June 23, 2017	No Response		
Garth Sundberg Sr., Chairperson	Cher-Ae Heights Indian Community	June 23, 2017	No Response		

Table 3.5-2 Summary of AB 52 Consultation

Native American Contact Name	Native American Contact Group	Date of Initial Letter	Date(s) Reply Received	Date of Follow-up Phone Call/ Email/Meeting	Comment
	of the Trinidad Rancheria				
Paul Ammon, Chairperson	Tsnungwe Council	June 23, 2017	No Response		
Ted Hernandez, Chairperson	Wiyot Tribe	June 23, 2017	April 18, 2017 letter requesting consultation	Tribal Council Meeting July 24, 2017	1,000-foot setback from Tribal Ceremonial locations suggested. Tribe representatives have been invited to attend meeting with Blue Lake Rancheria on September 6, 2017.
Thomas O'Rourke, Chairperson	Yurok Tribe	June 23, 2017	No Response		

In addition to meetings held in response to formal requests for consultation received from the Blue Lake Rancheria, Wiyot, and Karuk Tribes, the County has met with representatives from the majority of Humboldt County Tribes on several occasions, including during several recent gatherings including: an Intertribal meeting hosted by the Blue Lake Rancheria on April 14, 2017, as well as the annual Strategic Partnership Coalition Meeting held on May 16, 2017. To date, only the Big Lagoon Rancheria, Intertribal Sinkyone Wilderness Council, and Round Valley Indian Tribes of the Round Valley Reservation have not contacted the County, requested consultation, or attended any of these events. Independent of the proposed ordinance, the County continues to work with all local tribes on ways to refine and improve coordination when implementing project-level AB 52 consultation and similar procedures and processes promulgated under the current Commercial Medical Marijuana Land Use Ordinance.

As identified in Table 3.5-2, the Blue Lake, Karuk, and Wiyot consulted with the County on the proposed ordinance's potential impact on TCRs under AB 52. The following is a summary of items that have been incorporated into the proposed ordinance:

- Tribe consultation provisions and notification of permit application for commercial cannabis operation sites within 1,000 feet of the boundary of tribal reservations, rancherias, or tribal ancestral area.
- 600-foot setback for all commercial cannabis sites from TCRs.
- 1,000-foot setback for all commercial cannabis sites from tribal ceremonial sites.

KNOWN CULTURAL RESOURCES IN HUMBOLDT COUNTY

Archaeological Sites

According to the EIR for the Humboldt County General Plan (Humboldt County 2017:3.13-2) there are records for approximately 2,040 archaeological sites (most of which have not been evaluated for the NRHP or CRHR), including cemeteries, villages, and lithic scatters: surface-visible concentrations of stone chips, flakes, and tools. Three-quarters of these resources are located along rivers and major tributaries; the remainder are in flat mountainous areas or prairies. High-density sites (villages, cemeteries, and ceremonial and gathering areas) are concentrated in the Hoopa and Yurok reservations and riverine areas. Ridgelines along rivers and creeks, where traveling between villages likely occurred, and lithic scatters around Trinidad, Humboldt Bay, the Eel Delta, and Shelter Cove are considered medium-density resource sites.

Historic Sites

Humboldt County is home to several historical sites, having been one of the first areas in California to be explored and settled by Europeans. The sites recognized on the NRHP and CRHR include architecturally significant nineteenth-century homes, banks, hotels, libraries, public buildings, bridges, schools, churches, lighthouses, and the historic districts of Ferndale, Eureka, Hoopa, and Bald Hills in Orick. Many historic properties in the County are identified through historic building surveys and previous cultural resource studies. Table 3.5-2 shows those properties in the county which have been determined eligible for listing in the NRHP, CRHR, or as a CHL.

Table 3.5-2 Historical Resources in Humboldt County

	NRHP	CRHR	CHL	Point of Interest	City
Alford–Nielson House (N1414)	X				Ferndale
Andreasen, F. W.–John Rossen House (N1616)	X			X	Ferndale
Arcata And Mad River Rail Road Company (842)			X		Blue Lake
Bald Hills Archeological District (N1126)	X				Orick
Bald Hills Archeological District Extension (N1400)	X				Orick
Bank of Eureka Building (N1087)	X				Eureka
Bank of Loleta (N1345)	X				Loleta
Bayside Grange Hall (C18)		X			Bayside
Benbow Inn (N1236)	X			X	Garberville
Berding, A., House (N1169)	X				Ferndale
California's First Drilled Oil Wells (543)			X		Petrolia
Camp Curtis (215)			X		Arcata
Carlotta Hotel (N620)	X				Carlotta
Carnegie Free Library (N1415)	X				Eureka
Centerville Beach Cross (173)			X		Ferndale
City of Eureka (477)			X		Eureka
Clark, William S., House (N1544)	X				Eureka
Cottrell, John A., House (N2305)	X				Eureka
De-No-To Cultural District (N1356)	X				Hoopa
E Janssen Building, Humboldt Cultural Center (P303)				X	Eureka
Eureka Historic District (N1739)	X				Eureka
Eureka Inn (N1025)	X				Eureka
Fern Cottage Historic District (N1539)	X				Ferndale
Fernbridge (N1498)	X				Fernbridge
Ferndale (883)			X		Ferndale
Ferndale Main Street Historic District (N1858)	X				Ferndale
Ferndale Public Library (N1658)	X				Ferndale
First and F Street Building (N294)	X				Eureka
Fort Humboldt (154)			X		Eureka
Grizzly Bluff School (N840)					Ferndale
Gushaw-Mudgett House (N987)	X				Fortuna

Table 3.5-2 Historical Resources in Humboldt County

	NRHP	CRHR	CHL	Point of Interest	City
Holy Trinity Church (N895)	X				Trinidad
Hotel Arcata (N1261)	X				Arcata
Humboldt Bay Life-Saving Station (N830)	X				Samoa
Humboldt Bay Woolen Mill (N1119)	X				Eureka
Humboldt Harbor Historical District (882)			X		Eureka
Isaac Minor General Merchandise Store and Post Office (P749)				X	Mckinleyville
Jacoby Building (783)	X		X		Arcata
Janssen, E., Building (N246)	X				Eureka
Lower Blackburn Grade Bridge (N957)	X				Bridgeville
Mcdonald, D. C., Building (N1163)	X				Eureka
Mcfarlan, George, House (N692)	X				Eureka
Odd Fellows Hall (N599)	X				Eureka
Old Arrow Tree (164)			X		Korbel
Old Indian Village of Tsurai (838)			X		Trinidad
Old Jacoby Creek School (N1346)	X				Bayside
Phillips House (N1391)	X				Arcata
Prairie Creek Fish Hatchery (N2082)	X				Orick
Punta Gorda Light Station (N435)	X				Petrolia
Pythian Castle (N1423)	X				Arcata
Rectory, Catholic Church of the Assumption (N1026)	X				Ferndale
Ricks, Thomas F., House (N1800)	X				Eureka
Schorlig House (N702)	X				Arcata
Shaw House (N1303)	X				Ferndale
Simpson–Vance House (N1446)	X				Eureka
Stone House (N1425)	X				Arcata
Town Of Trinidad (216)			X		Trinidad
Trinidad Head (146)			X		Trinidad
Trinidad Head Light Station (N1720)	X				Trinidad
Tsahpek (N192)	X				Eureka
U.S. Post Office and Courthouse (N1172)	X				Eureka
Unique Log House (P506)				X	Garberville
Uss Milwaukee (P519)				X	Samoa
Washington School (N2163)	X				Eureka
Whaley House (N844)	X				Arcata
Zane's Road Bridge (P480)				X	Fields Landing
Zanone, Magdalena House (N2236)	X				Eureka

Notes: NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources; CHL = California Historical Landmarks

Source: Office of Historic Preservation 2017.

The County also maintains its own Local Official Register of Historic Resources, which provides protective status to resources that have local significance. In the unincorporated portion of the County, resources include:

- Garberville Civic Clubhouse, 477 Maple Lane, Garberville;
- Andreasen, F. W.--John Rossen House, Port Kenyon Road and Bush Street, Ferndale;
- Myers Flat Hotel, Myers Flat;
- Southport Landing – Charles Heney House, Phelan Road and Table Bluff, Table Bluff; and
- Petersen-Machado Centerville Dairy, Centerville Road, Centerville (Humboldt County 2017:3.13-3).

Tribal Cultural Resources

The Wiyot Tribe provided NOP comments suggesting that ethnobotanical resources (native plants that are used and are part a people's culture) that are related to listed natural communities by the California Department of Fish and Wildlife (CDFW) could be considered a type of TCR (see Appendix A). No further details on the historic use of specific ethnobotanical resources or information to justify the consideration of ethnobotanical resources as a TCR was provided by the Wiyot Tribe at subsequent meetings with the County (Lazar 2017). Thus, the County has not established that sensitive natural habitat communities are TCRs in the proposed ordinance.

3.5.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The impact analysis considers the known cultural resource environmental setting in the County, the potential for previously undocumented resources, including human remains, and physical effects (i.e., disturbance, material alteration, demolishment) to known and previously undocumented cultural resources that could result from implementation of the proposed ordinance. The analysis is also informed by the provisions and requirements of federal, state, and local laws and regulations that apply to cultural resources.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact on cultural resources if it would:

- cause a substantial adverse change in the significance of an historical resource as defined in Section 15064.5;
- cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5;
- disturb any human remains, including those interred outside of dedicated cemeteries; or
- cause a substantial adverse change in the significance of a tribal cultural resource as defined in PRC Section 21074.

IMPACT ANALYSIS

Impact 3.5-1: Change in the significance of a historic resource.

Future commercial cannabis operations associated with the proposed ordinance could be located on lands that contain, or are nearby historic resources. This could result in damage to or destruction of a historic building or structure, thereby resulting in a substantial adverse change in the significance of a historical resource as defined in Section 15064.5. This would be a **potentially significant** impact.

Historical (or architectural) resources include standing buildings (e.g., houses, barns, cabins) and intact structures (e.g., dams, bridges). Humboldt County contains a variety of historic resources, including federal and state recognized resources. Historic resources within the county generally include property types ranging from civic and commercial or industrial buildings, such as the Ferndale Public Library, Bank of Loleta, Grizzly Bluff School, to districts including the Eureka and the Humboldt Harbor historical districts, to residential buildings in the county's many small towns. As of May 2017, 48 objects, structure, buildings, and sites in the county have been listed in the NRHP; one additional has been listed in the CRHR; 13 have been listed as California Landmarks; and seven have been listed as California Points of Historical Interest. These resources meet the definition of historic resource under Section 15064.5(a) of the CEQA Guidelines. The demolition, alteration, or disturbance of existing features, buildings, and structures could result in changes to or destruction of historic resources.

The proposed ordinance contains measures that would establish land use regulations for the cultivation, manufacture, testing, distribution, and storage of cannabis within the County. This would result in brush removal, grading, and irrigation to facilitate the cultivation of commercial cannabis; re-use of existing buildings or construction of new buildings for processing and manufacturing activities, as well as smaller sheds for storage of materials. These activities could be in areas with known historical sites, or in areas where structures have not yet been evaluated for historical significance. Damage to or destruction of a building or structure that is a designated historic resource, eligible for listing as a historic resource, or that has not yet been evaluated, could result in the change in its historical significance. Therefore, the impact to historical resources would be **potentially significant**.

Mitigation 3.5-1: Protection of historic resources.

The following shall be included as performance standards in the proposed ordinance for the protection of historic resources.

- Applicants shall identify and evaluate all historic-age (over 45-years in age) buildings and structures that are proposed to be removed and modified as part of cannabis operations. This will include preparation of an historic structure report and evaluation of resources to determine their eligibility for recognition under State, federal, or County Local Official Register of Historic Resources criteria. The evaluation shall be prepared by an architectural historian, or historical architect meeting the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, Professional Qualification Standards. The evaluation shall comply with CEQA Guidelines Section 15064.5(b), and, if federal funding or permits are required, with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. § 470 et seq.).

- If resources eligible for inclusion in the NRHP, CRHR, or Local Official Register of Historic Resources are identified, an assessment of impacts on these resources shall be included in the report, as well as detailed measures to avoid impacts. If avoidance of a significant architectural/built environment resource is not feasible, additional mitigation options include, but are not limited to, specific design plans for historic districts, or plans for alteration or adaptive re-use of a historical resource that follows the Secretary of the Interior's *Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings.*

Significance after Mitigation

Implementation of Mitigation Measures 3.5-1 would reduce potentially significant impacts to historic resources because actions would be taken to record, evaluate, avoid, or otherwise treat the resource appropriately, in accordance with pertinent laws and regulations. Implementation of this mitigation measure would reduce impact to a **less-than-significant** level.

Impact 3.5-2: Disturb unique archaeological resources.

Future commercial cannabis operations associated with the proposed ordinance could be located on properties that contain known or unknown archaeological resources and ground-disturbing activities could result in discovery or damage of yet undiscovered archaeological resources as defined in CEQA Guidelines Section 15064.5. This would be a **potentially significant** impact.

As discussed above in Section 3.5.2, "Environmental Setting," evidence from previous archaeological survey work indicates that the following archaeological site types may be encountered throughout un-surveyed portions of the county:

- deeply buried sites dating to the Borax Lake Pattern;
- surface scatters of lithic artifacts and projectile points;
- bedrock milling stations;
- ceremonial sites and site of cultural significance;
- traditional resource gathering sites;
- historic artifact features and buried deposits of historic debris and artifacts;
- building foundations and associated deposits (homes, businesses, barns, mines, mills, etc.);
- water related (ditches, dams, reservoirs, penstocks);
- logging remains (narrow-gauge railroad segments, donkey sleds, boilers, work camps, etc.);
- shipping and canning remains;
- transportation (roads, trails); and
- ranching and agriculture (terracing, fences, corrals, water troughs).

The proposed ordinance contains measures that would establish land use regulations for the cultivation, manufacture, testing, distribution, and storage of commercial cannabis within the County. This would result in brush removal, grading, and irrigation to facilitate the cultivation of medical cannabis; construction of buildings for processing and manufacturing activities, as well as smaller sheds for storage of materials. These activities would require various degrees of ground disturbance that could encounter previously undiscovered or unrecorded archaeological sites and materials. Compliance with County Code provisions 16.1.4 through 16.1.5 and 16.2.4 through 16.2.5 would address potential impacts to archaeological resources in the Coastal Zone and in particular the Shelter Cove unincorporated community.

Ground disturbance could damage or destroy previously undiscovered archaeological resources, which would be a **potentially significant** impact.

Mitigation 3.5-2: Avoid potential effects on unique archaeological resources.

The following shall be included as performance standards in the proposed ordinance for the protection of archaeological resources.

- Applicants for projects that include any ground disturbance shall retain a qualified archaeologist to conduct archaeological surveys of the site. The applicant shall follow recommendations identified in the survey, which may include activities such as subsurface testing, designing, and implementing a Worker Environmental Awareness Program, construction monitoring by a qualified archaeologist, avoidance of sites, or preservation in place.

- All projects shall include the following requirements as a condition of approval: If evidence of any prehistoric or historic-era subsurface archaeological features or deposits are discovered during

construction-related earth-moving activities (e.g., ceramic shard, trash scatters, lithic scatters), all ground-disturbing activity in the area of the discovery shall be halted and the County shall be notified immediately. A qualified archaeologist shall be retained to assess the significance of the find. If the find is a prehistoric archeological site, the appropriate Native American group shall be notified. If the archaeologist determines that the find does not meet NRHP or CRHR standards of significance for cultural resources, construction may proceed. If the archaeologist determines that further information is needed to evaluate significance, a data recovery plan shall be prepared. If the find is determined to be significant by the qualified archaeologist (i.e., because the find is determined to constitute either an historical resource or a unique archaeological resource), the archaeologist shall work with the project applicant to avoid disturbance to the resources, and if complete avoidance is not feasible in light of project design, economics, logistics, and other factors, follow accepted professional standards in recording any find including submittal of the standard DPR Primary Record forms (Form DPR 523) and location information to NCIC.

Significance after Mitigation

Implementation of Mitigation Measure 3.5-2 would reduce potentially significant impacts to archaeological resources because mitigation would avoid, move, record, or otherwise treat discovered resource appropriately, in accordance with pertinent laws and regulations. By providing an opportunity to avoid disturbance, disruption, or destruction of archaeological resources, this impact would be reduced to a **less-than-significant** level.

Impact 3.5-3: Discovery of human remains.

Previously undiscovered human remains could be discovered when soils are disturbed during construction of commercial cultivation and processing sites under the proposed ordinance. Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would make this impact **less than significant**.

Grave sites and Native American remains can occur outside of dedicated cemeteries or burial sites. Ground-disturbing construction activities could uncover previously unknown human remains, which could be archaeologically or culturally significant. The proposed ordinance would allow for brush removal, grading, and irrigation to facilitate the cultivation of commercial cannabis. Structures could be constructed for processing activities, as well as smaller sheds for storage of materials. These activities would result in limited, shallow levels of soil disturbance; it is unlikely that unknown human remains would be unearthed by earth-disturbing activities associated with the proposed ordinance because of the shallow soil disturbance required. Nevertheless, the potential exists for previously undiscovered human remains to be discovered when soils are disturbed.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097.

These statutes require that If human remains are discovered during any construction activities, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the Humboldt County coroner and NAHC shall be notified immediately, in accordance with to Section 5097.98 of the State Public Resources Code and Section 7050.5 of California's Health and Safety Code. If the remains are determined by NAHC to be Native American, the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the archaeologist, and the NAHC-designated Most Likely Descendant shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in California Public Resources Code Section 5097.94.

Compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.5-4: Change in the significance of a tribal cultural resource.

Consultation with the Blue Lake, Karuk, and Wiyot tribes resulted in refinements to the proposed ordinance that protect potential TCRs and any potential resources of tribal interest. Because no resources meet the criteria for a TRC under PRC Section 21074, this impact would be **less than significant**.

As part of the 2013/2014 legislative session, AB 52 established a new class of resources under CEQA, TCRs, and requires that lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation once the lead agency determines that the application for the project is complete. As detailed above, the County sent letters to the affected tribes on June 23, 2017, in compliance with AB 52. The consultation resulted in the conclusion that there is potential for new commercial cannabis operations to impact TCRs (as defined in PRC Section 21074)

To be considered a TCR, a resource must be either:

1. listed or determined to be eligible for listing, on the national, state, or local register of historic resources, or

2. a resource that the lead agency determines, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource pursuant to the criteria in PRC Section 50241(c). PRC Section 5024.1(c) provides that a resource is meets criteria for listing as an historic resource in the California Register if in meets any of the following:

   (1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

   (2) Is associated with the lives of persons important in our past.

   (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

   (4) Has yielded, or may be likely to yield, information important in prehistory or history.

As a result of consultations between the Blue Lake, Karuk, and Wiyot tribes and the County, the following standards have been incorporated into the proposed ordinance to protect any potential resource of tribal interest through setbacks and notifications of commercial cannabis applications:

- Tribe consultation provisions and notification of permit application for commercial cannabis operation sites within 1,000 feet of the boundary of tribal reservations, rancherias, or tribal ancestral area.

- 600-foot setback for all commercial cannabis sites from TCRs.

- 1,000-foot setback for all commercial cannabis sites from tribal ceremonial sites.

Compliance with County Code provisions 16.1.4 through 16.1.5 and 16.2.4 through 16.2.5 would also address potential impacts to TCRs in the Coastal Zone and in particular the Shelter Cove unincorporated community.

As described above under "Known Cultural Resources in Humboldt County," no TCRs have been identified for this project. The County has not established that sensitive natural habitat communities are TCRs in the proposed ordinance, as no technical information has been provided to the County to justify this determination. As a measure of precaution, potential TCRs and resources of tribal interest are protected by the above performance measures in the ordinance. Therefore, the project would have a **less-than-significant** impact to TRCs as defined in PRC Section 21074.

Mitigation Measures

No mitigation is required.

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3.6 GEOLOGY AND SOILS

This section evaluates the potential impacts related to geology, seismicity, and paleontological resources resulting from the implementation of the proposed ordinance. In addition to regional geologic and seismic hazards, the potential effects related to local hazards, such as risks related to underlying geologic materials and soils, are also evaluated. The effects of erosion on water quality are addressed in Section 3.8, "Hydrology and Water Quality." Comments regarding geology and soils received in response to the notice of preparation included concern regarding possible impacts related to slope instability, erosion, and sediment transport. Commenters also expressed concern about slope failure and the potential for landslides.

3.6.1 Regulatory Setting

FEDERAL

Earthquake Hazards Reduction Act

In October 1977, the U.S. Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). The mission of NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) of 1972 (revised in 1994) is the State law that addresses hazards from earthquake fault zones and requires the delineation of zones along active faults. The purpose of this law is to mitigate the hazard of surface fault rupture by regulating development on or near active faults. As required by the Act, the State has delineated Earthquake Fault Zones (formerly Special Studies Zones) along known active faults in California. Cities and counties must regulate certain development projects within these zones. According to the Act, no buildings intended for human occupancy may be constructed on or within 50 feet of an active fault trace. The designated zone extends 200 to 500 feet on both sides of known active fault traces. Development proposed within an Alquist-Priolo zone is subject to a detailed geologic investigation.

Seismic Hazards Mapping Act

The intention of the Seismic Hazards Mapping Act of 1990 (PRC Section 2690–2699.6) is to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including ground shaking, liquefaction, and seismically induced landslides. The act's provisions are similar in concept to those of the Alquist-Priolo Act: The State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development.

California Building Code

The 2016 California Building Code (CBC) (California Code of Regulations, Title 24) is based on the 2009 International Building Code. The CBC has been modified from the International Building Code for California conditions, with more detailed and/or more stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC contains a provision that provides for a preliminary soil report to be prepared to identify "…the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1).

North Coast Regional Water Quality Control Board Order R5-2015-0023

The North Coast Regional Water Quality Control Board (NCRWQCB) Order R1-2015-0023 (Cannabis Cultivation Waste Discharge Regulatory Program) applies to any person engaged in cultivating cannabis and associated activities, on private land, that discharge waste to any area that could affect waters of the state including landowners, operators, lessees, tenants, and occupiers. Under the Order, cannabis cultivation operations are categorized into one of three tiers identified in the Order based on size of disturbance, slope, and distance to water.

Tier 1 includes dischargers with low risk to water quality because they are on slopes less than 35 percent, cultivation areas are smaller than 5,000 square feet, cultivation areas or associated facilities are located more than 200 feet from a surface water, and no surface water diversion occurs from May 15 through October 31. Dischargers in this tier must adhere to certain standard conditions contained in this Order. Most of the standard conditions apply to all three tiers and include a range of soil erosion and water quality protection practices and measures, including for roads, drainage features, stream crossings, riparian and wetland protection and management, water storage and use, irrigation runoff, refuse and human waste, and use of fertilizers and pesticides.

Tier 2 includes dischargers with operations that present a higher threat to water quality and water resources. The site does not meet the characteristics of Tier 1, or the site meets the Tier 1 characteristics but does not meet standard conditions. Tier 2 Dischargers must develop and implement a water resource protection plan that includes management measures to be implemented to meet standard conditions. Required components of the water resource protection plan include development of a map that shows site characteristics, areas of operation, and general drainage patterns; drawings of structures, such as watercourses, septic tanks, and any other constructed features; and identification of any features needing improvements, and specific management practices designed to meet standard conditions and any additional improvement work needed to bring site features into compliance with standard conditions.

Tier 3 includes dischargers with sites requiring cleanup, restoration, and/or remediation based on current or past land development/management activities that have resulted in a discharge or threatened discharge in violation of water quality standards. Such conditions may include, but are not limited to, filled watercourses or wetlands, perched fill, steep cut slopes, roads, or fill prisms that cannot be stabilized sufficiently to prevent erosion and sediment delivery to surface waters (either on or offsite). Tier 3 Dischargers must develop and implement a cleanup and restoration plan as detailed in the Order, and comply with applicable standard conditions. Tier 3 Dischargers who are cultivating cannabis concurrent with or following site cleanup activities must adhere to all standard conditions and develop and implement a water resource protection plan for cannabis cultivation activities.

Tier 1 dischargers must inspect their site periodically and re-certify that it meets Tier 1 characteristics and standard conditions annually. Tier 2 and Tier 3 dischargers must include a monitoring element in the water resource protection plan that at a minimum provides for: periodic inspection of the site, completion of a checklist to confirm placement and efficacy of management measures, and documentation of the progress on any plan elements subject to a time schedule. Tier 2 dischargers may submit their annual report to an approved third-party program.

Dischargers shall obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 2009-0009-DWQ) for construction projects that disturb one or more acres of soil, specifically for new site preparation and development. Dischargers shall submit to NCRWQCB staff a copy of the Stormwater Pollution Prevention Plan (SWPPP) developed for the site in compliance with that Permit.

Many sites in the North Coast include steep slopes, highly erodible soils, or unstable areas. Land development on sites with these characteristics often requires design and oversight by a licensed engineer, geologist, or other appropriate California-licensed individual during construction to ensure that constructed features on the site are stable and do not represent a threat to the beneficial uses of water or public health and safety.

Construction General Permit for Stormwater Discharges Associated with Construction Activity

The Construction General Permit is discussed in Section 3.8, "Hydrology and Water Quality."

Paleontological Resources

Paleontological resources are classified as non-renewable scientific resources and are protected by state statute (Public Resources Code Chapter 1.7, Section 5097.5, Archeological, Paleontological, and Historical Sites and Appendix G). No state or local agencies have specific jurisdiction over paleontological resources. No state or local agency requires a paleontological collecting permit to allow for the recovery of fossil remains discovered because of construction-related earth moving on state or private land in a project site.

LOCAL

Humboldt County General Plan

The following policies in Section 3291, Hazards, of the 1984 General Plan would apply to the proposed project:

1. General

    A. Regulate land use to ensure that development in potentially hazardous areas will not preclude preserving and promoting public safety. Potentially hazardous areas include, but are not limited to, steep slopes, unstable soils areas, on active earthquake fault lines, in extreme wildland fire areas, in airport flight path zones, and in flood plains and tsunami runup areas.

2. Geologic

    A. Provide for the identification and evaluation of existing structural hazards.

    B. Provide for more detailed scientific analysis of natural hazards in the County.

    C. Provide for implementation and periodic review of the Seismic Safety and Public Safety Element.

Humboldt County Code

Grading, Excavation, Erosion, and Sedimentation Control Ordinance

The Grading, Excavation, Erosion, and Sedimentation Control Ordinance (Section 331-12) sets forth rules and regulations to control excavation, grading and earthwork construction, including fills and embankments and erosion and sedimentation controls. In addition to providing a plan that identifies the location of the work, applications for grading permits shall also include a site-specific erosion and sediment control plan. The ordinance contains a list of minimum requirements for erosion and sedimentation control. In some cases, a SWPPP may be submitted in lieu of the erosion and sediment control plan. Grading activities are also required to conform to grading standards, including for cut slope, fill material, setbacks, terracing, and drainage.

Geologic Hazards Ordinance

The Geologic Hazards Ordinance (Sections 336-1–336-5) is intended to reduce risks to life and property in moderate and high geologic hazard areas and avoid contributing further to erosion, geologic instability, or destruction of development sites and surrounding areas. The ordinance identifies the type or extent of engineering geologic or soil engineering reports that may be required based on the type of development and type of geologic hazard present at a project site. The ordinance addresses geologic hazards related to earth shaking, fault rupture, slope stability, and liquefaction.

Development projects located in an Alquist-Priolo Fault Hazard zone have additional report and review standards. The Alquist-Priolo Fault Hazard Regulations apply to lands that contain the "G" combining zone designation on the County zoning maps, and which are within Special Studies Zones delineated on maps by the State Geologist. Areas or issues of concern that require additional engineering or avoidance shall be identified in the reports.

3.6.2 Environmental Setting

The main source of the geology, seismic hazards, and soils information included in the environmental setting was obtained from the Natural Resources and Hazards Report (Humboldt County 2002) prepared to support the Humboldt County General Plan Update.

REGIONAL GEOLOGY

Two geologic provinces cover Humboldt County: the dominant Coast Ranges province in the central and southwest sections of the County, and the Klamath Mountains province in the northeast section of the County (Humboldt County 2002). The Coast Ranges province is comprised mainly of the Franciscan complex inland, and sand and other alluvial deposits located closer to the coast. The Klamath Mountains province is comprised generally of older rocks, many of which are sedimentary (e.g., sandstone, chert, slate, and schist). The South Fork Mountain Ridge generally divides the two provinces. The predominant rock types are the Franciscan Complex and schists (sedimentary rock whose minerals have been compressed into plate like structures, allowing the rock to be easily broken into thin slabs), covering over a million acres in the County, and the Tertiary-Cretaceous (1.5 to 140 million years old) Coastal Belt rocks, covering 340,000 acres. The Franciscan Complex and the Coastal Belt rocks originated on the deep-sea floor and were later pushed up against the continental margin along the coast of California through plate tectonic forces. Geologic formations located within the county are described by watersheds below.

Eel River Basin

The Eel River basin (see Exhibit 3.6-1) is a mountainous area uplifted in the post-Miocene era (5.3 million years ago) and underlain by a deformed, faulted, locally sheared and, in part, metamorphosed (altered by heat and pressure) accumulation of ocean deposits pulled under the continental shelf by the collision of large tectonic plates. About 99 percent of the bedrock underlying the basin is sedimentary and metasedimentary.

The four watersheds in the Eel River Basin (South Fork Eel, Lower Eel, Middle Main Eel, and Van Duzen) are generally comprised of highly erodible rocks, including substantial amounts of Franciscan Complex rocks. Over 85 percent of the Middle Main Eel and 65 percent of the Van Duzen are Franciscan Complex. The Lower Eel and South Fork Eel planning watersheds contain some Coastal Belt rocks. Both the Lower Eel and South Fork Eel are comprised of over 50 percent younger marine sedimentary rocks from the Cenozoic period (up to 65 million years ago). There are large areas of recent (up to 11,000 years ago) river deposits in the floodplains at the mouth of the Eel River.

Klamath-Trinity Basin

The Klamath-Trinity Basin, composed of the Lower Klamath, Lower Trinity, and South Fork Trinity planning watersheds (see Exhibit 3.6-1), is the only basin with notable amounts of rock formed through volcanic processes. The Humboldt County portion of the basin encompasses the North Coast Ranges province. In the North Coast Ranges, landslides and soil slips are common due to the combination of sheared rocks, shallow soil profile development, steep slopes, and heavy seasonal precipitation. In addition, both the Lower Klamath and South Fork Trinity have substantial amounts of Franciscan Complex rocks. Jurassic (140 to 210 million years ago) marine sediments are the predominant bedrock type in the Lower Trinity planning watershed.

Mad-Redwood Basin

The geology of the Mad-Redwood Basin is complex and variable (see Exhibit 3.6-1). The basin includes the Mad River, Redwood Creek, Eureka Plain, and Trinidad planning watersheds, which all differ in terms of their bedrock composition. Mad River, Redwood Creek, and Trinidad are composed primarily of Franciscan rock types, while Eureka Plain is mostly younger sedimentary rock.

Cape Mendocino

About 90 percent of the Cape Mendocino planning watershed is underlain by Tertiary-Cretaceous Coastal Belt rock (see Exhibit 3.6-1). A highly active tectonic setting, combined with sensitive terrain and high rainfall amounts, make Cape Mendocino one of the most erodible watersheds in the state.

SEISMIC HAZARDS

Primary seismic hazard concerns include potential ground shaking and ground rupture along a fault. Secondary seismic hazards are caused by the interaction of ground shaking with soft or unstable soils, resulting in liquefaction and landslides. Each of these potential hazards is discussed below.

Faulting and Surface Rupture

A fault is a fracture in the crust of the earth along which rocks on one side have moved relative to those on the other side (Humboldt County 2002). Most faults are the result of repeated displacements over a long period of time. A fault trace is the line on the earth's surface defining the fault. Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Not all earthquakes result in surface rupture. For example, the Loma Prieta Earthquake of 1989 caused major damage in the San Francisco Bay Area but the movement deep in the earth did not break through to the surface.

Fault rupture usually follows pre-existing faults, which are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden ruptures are more damaging to structures because they are accompanied by shaking.

The offshore and coastal regions of Humboldt County contain one of the most geologically complex areas in California. Three major faults, including the San Andreas, the Mendocino fracture zone, and the southern end of the Cascade subduction zone, all meet in what is known as a "triple junction." Three major plates of the Earth's surface are defined and separated by these three faults: Pacific plate, Gorda plate, and North American plate. Because of this unique geologic setting, the North Coast is vulnerable to several types of earthquakes from a variety of sources. Because a triple junction must accommodate plate motion in several directions, its faulting is varied and its seismicity is high. The geometry of the triple junction renders it unstable, resulting in a likelihood that it will change with time. Because much of this area lies under the Pacific Ocean, geological information is limited.

Surface fault rupture is a seismic hazard that is specifically addressed by the California Alquist-Priolo Earthquake Fault Zoning Act, as described above. The County utilizes a combining zone designation to identify areas where special geologic study is required to identify the precise location of active fault traces to ensure structures for human occupancy are not placed astride them. Exhibit 3.6-1 depicts the locations of fault zones mapped in Humboldt County.

Seismicity

The County is located within the two highest of five seismic risk zones specified by the California Building Code, and offshore Cape Mendocino has the highest concentration of earthquake events anywhere in the continental United States (Humboldt County 2002). The area near Cape Mendocino is a complex, seismically active region, where three crustal plates—the Pacific Plate, the Gorda Plate, and North American Plate—intersect to form the Mendocino Triple Junction.

The Juan de Fuca Plate, Gorda Plate, and Explorer Plate subducting beneath the North American Plate, form the Cascadia Subduction Zone, which runs offshore of Humboldt and Del Norte Counties north through Oregon and Washington states. Recent investigations have shown that this system has moved in unison in a series of great earthquakes (magnitude 8 to 9) over the last 20,000 years, most recently about 300 years ago, with events occurring at 300 to 500-year intervals.

The following is a brief description of each of the major fault zones that are present in Humboldt County:

San Andreas Fault. The San Andreas Fault system is located south of the triple junction (just offshore of the southern section of the County), where the Pacific plate is moving at a rate of about two inches per year to the northwest (relative to North America). The irregular sliding motion, which is almost entirely horizontal, deforms the rocks along the plate boundary until the rocks can no longer withstand the strain. Then, when the rocks shift, energy is released along the fault, causing earthquake shaking.

Falor-Korbel (Mad River) Fault. This fault zone trends northwest to southeast through the central region of the County. Its northern end is on the coast near McKinleyville and the fault trace roughly parallels the Mad River.

Trinidad and Big Lagoon Faults. The Trinidad Fault is located near Trinidad, extending northwest to the coast near Trinidad State Beach. The Trinidad fault is potentially capable of generating an earthquake with a moment magnitude of 7.3. The Big Lagoon fault bisects Big Lagoon, north of Patrick's Point State Park.

Cascadia Subduction Zone. Near its southern end, the subduction zone curves onshore, exposing nine major thrust faults along the Humboldt County coastline near Cape Mendocino. Thrust faults differ from the horizontally moving San Andreas Fault. Geologists have shown that during the last million years, the rocks on top of this group of North Coast thrust faults have been pushed a mile or more to the northeast relative to the rocks beneath.

The major active fault zones in the Humboldt area include the Cookskie and Petrolia shear zones. The Cookskie shear zone is a poorly defined section of sheared and broken rock that extends easterly from Punta Gorda. The Petrolia shear zone is a similar structure extending southeast through Petrolia along the Mattole River.

Until recently, scientists did not consider the Cascadia Subduction Zone a major earthquake threat. Prior to the April 1992 Cape Mendocino earthquake, the Cascadia plate boundary was not known to have produced a major earthquake during the past 150 years. New evidence, however, indicates that the subduction zone is active and capable of producing great earthquakes (magnitude 8 to 9). Great earthquakes may occur as often as every 300 or 400 years, on average. There is evidence that the last great earthquake on the Cascade subduction zone occurred about 300 years ago. However, the probability of such an earthquake occurring in the next few decades has not been estimated.

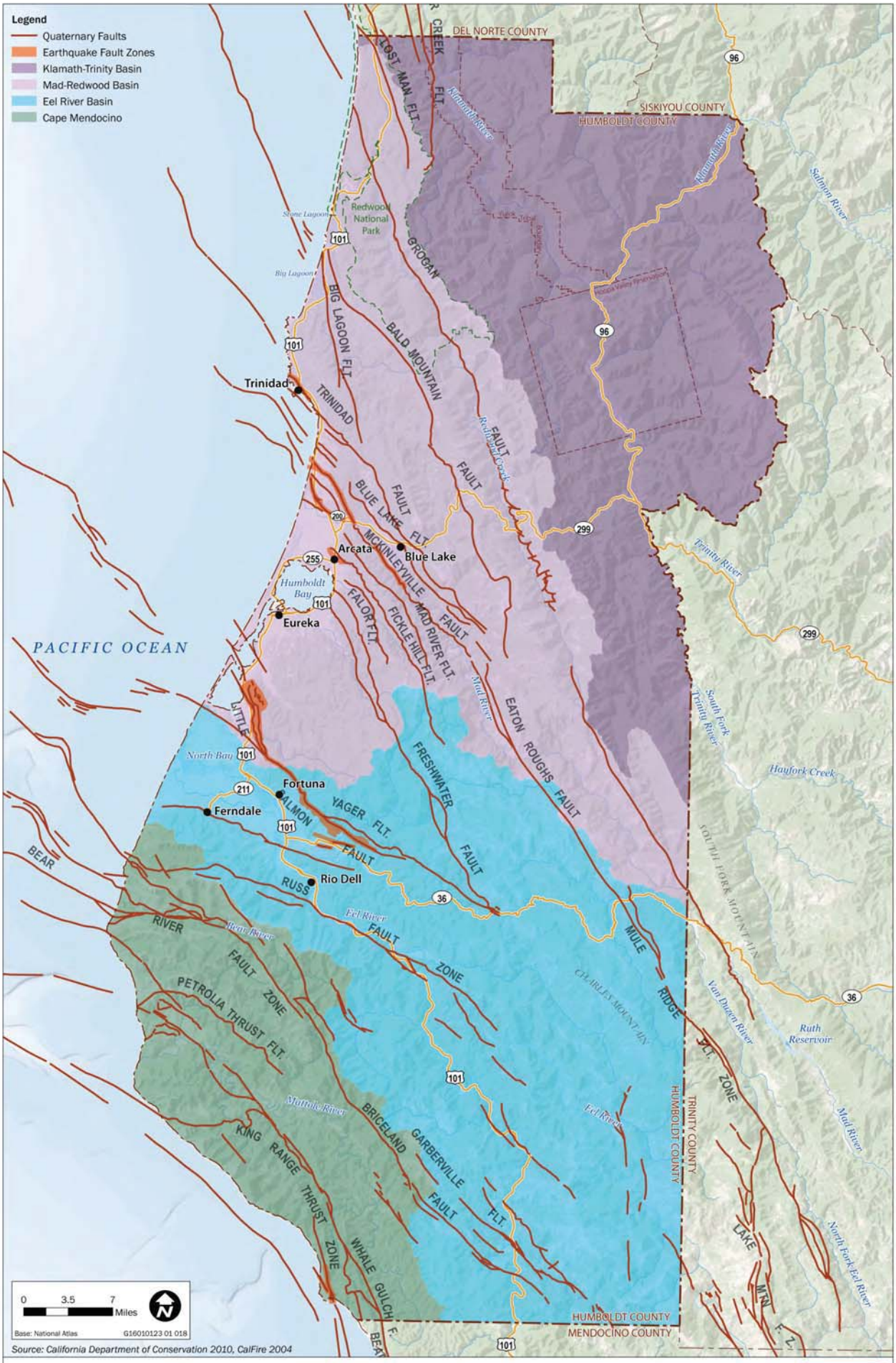

Exhibit 3.6-1 **Geologic Regions and Earthquake Fault Zones**

The above described seismic setting has the potential to cause substantial ground shaking, leading to: (1) a serious liquefaction and subsidence hazard, particularly around the muds and sands of Humboldt Bay; (2) a nearshore tsunami striking the coast within 15 minutes of groundshaking; (3) a significant landslide hazard countywide; and (4) surface fault rupture along the San Andreas, and possibly along the Little Salmon and Mad River Fault zones, and other active or potentially active faults in the County.

Since 1997, the California Uniform Building Code has required that in Seismic Zone 4 (most of the county is in this zone), each listed ground motion fault shall be assigned a near-source seismic factor, to be used in building design. Applying these factors to building construction substantially increases building strength, and for large multi-story buildings, cost. In Humboldt County, there are "A" and "B" designated fault zone areas, with "A" zones (including the San Andreas and Little Salmon Faults) having more stringent design requirements.

Ground Shaking

The fault systems in Humboldt County are historically very active in the last 200 years, and thus are considered to have the potential to cause future earthquakes, surface rupture, and ground failure (Humboldt County 2002). Surface rupture is the direct effect of activity along an active fault. However, most damage to structures is caused by ground shaking, which may occur throughout a wide area (not just along the fault line). A logarithmic scale is used to measure earthquake magnitude, where each unit of measurement represents an increase of about 30 times in the energy released. The western portion of the county is more likely to experience high levels of ground acceleration, or shaking, during a seismic event over the next 50 years (Branum et al. 2008).

About 25 percent of all earthquake energy released in California during historic times has occurred along the Humboldt County coast (Humboldt County 2002). The size, location, and frequency of past earthquakes indicate what to expect in the future. Strong earthquakes with epicenters onshore have recurred about every 20 years.

Recent earthquake activity includes several large-scale events in the Cape Mendocino area. In 1992, three powerful earthquakes rocked the Cape Mendocino area (magnitudes 7.1, 6.6, and 6.7). Injuries and damage occurred in the nearby towns of Ferndale, Petrolia, Fortuna, Rio Dell, and Scotia, and the earthquakes were felt as far north as southern Oregon and over much of northern California. The earthquakes ranged in magnitude from 6.2 to 6.9. A magnitude 6.5 earthquake occurred in January 2010 causing tens of millions of dollars in structural damage in Humboldt County, largely in the City of Eureka.

Ground shaking is responsible for most loss of life and property damage during an earthquake and therefore it is important to accurately evaluate shaking hazards as a basis for improving building designs and standards. Shaking intensity depends on distance from the earthquake source and on local ground conditions (soil type plus slope). In addition to faults, the presence of soft sediments in the area around Humboldt Bay contributes to higher intensity ground shaking.

The extent of structural damage from ground shaking depends on several factors, including geology of the area (e.g., soil types), duration and intensity of the fault movement, and structure design and construction characteristics. Buildings most vulnerable to ground shaking damage are older, unreinforced masonry buildings. Reinforced concrete structures constructed under less stringent building codes (prior to 1965) have a much higher chance of fracturing. Single-family homes constructed of wood frames are one of the safest building types. Their ability to withstand large earthquakes can be further improved with foundation bolts, shear walls, and other strengthening devices.

Liquefaction

Ground shaking gives rise to two secondary natural hazards, liquefaction, and landslides (Humboldt County 2002). Landslides are discussed below under "Soil and Slope Hazards." When shaken strongly, unconsolidated sandy deposits that are saturated with water can liquefy and form a slurry. This process is called "liquefaction." Liquefaction involves a sudden loss in strength of a water-saturated soil, and results in

temporary transformation of the soil into a fluid mass. The soil loses its capacity to bear the weight of buildings or to resist flowing downslope, even on nearly flat ground. Liquefaction may result in sinking, tilt, distortion, or destruction of buildings and bridges, rupture of underground gas lines and water mains, and cracking and spreading of the ground surface. To mitigate such hazards, soils engineering investigations can be required to determine appropriate foundation and building design.

Liquefaction potential depends on groundwater depth and alluvial thickness. Correspondingly, recent alluvial floodplain soils exhibit the highest liquefaction hazard. Research into the process and consequences of liquefaction in past earthquakes has linked liquefaction to hydrologic and geologic settings that are characterized by water-saturated, cohesionless, granular materials situated at depths of less than 50 feet. The following types of areas are identified as being favorable for liquefaction:

- Areas known to have experienced liquefaction during historic earthquakes.
- Areas of uncompacted fills containing liquefaction-susceptible-material that are saturated, nearly saturated, or may be expected to become saturated. Areas where sufficient existing geotechnical data and analyses indicate that the soils are potentially liquefiable.
- Areas containing young (less than 15,000 years) soils where there is limited or no geotechnical data.

Specific areas of high liquefaction potential in the county are located near Humboldt Bay, coinciding with the presence of the bay's muds and sands.

SOIL AND SLOPE HAZARDS

Soil Types

Agricultural Soils

There are a variety of soil types in Humboldt County (Humboldt County 2017). Some of the more abundant agricultural and lowland soils found in the county are the Ferndale series, a deep, well-drained soil formed on recent flood plains; the Bayside and the Loleta series, both deep, poorly drained soils found in depressed areas or on nearly level alluvial fans; and the Rohnerville, Carlotta and Hookton soils series, all moderately well-drained soils.

Rohnerville soils are found on relatively flat, high marine terraces. The Hookton soils are on sloping, dissected marine terraces and the Carlotta soils are found on flat, low-lying terraces. Most of these agricultural soils are rated 80-100 (good to excellent productivity) in the Storie Index of agricultural productivity. The exception is the Bayside soils where drainage problems may reduce agricultural potential.

Forest Soils

The forest soils of the county are, in general, medium textured, acid in reaction, and generally increasing in acidity with depth (Humboldt County 2017). They are permeable and well drained. In the lowlands, forest soils are formed on alluvial flood plains or low-lying terraces. Here, they are either unclassified or of the Carlotta and Ferndale groups. The forest community is dominated by redwood, Douglas fir, and Pacific rhododendron within the coastal summer fog belt. Inland of the fog belt and on Cape Mendocino Douglas fir mixes with tanoak and California huckleberry.

Grassland Soils

The general characteristics of grassland soils vary widely, from shallow loamy soils to deep clay soils (Humboldt County 2017). Their permeability ranges from moderate to slow. The general nutrient level of these grassland soils is higher than that of the adjacent forest soils. Most of these soils are intermingled with soils in the oak woodlands beyond the fog belt. Some of these soils are formed on Franciscan parent material. This parent material weathers rapidly, forming a grey-blue clay subsoil (commonly called "blue goo") that tends to slip when wet. because of this, some grassland soils are found in areas susceptible to landslides.

Woodland Soils

Most of the woodland soils are inland beyond the cool, foggy belt (Humboldt County 2017). They are intermingled with Douglas fir dominated forest soils and the adjacent grassland soils. These are shallow soils, usually well drained, but permeability may be slow in some locations. The natural nutrient level of these soils tends to be somewhat higher than for the neighboring forest soils. Because the parent material is predominantly Franciscan, these soils may be susceptible to landslides.

Erosion Potential and Hazard Rating

Erosion is the process by which surface soils are detached and transported by water and wind. Erosion has a detrimental effect on soil productivity because erosion begins with the upper horizons of a soil profile, which contain organic matter and microbial communities vital to supporting plant growth. Factors that influence the erosion potential of a soil include: vegetative cover; soil properties such as soil texture, structure, rock fragments and depth; steepness and slope length; and, climatic factors such as the amount and intensity of precipitation.

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) provides an erosion potential rating based on slope and soil erosion factor (K). Soils high in clay have low K values, about 0.05 to 0.15, because they are resistant to detachment. Coarse textured soils, such as sandy soils, have low K values, about 0.05 to 0.2, because of low runoff even though these soils are easily detached. Medium textured soils, such as the silt loam soils, have a moderate K values, about 0.25 to 0.4, because they are moderately susceptible to detachment and they produce moderate runoff. Soils having a high silt content are the most erodible of all soils. They are easily detached, tend to crust, and produce high rates of runoff. Values of K for these soils tend to be greater than 0.4.

The hazard is described as “slight,” “moderate,” “severe,” or “very severe.” A rating of “slight” indicates that erosion is unlikely under ordinary conditions; “moderate” indicates that some erosion is likely and that erosion-control measures may be needed; “severe” indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and “very severe” indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Large portions of the western portion of the county (typically areas underlain by Franciscan or Coastal Belt geology), are characterized by soils with moderate or greater erosion potential (see Exhibit 3.6-2). The reader is referred to Section 3.8, “Hydrology and Water Quality,” regarding existing soil erosion issues in the County associated with historic land uses (timber production).

Slope Stability and Landslides

Slope stability refers to the landslide susceptibility of slopes composed of natural rock, soils, artificial fill, or combinations thereof (Humboldt County 2002). Landslides move along surfaces of separation by falling, sliding, and flowing, giving rise to many characteristic features. The features range in appearance from being clearly discernible, largely unweathered and uneroded, to highly weathered and eroded, recognized only by topographic configurations. Landslides are characteristically abundant in areas of high seismicity, steep slopes, and high rainfall, but may be triggered by any or a mixture of the following: (1) type and structure of earth materials; (2) steepness of slope; (3) water; (4) vegetation; (5) erosion; and (6) earthquake-generated ground shaking.

Steep slopes occur in a large portion of the county, including approximately 775,000 acres with 30 to 50 percent slopes and over 530,000 acres with over 50 percent slopes (Humboldt County 2002). Additionally, most of the county is characterized by lands with moderate to high slope instability, which is often reflective of the parent bedrock material. Soils found in the County’s landslide topography often include mélange materials of the Franciscan Formation, which breaks down into clay subsoil that tends to slip when wet. The underlying geology and the high amount of precipitation make most of the county moderately high to highly susceptible to deep seated landslides (Wills et al. 2011). Slope is an important factor, but when those soils become saturated then hills of almost any grade can slide.

A common occurrence in Humboldt County, particularly in the Cape Mendocino watershed area, is high sedimentation rates due to the high tectonic uplift and high stream incision rates into relatively weak bedrock units. This combination of forces has produced a high incidence of landsliding adjacent to stream channels, including large slump-earthflows and extensive zones of debris sliding.

Expansive Soils

Expansive soils contain shrink-swell clays that are capable of absorbing water. As water is absorbed, the clays increase in volume. This change in volume can exert enough force on buildings and other structures to damage foundations and walls. Damage can also occur as these soils dry out and contract.

One measure of the shrink-swell potential of soils is linear extensibility. Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. The volume change is reported as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent, moderate if 3 to 6 percent, high if 6 to 9 percent, and very high if more than 9 percent. Soil shrink-swell potential varies throughout the county (see Exhibit 3.6-3). Soils with moderate to high shrink-swell potential generally dominate the western portion of the county. Some areas along the coast, particularly around Humboldt Bay and the Eel River delta, as well as the northeastern portion of the county contain soils with low shrink-swell potential.

Septic Suitability

Septic systems are used throughout Humboldt County in areas without municipal wastewater systems (Humboldt County 2002). An important septic system design factor is the characteristics of the soil that will be used to filter and clarify effluent before it reaches surface or groundwater. To determine septic suitability, soils must have a certain percolation rate, which is determined by conducting an on-site test. The percolation rate is a measure of a soils ability to absorb water. The type, size, and specific design characteristics of a septic system are dependent on the percolation rate(s) of on-site soils and expected wastewater load. In addition to percolation rate, several other important factors must be considered when locating a septic system, including: depth of groundwater, perched groundwater, and historic groundwater level; depth of bedrock; steepness of topography; presence of soils that could become seasonally saturated during times of intense rainfall; presence of soil types that may act as a barrier to effluent flow; and presence of landslides or other potentially unstable soil conditions.

The Land Use Program of the Humboldt County Department of Health and Human Services Public Health Branch is responsible for the review and approval of applications to construct septic systems. Determination of the septic suitability of soils is dependent on site-specific conditions and requires a thorough site investigation and analysis of the surface and subsurface characteristics.

PALEONTOLOGICAL RESOURCES

Paleontological resources include fossil remains, as well as fossil localities and formations, which have produced fossil material in other nearby areas. Fossils have been identified in Humboldt County in Pleistocene sediments. Pleistocene-age fossils in Humboldt County typically represent marine organisms, including a variety of bivalves, gastropods, and foraminifera. A Columbian mammoth, however, has also been identified in Pleistocene deposits in Humboldt County. (Humboldt County 2016).

Exhibit 3.6-2 **Erosion Potential**

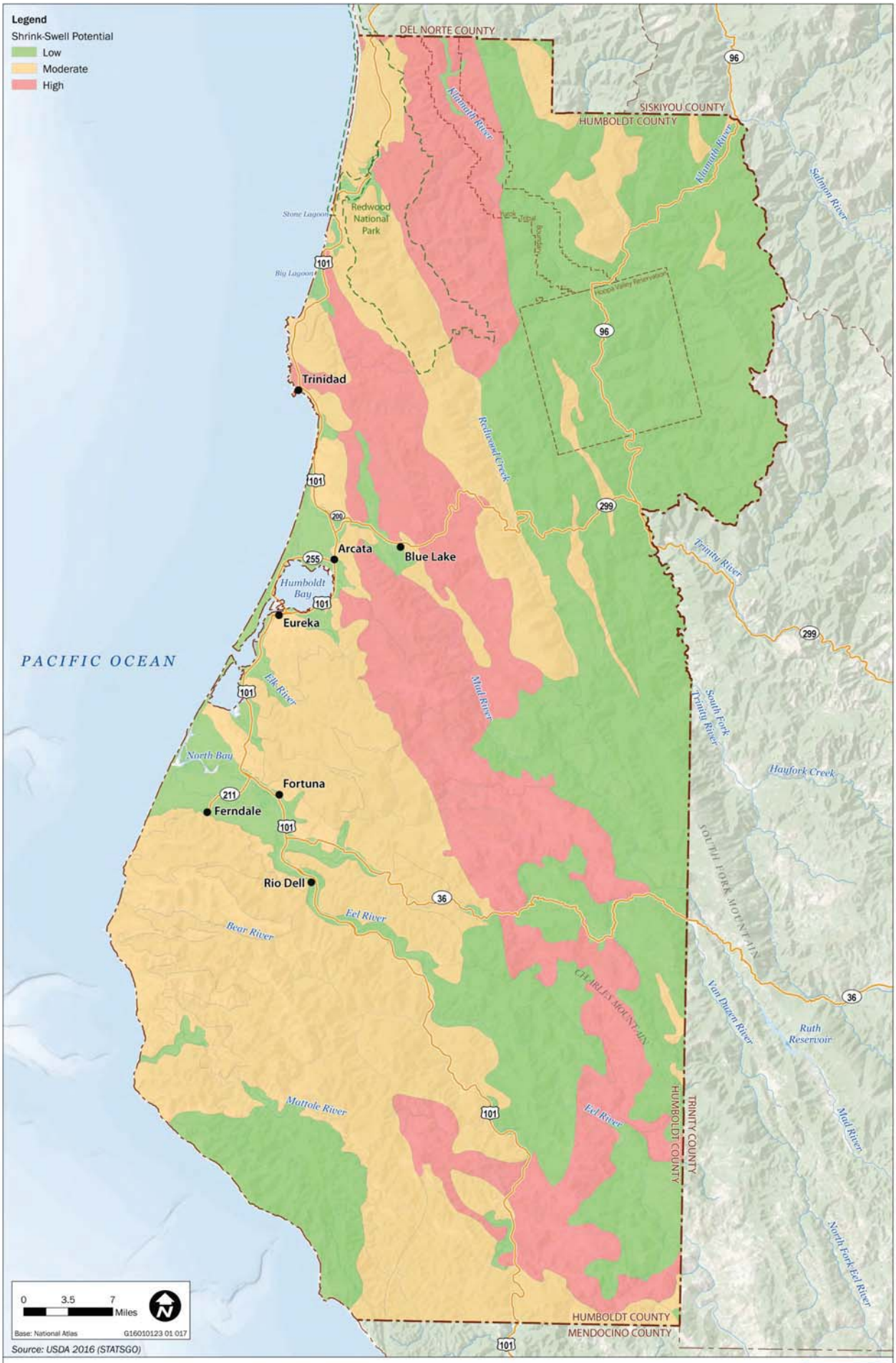

Exhibit 3.6-3 **Expansive Soils**

3.6.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The following program-level analysis is based upon generalized geology and soils maps produced by DOC and NRCS. The footprint and design details of any site-specific commercial cannabis projects are not known at this time. Specific requirements of existing laws and regulations described in the regulatory setting are assessed for their ability to avoid or reduce the exposure of people or structures to substantial adverse effects.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact related to geology and soils if it would:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

   i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. Refer to Division of Mines and Geology Special Publication 42.

   ii. Strong seismic ground shaking.

   iii. Seismic-related ground failure, including liquefaction.

   iv. Landslides.

b) Result in substantial soil erosion or the loss of topsoil.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

d) Be located on expansive soil, as defined in Table 18-1-B of the California Uniform Building Code (1994), creating substantial risks to life or property.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

IMPACT ANALYSIS

Impact 3.6-1: Exposure of people or structures to risk of loss, injury or death resulting from rupture of a known earthquake fault or strong seismic shaking.

Implementation of the proposed ordinance would result in additional people and structures in a region susceptible to strong seismic shaking. All new development that would be related to the proposed ordinance would comply with state and local regulatory requirements related to seismic or geologic hazards (e.g., building codes and other laws and regulations), such that the exposure of people or structures to risk of loss, injury or death resulting from rupture of a known earthquake fault or strong seismic shaking would be avoided or reduced. This impact would be **less than significant**.

Implementation of the proposed ordinance may result in new cannabis cultivation operations and related activities that could be sited in areas subject to strong seismic shaking. Operations of uses permitted under the proposed ordinance could include new structures such as nurseries, hoop houses, and employee housing. Manufacturing, processing, and nurseries facilities would primarily be in existing buildings, however, additional development may occur in existing commercial and industrial areas.

Development would be designed and constructed in accordance with the seismic design requirements of the 2016 CBC and Alquist-Priolo Fault Hazard Regulations. The CBC standards require the design of structures to consider seismic hazards present at the site and the intended use, or nature of occupancy, of the structure. Alquist-Priolo requires that no buildings intended for human occupancy would be allowed on or within 50 feet of an active fault trace. These areas are shown on Exhibit 3.6-1.

In addition, new development would be subject to the Humboldt County Geologic Hazard Ordinance, which requires that new development is reviewed, approved, and sited in accordance with the geologic hazards land use matrix. As appropriate, in accordance with the Chief Building Official, a preliminary geotechnical engineering report would be prepared and its recommendations implementation as a condition for construction of new buildings.

Requirements associated with the 2016 CBC, Alquist-Priolo Fault Hazard Regulation, and Humboldt County Geologic Hazard Ordinance contain building specification and siting requirements that avoid the risks of loss, injury, or death resulting from strong seismic shaking. Because new development associated with the proposed ordinance would implement and comply with existing state and local regulatory requirements related to seismic or geologic hazards, this impact would be **less-than-significant**.

Mitigation Measures

No mitigation is required.

Impact 3.6-2: Potential to result in off-site landslide, lateral spreading, subsidence, liquefaction, or collapse due to unstable soil conditions or risk of like due to siting on expansive soil.

Parts of Humboldt County are characterized by steep slopes, landslides, expansive soils, and areas subject to risk of subsidence and liquefaction. Implementation of the ordinance could result in the exposure of people and property to risks associated with unstable or expansive soils. However, development associated with commercial cannabis cultivation and associated operations and existing cannabis cultivation operations would be required to comply with state and local regulatory requirements (e.g., building codes and other laws and regulations) related to geologic hazards, such that the risk to life or property through exposure to expansive or unstable soils because of the project would be reduced. Compliance with the proposed ordinance would also limit new cultivation sites to areas with slopes less than 15 percent, reducing the potential for individual projects to contribute to or be affected by future slope failure. This impact would be **less than significant**.

As discussed above, under Impact 3.6-1, implementation of the proposed ordinance could include construction of various structures such as hoop houses, employee housing, and facilities to support manufacturing and processing facilities. In addition, forbearance requirements for water supply may result in the construction of small reservoir to provide water supplies during the months of May through October. Development of these types of features would require earth-moving activities that may be located within areas subject to landslide, lateral spreading, subsidence, liquefaction, or collapse (see Section 3.6.2, Environmental Setting for information related to where these areas exist).

As discussed above, development of associated with the proposed ordinance would be required to comply with the CBC. The CBC provides soil classification guidelines for unstable and expansive soils, and special design considerations depending on specific criteria. In addition, construction of new buildings would be subject to the Humboldt County Geologic Hazards Ordinance, which requires engineering studies to evaluate

and make recommendations related to slope stability and potential for liquefaction associated with individual development projects, as appropriate.

Proper siting and design, in compliance with state and local building regulations, would minimize the potential impacts related to siting of structures on unstable and expansive soils because of the proposed ordinance. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.6-3: Potential for substantial soil erosion or loss of topsoil.

Implementation of the proposed ordinance could result in development of new structures and cultivation areas, water storage ponds, new roadways, or modification to existing roadways, which could include grading, terracing, and other earth-moving activities. The potential for substantial soil erosion or loss of topsoil from implementation of the ordinance would be reduced through implementation of performance standards related to water quality protection included in the ordinance and compliance with NCRWQCB Order R1-2015-0023 and, if applicable, the Construction General Permit requirements for development and implementation of a SWPPP. The project's impact on soil erosion and loss of topsoil would be **less than significant**.

Improper site development, operations, and maintenance of new and existing commercial cannabis cultivation projects can result in erosion and transportable sediment. These activities would result in ground disturbance and may include vegetation removal, grading, and cut and fill for roads, water storage ponds, and building pads. Improperly sited, constructed, or maintained water storage ponds or vessels can exacerbate unstable features or fail catastrophically, causing significant erosion and/or sediment delivery to receiving waters. Irrigation runoff from cannabis cultivation or runoff from roads can result in sediment and other pollutant transport to receiving waters. Additionally, new development could occur on soils with moderate or greater erosion potential (see Exhibit 3.6-2). Excavation, grading, soil compaction, and increased impervious surfaces resulting from development project would increase the potential for soil erosion from stormwater runoff and wind. Increased erosion can lead to loss of topsoil and can decrease a soil's ability to support a healthy plant community. Additionally, soil that is carried away in stormwater can be deposited into streams and lakes, causing declines in water quality.

The proposed ordinance includes performance standards for new and existing cannabis cultivation sites that would eliminate and reduce such impacts. Each permitted operation would be required to develop a cultivation and operations plan that meets or exceeds standards for water storage, conservation, and use and drainage, runoff, and erosion control among other requirements. New and existing roads would be required to be constructed or improved to incorporate water quality and erosion control protection measures. Such measures include features to prevent discharge of sediment and other pollutants that constitute a potential threat to water quality, implementation of best management practices (BMPs) for erosion control, drainage features, stream crossing maintenance, and BMPs described under NCRWQCB Order 15-0023. To obtain a permit, existing cannabis cultivation operations must not only meet the cultivation and operations plan requirements described above, but would also be required to remediate existing adverse environmental effects, including soil erosion. Development associated with new and existing cannabis cultivation projects must also comply with the County's Grading, Excavation, Erosion, and Sedimentation Control Ordinance. The County's Grading Ordinance requires preparation and implementation of a site-specific erosion and sediment control plan; implementation of BMPs to prevent or reduce erosion, sedimentation, and pollution of water during ground-disturbing activities; and grading activities must conform to grading standards, including for cut slope, fill material, setbacks, terracing, and drainage.

The proposed ordinance recognizes the water quality and waste discharge requirements of NCRWQB Order No. 2015-0023. New and existing cannabis cultivation operations that discharge waste to any area that could affect waters of the state including discharges by landowners, operators, lessees, tenants, and occupiers must comply the requirements of NCRWQCB Order R1-2015-0023. The standard conditions,

which are briefly summarized above under Section 3.6.1, "Regulatory Setting," of the Order for cannabis cultivation identify BMPs for regarding a variety of activities, including erosion control to maintain the beneficial uses of receiving waters. As described above, there are three regulatory tiers established in the Order, which determine the requirements for types of soil erosion and water quality protections based on size of the disturbance, slope, and distance to water. Regardless of tier, all new and existing cannabis cultivation sites would be required to adhere to standard conditions, including for roads, drainage features, stream crossings, riparian and wetland protection and management, water storage and use, irrigation runoff, refuse and human waste, and use of fertilizers and pesticides. Cannabis cultivation operations that are categorized as either Tier 2 or Tier 3 would be required to implement additional protections for high risk sites. Tier 2 dischargers must develop and implement a water resource protection plan that includes management measures to be implemented to meet standard conditions. Tier 3 dischargers are located on sites that require cleanup, restoration, and/or remediation based on current or past land development and management activities that have resulted in a discharge or threatened discharge in violation of water quality standards. In addition to implementing standard conditions and developing a water resource protection plan, Tier 3 dischargers would be required to develop and implement a cleanup and restoration plan. All dischargers are subject to annual monitoring and reporting to NCRWQCB or an approved third-party program.

Where construction activities related to new or existing cannabis cultivation operations disturb one or more acres of soil for site preparation or development, the operators must obtain coverage under the Construction General Permit and submit a copy of the SWPPP developed for the site in compliance with that permit. The site-specific SWPPP developed for each site would describe the site controls, erosion, and sediment controls, means of waste disposal, implementation of site specific plans required by the local regulations, control of post-construction sediment and erosion control measures, and other impact reduction strategies unrelated to stormwater.

Implementation of the proposed ordinance provides an opportunity to remediate soil erosion impacts from existing cannabis cultivation operations, including from illegal and improperly constructed roads. Existing cannabis operations may also retire their existing operation and relocate to a more suitable site. Through the permit process for the proposed ordinance, existing operations would remediate properties where grading and development do not adhere to water quality and soil erosion improvements in the ordinance (see Section 55.4.14 of the ordinance) or to achieve compliance with NCRWQCB Order 15-0023.

The potential for substantial soil erosion or loss of topsoil from implementation of the ordinance would be reduced through implementation of performance standards related to water quality protection included in the ordinance and compliance with NCRWQCB Order R1-2015-0023 and, if applicable, the Construction General Permit requirements for development and implementation of a SWPPP. The project's impact on soil erosion or loss of topsoil would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.6-4: Create adverse soil conditions resulting from use of septic tanks or alternative wastewater disposal systems.

Implementation of the proposed ordinance may lead to installation of septic tanks or alternative wastewater disposal systems on individual sites. Portions of the county may contain areas with soils not suitable for wastewater treatment. Such systems must be sited, designed, and constructed in accordance with applicable local requirements and the State Water Board's Onsite Wastewater Treatment System policy and seek approval from the Humboldt County Department of Health and Human Services, Environmental Health Division. Because the siting and design of wastewater disposal systems is governed by existing requirements, there would be a **less-than-significant** impact related to suitability of soils for septic tanks or alternative wastewater disposal systems.

Under the proposed ordinance, commercial cannabis cultivation sites and other commercial cannabis activities could be located outside the service boundaries of wastewater collection and treatment providers. To accommodate sewage disposal requirements, on-site septic systems may be installed. The suitability of a property for on-site disposal would depend on many variables including topography, type and thickness of appropriate soils, percolation rate, and depth to groundwater and bedrock. Operators may alternatively choose to use portable toilets or recreational vehicles to accommodate sewage requirements, which do not require consideration of existing soil conditions.

County General Plan policies identify minimum lot size requirements associated with septic systems based on soil suitability, slope, and water source. The Department of Health and Human Services, Environmental Health Division provides oversite and permit approval for new septic systems in accordance with the State Water Resources Control Board Onsite Wastewater Treatment Systems Policy. Sites with inadequate soils and other unfavorable site characteristics, would be required to utilize alternative septic systems, such as mound and pressurized systems, or may not be allowed to have on-site disposal systems. On-site septic systems for projects subsequent to implementation of the ordinance must be sited, designed, and constructed in accordance with applicable local requirements and the State Water Resource Control Board's (SWRCB's) Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (SWRCB 2012).

Determination of the suitability of soils is dependent on site-specific conditions and requires a thorough site investigation and analysis of the surface and subsurface characteristics. However, permitting requirements discussed above would ensure that septic systems must be sited, designed, and constructed in accordance with applicable local requirements and State Water Board requirements. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.6-5: Damage to or destruction of undiscovered paleontological resources

Future development of commercial cannabis facilities under the proposed ordinance could result in the damage or destruction of undiscovered paleontological resources. This would be a **potentially significant** impact.

Future commercial cannabis facilities permitted under the proposed ordinance would result in ground disturbance and may include vegetation removal, grading, and cut and fill for roads, water storage ponds, and building pads. This could result in damage to or destruction of previously undiscovered and important paleontological resources. This impact would be **potentially significant**.

Mitigation Measure 3.6-5 Protection of discovered paleontological resources.

The following shall be included as performance standards in the proposed ordinance for the protection of paleontological resources.

- If a paleontological discovery is made during construction, the contractor shall immediately cease all work activities in the vicinity (within approximately 100 feet) of the discovery and shall immediately contact the County.

- A qualified paleontologist shall be retained to observe all subsequent grading and excavation activities in the area of the find and shall salvage fossils as necessary. The paleontologist shall establish procedures for paleontological resource surveillance and shall establish, in cooperation with the project developer, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of fossils. If major paleontological resources are discovered that require temporarily halting or redirecting of grading, the paleontologist shall report such findings to the County. The paleontologist shall determine appropriate actions, in cooperation with the applicant and the County, that ensure proper exploration and/or salvage. Excavated finds shall first be offered to a State-designated repository such as the Museum

of Paleontology, University of California, Berkeley, or the California Academy of Sciences. Otherwise, the finds shall be offered to the County for purposes of public education and interpretive displays. The paleontologist shall submit a follow-up report to the County that shall include the period of inspection, an analysis of the fossils found, and the present repository of fossils.

Significance after Mitigation

Implementation of Mitigation Measures 3.6-5 would reduce potential loss of paleontological resources from site development to a **less-than-significant** level because it would ensure that discovered resources are evaluated and protected.

3.7 HAZARDS AND HAZARDOUS MATERIALS

This section provides a qualitative evaluation of the potential for the proposed ordinance to create a significant hazard for the public or the environment, conflict with airspace or adopted emergency response plans, or expose people to wildland fires. The analysis includes a description of the existing environmental conditions, the methods used for assessment, and the potential direct and indirect impacts of project implementation.

Comment letters received in response to the notice of preparation expressed concern regarding use of fertilizers, pesticides, and herbicides; use of other potentially hazardous chemicals, including fuel for on-site generators; and general concerns related to public health, code enforcement, and fire hazards.

3.7.1 Regulatory Background

FEDERAL

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, also called the Superfund Act) (42 U.S. Code Section 9601 et seq.) was established to protect the public and the environment from the effects of past hazardous waste disposal activities and new hazardous material spills. CERCLA created a tax on the chemical and petroleum industries to generate funds to clean up abandoned or uncontrolled hazardous waste sites for which no responsible party could be identified. CERCLA also granted authority to U.S. Environmental Protection Agency (USEPA) to respond directly to hazardous waste spills and required those responsible for a spill or accidental release of hazardous materials to report the release to USEPA.

The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-499) amended some provisions of CERCLA. The Superfund Amendments and Reauthorization Act increased the focus on human health problems posed by hazardous waste releases, stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites, and encouraged greater citizen participation in making decisions on how sites should be cleaned up.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) (42 U.S. Code Section 6901 et seq.) sets national goals for protecting human health and the environment from the potential hazards of waste disposal, conserving energy and natural resources, reducing the amount of waste generated, and ensuring that wastes are managed in an environmentally sound manner. To achieve these goals, the RCRA established three interrelated programs: the solid waste program, the hazardous waste program, and the underground storage tank (UST) program.

The hazardous waste program established a system for controlling hazardous wastes from the time they are generated to the time they are disposed of ("cradle-to-grave" management). Under the RCRA, owners and operators of hazardous waste treatment, storage, and disposal facilities must follow a set of standards (e.g., facility design and operation, contingency planning and emergency preparedness, and recordkeeping) to minimize risk and impacts on human health and the environment, codified in Title 40 of the Code of Federal Regulations (CFR), Part 264. Commercial cannabis cultivators would be subject to RCRA to the extent that they generate hazardous waste or store hazardous materials in USTs (California Department of Food and Agriculture 2017).

Emergency Planning and Community Right-to-Know Act—Toxic Release Inventory

Section 313 of the Emergency Planning and Community Right-to-Know Act established the Toxic Release Inventory (TRI). TRI is a publicly-available database containing information on disposal and other releases of toxic chemicals from industrial facilities. As stipulated in 40 CFR Part 372, owners or operators of facilities

that release toxic chemicals above a certain threshold (25,000 pounds or more per year) are required to submit information about: (1) on-site releases and other disposals of toxic chemicals; (2) on-site recycling, treatment, and energy recovery associated with TRI chemicals; (3) off-site transfers of toxic chemicals from TRI facilities to other locations; and (4) pollution prevention activities at facilities. It is unlikely that cannabis cultivators could release toxic chemicals above the threshold requiring reporting under TRI (California Department of Food and Agriculture 2017).

Federal Insecticide, Fungicide, and Rodenticide Act

Pesticides are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act by USEPA. This includes labeling and registration of pesticides as to how they may be used. USEPA delegates pesticide enforcement activities in California to the California Department of Pesticide Regulation (CDPR), under Title 3 of the California Code of Regulations and the California Food and Agriculture Code. CDPR registers pesticides for use in California, and licenses pesticide applicators and pilots, advisors, dealers, brokers, and businesses.

Currently, no pesticides are registered for use on cannabis. Therefore, commercial cultivators are limited to only using pesticides that are exempt from residue-tolerance requirements and are either: (1) registered and labeled for a use that is broad enough to include use on cannabis (e.g., unspecified green plants), or (2) exempt from registration requirements as a minimum-risk pesticide under Section 25(b) of the Federal Insecticide, Fungicide, and Rodenticide Act.

Hazardous Materials Transportation Act

The U.S. Department of Transportation (USDOT) has developed regulations in CFR Titles 10 and 49 pertaining to the transport of hazardous substances and hazardous wastes. The Hazardous Materials Transportation Act is administered by the Research and Special Programs Administration of the USDOT. The act provides the USDOT with a broad mandate to regulate the transport of hazardous materials, with the purpose of adequately protecting the nation against risk to life and property that is inherent in the commercial transportation of hazardous materials. USDOT regulations that govern the transportation of hazardous materials are applicable to any person who transports, ships, causes to be transported or shipped, or who is involved in any way with the manufacture or testing of hazardous materials packaging or containers.

Occupational Safety and Health Administration Worker Safety Requirements

The Occupational Safety and Health Administration (OSHA) is responsible for ensuring worker safety. OSHA sets federal standards for implementation of workplace training, exposure limits, and safety procedures for handling hazardous substances and addressing other potential industrial hazards. OSHA also establishes criteria by which each state can implement its own health and safety program. The Hazard Communication Standard (CFR Title 29, Part 1910) requires that workers be informed of the hazards associated with the materials they handle. These standards include exposure limits for a wide range of specific hazardous materials, including pesticides, as well as requirements that employers provide personal protective equipment (i.e., protective equipment for eyes, face, or extremities; protective clothing; respiratory devices) to their employees wherever it is necessary (i.e., when required by the label instructions) (29 CFR Section 1910.132). Workers must be trained in safe handling of hazardous materials, use of emergency response equipment, and building emergency response plans and procedures. Containers must be labeled appropriately, and material safety data sheets must be available in the workplace. Commercial cannabis operations would be required to comply with OSHA regulations and standards, including worker personal protective equipment requirements (California Department of Food and Agriculture 2017).

STATE

California Health and Safety Code—Hazardous Waste and Hazardous Materials

Several sections of the California Health and Safety Code deal with hazardous waste and hazardous materials. Division 20, Chapter 6.5 addresses hazardous waste control and contains regulations on hazardous waste management plans, hazardous waste reduction, recycling and treatment, and hazardous waste transportation and hauling. Under Chapter 6.5, Article 6, persons generating hazardous wastes that

are to be transported for off-site handling, treatment, storage, or disposal must complete a hazardous waste manifest before transport, indicating the facility to which the waste is being shipped for treatment, disposal, or other purposes. Under Chapter 6.95, Article 1, areas and businesses that have a threshold amount of hazardous materials on site (55 gallons of liquid; 500 pounds of solid for businesses) must have plans in place for emergency response to an accidental release of materials. These Hazardous Materials Business Plans (HMBPs) and Hazardous Materials Area Plans (HMAPs) must include at least the following:

- A listing of the chemical name and common names of every hazardous substance or chemical product handled by the business;
- The category of waste, including the general chemical and mineral composition, of every hazardous waste handled by the business;
- The maximum amount of each hazardous material or mixture containing a hazardous material that is present on site;
- Sufficient information on how and where the hazardous materials are handled by the business to allow fire, safety, health, and other appropriate personnel to prepare adequate emergency responses to potential releases of the hazardous materials;
- Emergency response plans and procedures in the event of a reportable release or threatened release of a hazardous material; and
- Training for all new employees and annual training, including refresher courses, for all employees on safety procedures in the event of a release or threatened release of a hazardous material.

Under Chapter 6.95, Article 2, operators of stationary sources of hazardous materials are required (if they are deemed an accident risk) to prepare risk management plans, detailing strategies to reduce the risk of accidental hazardous material release, and submit them to the California Emergency Management Agency. Cannabis cultivators that store hazardous materials (e.g., pesticides, fuel) exceeding the threshold quantity would be required to prepare an HMBP (California Department of Food and Agriculture 2017).

California Accidental Release Prevention Program

The goal of the California Accidental Release Prevention Program (CCR Title 19, Division 2, Chapter 4.5) is to reduce the likelihood and severity of consequences of any releases of extremely hazardous materials. Any business that handles regulated substances (chemicals that pose a major threat to public health and safety or the environment because they are highly toxic, flammable, or explosive, including ammonia, chlorine gas, hydrogen, nitric acid, and propane) must prepare a risk management plan. The risk management plan is a detailed engineering analysis of the potential accident factors present at a business and the measures that can be implemented to reduce this accident potential. The plan must provide safety information, hazard data, operating procedures, and training and maintenance requirements. The list of regulated substances is found in Article 8, Section 2770.5 of the program regulations.

Hazardous Waste Control Law and Universal Waste Rule

Under CCR Title 22 and the California Hazardous Waste Control Law, DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. California's Universal Waste Rule allows individuals and businesses to transport, handle, and recycle certain common hazardous wastes, termed universal wastes, in a manner that differs from the requirements for most hazardous wastes. Universal wastes include televisions, computers, and other electronic devices, as well as batteries, fluorescent lamps, mercury thermostats, and other mercury-containing equipment. The hazardous waste regulations (CCR Title 22, Division 4.5, Chapter 11) identify seven categories of hazardous wastes that can be managed as universal wastes. Any unwanted item that falls within one of these waste streams can be handled, transported and recycled following the simple requirements set forth in the universal waste regulations.

Construction General Permit for Stormwater Discharges Associated with Construction Activity

The state requires that projects disturbing more than 1 acre of land during construction file a Notice of Intent with the RWQCB to be covered under the statewide General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans designed to prevent construction pollutants from contacting stormwater.

Government Code Section 65962.5 - Cortese List

Government Code Section 65962.5 requires that the California Department of Toxic Substances Control (DTSC) compile and update a list of hazardous waste facilities; land designated as hazardous waste property; hazardous waste disposals on public land; sites that contain potential hazards to public health, safety or the environment, the risk of fire or explosion, and toxic hazards; and all sites included in the Abandoned Site Assessment Program. This law is commonly referred to as the "Cortese List" (after the Legislator who authored the legislation that enacted it). The list, or a site's presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA). Because this statute was enacted over 20 years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented and, in some cases, the information to be included in the Cortese List does not exist.

Within Humboldt County (including the incorporated areas because sites are only listed by address and not jurisdictional boundary) there are 829 "cleanup sites" that require cleanup with emphasis on groundwater, which include Cleanup Program Sites, Land Disposal Sites, and Leaky UST Sites; two sites on the "Hazardous Waste and Substances Site List"; and 63 sites that have current or past clean up orders (Humboldt County 2017a).

Hazardous Materials Transportation Regulations

The California Highway Patrol (CHP) and the California Department of Transportation (Caltrans) have primary responsibility for enforcing federal and state hazardous materials regulations and responding to transportation emergencies. CHP enforces materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an incident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. CHP conducts regular inspections of licensed transporters to assure regulatory compliance. The California Department of Transportation has emergency chemical spill identification teams at locations throughout the state.

California Department of Pesticide Regulation Guidance

Detailed implementing regulations for the CDPR pesticide regulatory program are codified in 3 CCR Division 6. CDPR oversees state pesticide laws, including pesticide labeling, and is vested by USEPA to enforce federal pesticide laws in California. CDPR also oversees the activities of the county agricultural commissioners related to enforcement of pesticide regulations and related environmental laws and regulations locally.

As identified in 3 CCR Division 6, CDPR evaluates proposed pesticide products and registers those pesticides that it determines can be used safely. In addition, CDPR oversight includes:

- Licensing of pesticide professionals;
- Site-specific permits required before restricted-use pesticides may be used in agriculture;
- Strict rules to protect workers and consumers;
- Mandatory reporting of pesticide use by agricultural and pest control businesses;
- Environmental monitoring of water and air; and
- Testing of fresh produce for pesticide residues.

The regulations require that employers of pesticide workers provide protective clothing, eyewear, gloves, respirators, and any other required protection, and require employers to ensure that protective wear is worn according to product labels during application. The regulations also require that employers provide field workers with adequate training in pesticide application and safety; communicate pesticide-related hazards to field workers; ensure that emergency medical services are available to field workers; and ensure adherence to restricted-entry intervals between pesticide treatments (3 CCR Section 6764). Under the Medical Cannabis Regulation and Safety Act and Adult Use of Marijuana Act, CDPR requires that the application of pesticides or other pest control in connection with the indoor or outdoor cultivation of cannabis complies with 3 CCR Division 6 (commencing with Section 11401) of the Food and Agricultural Code and its implementing regulations (Business and Professions Code 19332[f]).

Pesticide Use in Cannabis Cultivation

Marijuana pests vary according to cultivar (variety), whether the plants are grown indoors or outdoors, and where the plants are grown geographically. Pesticides legal for use on cannabis must have active ingredients that are exempt from residue tolerance requirements and are either exempt from registration requirements or registered for a use that is broad enough to include use on marijuana. Residue tolerance requirements are set by USEPA for each pesticide on each food crop and is the amount of pesticide residue allowed to remain in or on each treated crop with "reasonable certainty of no harm." Some pesticides are exempted from the tolerance requirements when they are found to be safe. Some of these pesticides are bacterial-based insect pathogens (e.g., *Bacillus thuringiensis*) or biofungicides (e.g., *Bacillus subtilis*, *Gliocladium virens*). Active ingredients exempt from registration requirements are mostly food-grade essential oils such as peppermint oil or rosemary oil (CDPR n.d.).

DPR designates certain pesticide active ingredients as California "Restricted Materials" when they determine those pesticides are especially hazardous to human health or the environment. Restricted Materials require a permit from the County Agricultural Commissioner. Such permits will not be issued for cannabis cultivation sites.

In accordance with the Medical Cannabis Regulation and Safety Act and Adult Use of Marijuana Act, CDPR is required to develop guidelines for the use of pesticides in the cultivation of cannabis and establish limits for residue levels in harvested cannabis and cannabis products. However, CDPR is preempted by federal law from registering a pesticide for sale and use that is not first registered by USEPA. As discussed above, USEPA has not registered any pesticides for use on cannabis. Federal law also prohibits CDPR from establishing maximum pesticide tolerances for any cannabis that is used in food.

Pesticide Contamination Prevention Act

The Pesticide Contamination Prevention Act (Sections 13145–13152 of the Food and Agricultural Code) requires CDPR to:

- Obtain environmental fate and chemistry data for agricultural pesticides before they can be registered for use in California;
- Identify agricultural pesticides with the potential to pollute groundwater;
- Sample wells to determine the presence of agricultural pesticides in groundwater;
- Obtain, report, and analyze the results of well sampling for pesticides by public agencies;
- Formally review any detected pesticide to determine whether its use can be allowed; and
- Adopt use modifications to protect groundwater from pollution if formal review indicates that continued use can be allowed.

The act requires CDPR to develop numerical values for water solubility, soil adsorption coefficient, hydrolysis, aerobic and anaerobic soil metabolism, and field dissipation of pesticides to protect groundwater, based in part on data submitted by pesticide registrants.

The act also states that CDPR shall establish a list of pesticides that have the potential to pollute groundwater, called the Groundwater Protection List. Any person who uses a pesticide that is listed on the Groundwater Protection List is required to file a report with the county agricultural commissioner, and pesticide dealers are required to make quarterly reports to CDPR of all sales of pesticides on the list to persons not otherwise required to file a report. The Pesticide Contamination Prevention Act ensures that pesticides allowed for use in California, including those that may be used in cannabis cultivation, will have been studied by CDPR for their potential to contaminate groundwater and the environment.

California Occupational Safety and Health Administration Regulations

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Cal/OSHA regulations for the use of hazardous materials in the workplace (CCR Title 8) require safety training, available safety equipment, accident and illness prevention programs, hazardous-substance exposure warnings, and preparation of emergency action and fire prevention plans. Cal/OSHA enforces regulations on hazard communication programs and mandates specific training and information requirements. These requirements include procedures for identifying and labeling hazardous substances, providing hazard information about hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous-waste sites.

Cal/OSHA regulations related to agricultural pesticide application require that a notice providing precautionary instructions be attached to all tanks larger than 100 gallons that are used for pesticides, and that controls on the tanks are placed to minimize exposure to employees from ruptured or breaking lines (8 CCR Section 3453). Machines, applicators, and other equipment used for pesticide application must be decontaminated before they are overhauled or placed in storage. Any commercial cannabis cultivator that uses pesticides are subject to these requirements.

California Education Code

Sections 17071.13, 17072.13, 17210, 17210.1, 17213.1-3, and 17268 of the California Education Code became effective January 1, 2000. Together, they establish requirements for assessments and approvals regarding toxic and hazardous materials that school districts must follow before receiving final site approval from the Department of Education and funds under the School Facilities Program. For example, the site approval package must include written determinations regarding the presence of hazardous wastes or pipelines carrying hazardous substances on the site (the adopted CEQA document is often used for these purposes). In addition, Section 17213(b) requires the local education agency to consult with the applicable air district to identify facilities within 0.25 mile of the proposed site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials, substances, or wastes and prepare written findings that either there are not such facilities, the facilities do not pose a health risk, or corrective measures will be taken (consistent with Section 21151.8 of the Public Resources Code). The code also requires that a Phase I Environmental Site Assessment (ESA) is conducted according to the American Society of Testing and Materials standards (ASTM E-1527-2000) and transmitted to DTSC.

California Fire Code

The California Fire Code is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The California Fire Code establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings. The California Fire Code also contains requirements related to emergency planning and preparedness, fire service features, building services and systems, fire-resistance-rated construction, fire protection systems, and construction requirements for existing buildings, as well as specialized standards for specific types of facilities and materials. Structures used for indoor cultivation of cannabis and cannabis-supportive uses

(e.g., manufacturing, distribution, processing, microbusinesses, and retail nurseries) would be subject to applicable sections of the California Fire Code.

The California Fire Code requires businesses that handle more than a threshold quantity of hazardous materials to prepare a Hazardous Materials Management Plan (HMMP) and a Hazardous Materials Inventory Statement (HMIS). HMMPs and HMISs are similar to the HMBPs and HMAPs required under Chapter 6.95 of the California Health and Safety Code, but the California Department of Forestry and Fire Protection (CAL FIRE) Office of the State Fire Marshall is responsible for implementing the HMMP and HMIS.

The HMMP must include a facility site plan containing information such as the location of emergency equipment, hazardous material storage tanks, and emergency exits. The HMIS must include information on the hazardous materials at the site, such as product name, chemical components, amount in storage, and hazard classification. As part of an application for a permit, owners or operators of facilities that handle hazardous materials also must submit an emergency response plan and an emergency response training plan. Commercial cannabis cultivation facilities that store or handle greater than threshold quantities of hazardous materials (e.g., pesticides, fuel) would be required to prepare an HMMP and HMIS.

Responsibility for Fire Protection and Hazardous Fire Areas

Public Resources Code Sections 4125 to 4137 establish that CAL FIRE has the primary financial responsibility of preventing and suppressing fires within State Responsibility Areas (SRAs). CAL FIRE also has responsibility for enforcement of Fire Safe Standards as required by Public Resources Code 4290 relating to road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; fuel breaks and greenbelts.

LOCAL

North Coast Regional Water Quality Control Board Order R5-2015-0023

Cannabis cultivators with 2,000 square feet or more of cannabis are required to enroll in the North Coast Regional Water Quality Board's (RWQCB's) water quality regulatory program (Order R1-2015-0023), either directly with the Regional Water Board, or via an approved third-party program. The order includes performance standards related to 12 categories, including spoils management, fertilizers and soil amendments, pesticides, petroleum products and other chemicals, cultivation-related wastes, and remediation, cleanup, and restoration activities. If a site does not presently meet the standard conditions, the order requires the development of a plan and schedule and implementation of corrective actions to achieve the standard conditions.

North Coast Unified Air Quality Management District Rule 300

Site disturbing activities within areas containing ultramafic rock or that are identified to contain naturally occurring asbestos are subject to the North Coast Unified Air Quality Management District (NCUAQMD) Rule 300, Section 3.2.5, which is Title 17, Section 93105 of the California Code of Regulations, Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying, and Surface Mining Operations. This rule specifies procedures for determining ultramafic rock composition and the applicability of health and safety control measures.

The Planning and Building Department refers all building permits on parcels that appear to be underlain by ultramafic rock to the NCUAQMD for appropriate standards and recommendations. The Planning and Building Department uses its geographic information system to identify all parcels that may be underlain by ultramafic rock on places a note on such parcel records in Humboldt County's online permit management system. This program ensures that new development in areas of known ultramafic rock would be subject to NCUAQMD air quality standards.

Unified Program—Certified Unified Program Agencies

The Unified Program consolidates and coordinates several regulatory programs in California related to hazardous wastes and materials. The Certified Unified Program Agencies (CUPAs) deal with the day-to-day programs required to protect communities from unsafe hazardous material use and practices and provide a coordinated emergency response in the case of an accidental release.

The Humboldt County Division of Environmental Health Hazardous Materials Program has been designated as the CUPA for Humboldt County, and is responsible for conducting compliance inspections of over 800 facilities in Humboldt County. These facilities handle hazardous materials, generate or treat hazardous waste, and/or operate USTs. The CUPA uses education and enforcement programs to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective actions in the event of an emergency at regulated facilities. The Humboldt County CUPA program elements include:

1. Hazardous Materials Release Response Plans and Inventory (Business Plans)
2. California Accidental Release Program
3. UST oversight
4. Aboveground Petroleum Storage Spill Prevention Control and Countermeasures (pursuant to 40 CFR 112)
5. Hazardous Waste Generation and Onsite Treatment

Depending on their specific cultivation practices and processes, commercial cannabis cultivators could be considered hazardous waste generators that would be subject to the requirements of the Hazardous Waste Generator Program.

County Health Hazardous Materials Program Local Oversight Program

Under contract with the State Water Resources Control Board (SWRCB), the County Health Hazardous Materials Program Local Oversight Program oversees the investigation and cleanup of soil and groundwater contamination resulting from unauthorized releases of petroleum products (e.g., gasoline, diesel fuel, waste oil) from leaking USTs.

Humboldt County General Plan

Chapter 3, "Hazards and Resources," of the current *Humboldt County General Plan* contains policies intended to reduce the hazards associate with fire hazards, airport safety, and industrial hazards. The following policies may be applicable to the proposed regulations.

Section 3291, Hazards

General

A. Regulate land use to ensure that development in potentially hazardous areas will not preclude preserving and promoting public safety. Potentially hazardous areas include, but are not limited to, steep slopes, unstable soils areas, on active earthquake fault lines, in extreme wildland fire areas, in airport flight path zones, and in flood plains and tsunami runup areas.

Airport Safety

C. Regulate and plan land use around airports according to the Airport Land Use Compatibility criteria matrix.

Industrial Hazards

A. Hazardous industrial development shall be permitted when either:

   1) It includes mitigation measures sufficient to offset increased risks to adjacent human populations; or

   2) Increased risks to adjacent human populations have been adequately mitigated by approved disaster response plans. (See definition of "hazardous industrial development" in Standards section.)

B. Require new development which may generate significant quantities of hazardous wastes to provide a plan for disposal which emphasizes on-site treatment, neutralization, and recycling.

Humboldt County Code

Humboldt County Code Title III, Division 8 – Environmental Protection, Chapter 4 - Underground Storage of Hazardous Substances implements and enforces state law regarding the underground storage of hazardous substances. Title III, Division 11 - Fire Safe Regulations, establishes local alternative standards as authorized by Section 4290 of the Public Resources Code relating to the future design and construction of structures, subdivisions and developments in SRAs. Humboldt County Code Title V, Division 6, Hazardous Materials Handling and Storage of Hazardous Substances, establishes policy and procedures for the administrative enforcement of violations of state laws regarding hazardous materials release response plans and inventory.

Humboldt County Airports Airport Land Use Compatibility Plan

The Airport Land Use Compatibility Plan (ALUCP) sets forth criteria and policies that the Humboldt County Airport Land Use Commission (ALUC) uses in assessing compatibility between public use airports and land use in surrounding areas.

Humboldt County Hazardous Waste Management Plan and Integrated Waste Management Plan

Humboldt County prepared the Hazardous Waste Management Plan that was adopted as part of the Framework General Plan in 1989. The Hazardous Waste Management Plan identifies the type and quantity of hazardous waste that is generated in the County; projects future quantities; includes goals, policies, and standards for the management of hazardous waste; and establishes procedures for the siting of new hazardous treatment, storage, and disposal facilities. In addition, the County has prepared and adopted an Integrated Waste Management Plan, consistent with the Integrated Waste Management Act. The Integrated Waste Management Plan addresses solid waste source reduction and recycling, household hazardous waste, and countywide landfill capacity needs.

Emergency Response Plans

Humboldt County Ordinance 2203 established the Humboldt Operational Area and identified the Sheriff as Director of Emergency Services for the County. The Humboldt Operational Area includes the County of Humboldt and all political subdivisions (cities and special districts). The Office of Emergency Services assists the Sheriff in controlling and directing the effort of the emergency organization of the County and is part of the Special Operations Division within the Sheriff's Department.

The Office of Emergency Services has developed an Emergency Operations Plan with procedures for addressing earthquakes, hazardous materials releases, floods, wildland fires, landslides, extreme weather, tsunamis, dam failures, transportation emergencies, civil disturbances, and terrorism. It includes the emergency response organizational framework and procedures for initial response operations, extended response operations, and recovery operations.

The Federal Emergency Management Agency approved the Humboldt Operational Area Hazard Mitigation Plan in March of 2014. The hazard plan includes an assessment of the planning area's risks from hazard events such as earthquake, flood, tsunami, and wildfire; it also includes a list of proposed initiatives designed to minimize future hazard-related damage.

3.7.2 Existing Conditions

HAZARDOUS MATERIALS AND HAZARDOUS WASTES

Accidental Spills and Illegal Disposal of Hazardous Waste

County data, which includes records of major incidents, minor spills, and false alarms, indicates that there are between 50 and 100 accidental hazardous material spills per year in the County (including incorporated cities). Spills primarily include the accidental release of materials along roadways, at commercial and industrial sites, and on public property (Humboldt County 2017a). Hazardous materials (including pesticides and herbicides, heavy metals, volatile organic compounds, and oil and gas) may also be present in soil and groundwater in areas where historical land uses had leaking fuel or chemical storage tanks, or where other releases of hazardous materials have occurred. Land uses that typically involve the handling of hazardous materials include agricultural areas where soils may contain pesticides and herbicides. In addition, hazardous waste (e.g., used motor oil, solvents, or paint) is occasionally illegally dumped in remote areas of the County or along roadways. In many instances, the dumped residue can pose a serious health threat to unsuspecting persons (Humboldt County 2017a).

Statewide, evidence suggests that improper storage, use, and disposal of hazardous materials is currently a major problem at unpermitted cannabis cultivation sites. Enforcement activities have found substandard storage practices for hazardous materials, and law enforcement officials have observed that hazardous materials and/or hazardous waste are often dispersed throughout cultivation sites. In addition to endangering wildlife and the environment, such improper use, storage, and disposal of chemicals can endanger cannabis cultivation workers, as well as enforcement officers or members of the public who happen upon cultivation sites. Bodily contact or inhalation of these materials may cause illness or adverse health consequences (California Department of Food and Agriculture 2017).

Transport of Hazardous Materials

Hazardous materials, hazardous wastes, and petroleum products are a subset of the goods routinely shipped along the transportation corridors in the Planning Area. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by the DTSC. DTSC maintains a list of active registered hazardous waste transporters throughout California, and the California Department of Public Health regulates the haulers of hazardous waste. Three agencies maintain searchable databases that track hazardous material releases in reportable quantities: USEPA maintains the Hazardous Materials Incident Report System that contains data on hazardous material spill incidents reported to USDOT; the California Office of Emergency Services maintains the California Hazardous Materials Incident Report System that contains information on reported hazardous material accidental releases or spills; and SWRCB's Site Cleanup Program maintains information on reported hazardous material accidental releases or spills.

U.S. Highway 101 and State Route 299 pass through Humboldt County, and a wide range of hazardous cargo is regularly transported along these routes. Types of hazardous cargo regularly transported into, out of, and through Humboldt County by highway include flammable liquids, corrosive materials, compressed and/or poisonous gases, explosives, flammable solids, and irritating materials. If there is an accident involving hazardous materials on any roadway in the County, including highways and County roads, the CHP is the agency that will assume incident command. If an incident occurs on a roadway within a city, the incident command responsibility will fall to city police with support from the local fire department. If the accident does not occur on a road, its management will be within the jurisdictional responsibility of the County (most likely the Sheriff's Department) (Humboldt County 2017a).

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. Asbestos is commonly found in ultramafic rock, including serpentine, and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1 percent up to about 25

percent, and sometimes more. Asbestos is released from ultramafic and serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways which are surfaced with these rocks and when land is graded for building purposes. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time (Humboldt County 2017a).

In Humboldt County, ultramafic rock types that may contain naturally-occurring asbestos are found primarily in the Salmon Mountains east of Hoopa and south of Orleans; although naturally-occurring asbestos may also occur in the Bluff Creek area east of Weitchpec, the upper Soctish and Rock Creeks and the lower slopes of the west side of the Hoopa Valley, the east slope of the upper Little Van Duzen drainage, the Chalk Mountain area, the Elk Ridge area, and the Salmon Creek area. In addition, naturally occurring asbestos may also be present in rocks and soils outside these areas. The only way to establish the presence or absence of asbestos at a specific location is through a detailed site examination by a qualified geologist (Humboldt County 2017a).

SCHOOLS

Children are particularly susceptible to long-term effects from emissions of hazardous materials. Therefore, locations where children spend extended periods of time, such as schools, are particularly sensitive to hazardous air emissions and accidental release associated with the handling of extremely hazardous materials, substances, or wastes. There are 31 school districts in Humboldt County that support approximately 100 grade school sites (Humboldt County Office of Education 2016).

AIRPORTS AND AIRSTRIPS

Nine public airports operate in Humboldt County: Arcata-Eureka (McKinleyville) Airport; Dinsmore Airport; Garberville Airport; Kneeland Airport; Murray Field Airport; Rohnerville Airport; Eureka Municipal Airport; Shelter Cove Airport; and Hoopa Airport. The County Public Works Department operates six of these airports: Arcata-Eureka Airport, Murray Field, Dinsmore Airport, Garberville Airport, Kneeland Airport and Rohnerville Airport. The Board of Supervisors has adopted Airport Master Plans for each of the County-maintained airports. In addition, the Board of Supervisors adopted the ALUCP, which outlines policies for land uses surrounding the airports. The Department of the Navy also operates Military Training Routes or Military Operating Areas that traverse the central parts of the County. The Military Training Routes are comprised of a three-dimensional airspace designated for military training and transport activities that have a defined floor (minimum altitude) and ceiling (maximum altitude) (Humboldt County 2017b).

The ALUC (presently embodied as the Board of Supervisors) coordinates with applicable agencies in ensuring compatible land uses for areas surrounding County airports. The height of structures, trees, and other objects in the Military Operating Areas or in the vicinity of an airport greatly affects the use of that airport. Controls on land uses near airports can reduce potential risks both to people on the ground and to the occupants of aircraft (Humboldt County 2017b).

WILDLAND FIRE HAZARDS

While all of California is subject to some degree of wildfire hazard, there are specific features that make certain areas more hazardous. Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. When development spreads into less densely populated, often hilly areas, it increases the number of people living in areas that are prone to wildfire.

The wildland fire season in Humboldt County usually begins in early July and typically ends in mid-October; however, wildland fires have occurred in every month of the year. Drought, light snow pack, and local weather conditions can expand the length of the fire season. The early and late shoulders of the fire season are usually associated with human-caused fires. Fires during the peak months of July, August, and September are usually related to thunderstorms and lightning strikes. Typically, western Humboldt County's wildland fire season is shorter than the eastern half for several reasons: (1) the western half of the County

receives more rainfall; (2) the west has spring seasons that are wetter and cooler than the east; (3) temperatures in the eastern portion of the County are much higher in the summer months; and (4) much of the precipitation received in the east is snow that falls during winter (Humboldt County 2017a).

CAL FIRE is responsible for wildland fires in SRAs, which includes most of the rural privately-owned lands within the county. The U.S. Forest Service is primarily concerned with wildfires in national forests. The National Park Service provides wildland fire protection within the boundaries of Redwood National park. The Hoopa tribe has responsibility for wildland protection within the Hoopa Square through a federal agreement (Humboldt County 2017b).

Approximately 71 percent of Humboldt County is classified as SRA, 26 percent is federal responsibility area (land managed by the federal government, such as Six Rivers National Forest, or tribal land), and 3 percent is local responsibility area. Local responsibility areas include all incorporated cities, as well as the Eel River bottoms and bottom lands within the greater Humboldt Bay area, and are areas where local fire related districts and city fire departments are responsible for wildland fires in addition to structural fire protection. However, most fire related districts within the County are comprised entirely of SRA lands and local agencies are responsible for structural fire protection (see Section 3.11, "Public Services," for a comprehensive discussion of local fire protection services). It should be noted that, although fire related districts are not responsible for wildland fire protection they are in most instances the first units at scene and provide essential initial response services (Humboldt County 2017a).

In accordance with California Public Resource Code Section 4201-4204 and Government Code Section 51175-51189, CAL FIRE has mapped areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. These zones, referred to as Fire Hazard Severity Zones, represent the risks associated with wildland fires.

The High and Very High Fire Hazard Severity Zone designations indicate that the physical conditions (e.g., vegetation, topography, weather, crown fire potential, ember production and movement) create a high likelihood that the area will burn over a 30- to 50-year period, and may burn at a high intensity and speed. Under State regulations, areas within Very High Fire Hazard Severity Zones must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas. Section 701A.3.2 of the California Building Code was amended in 2005 to add additional protections for buildings in wildfire hazard zones. All buildings in mapped SRA Fire Hazard Severity Zones must use ignition resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire. Humboldt County SRA fire regulations are in Title III, Division 11 of the Humboldt County Code and establish minimum standards for emergency access, signing and building numbering, private water supply reserves for emergency fire use, and vegetation modification.

3.7.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

Impacts related to hazardous materials were analyzed qualitatively based on a review of the cannabis cultivation and processing practices and associated equipment and materials that may be used as part of the proposed program. The analysis focused on the potential of the proposed ordinance to create hazards to humans through the transport, use, exposure, or accidental release of hazardous materials and exposure to other hazards such as fires. Traffic safety concerns are addressed in Section 3.11, "Transportation and Circulation." These were analyzed in the context of existing laws and regulations, and the extent to which these existing regulations and policies adequately address and minimize the potential impacts of the hazards associated with the proposed program. Permit applications must include a cultivation and operations plan that contains information showing that the activities meet or exceed minimum legal standards for proper storage of fertilizers, pesticides, and other regulated products to be used on the parcel.

Because sites of potential cannabis operations are yet unknown, physical surveys of such sites could not be conducted. Rather, this program-level analysis is based on hazards typically associated with certain land uses and an overall understanding of the key safety concerns that could result from implementation of the proposed ordinance.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the project would result in a significant if it would do any of the following:

- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment or through the routine transport, use, or disposal of hazardous materials;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- result in a safety hazard for people residing or working in a project area that is located within 2 miles of a public airport or private use airport;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or residences are intermixed with wildlands.

IMPACT ANALYSIS

Impact 3.7-1: Create a significant hazard through transport, use, or disposal of hazardous materials.

Activities conducted under the proposed ordinance could create a hazard through the routine transport, use, or disposal of hazardous materials during construction or operational activities. However, compliance with existing, applicable rules and regulations specifically designed to protect the public health would be sufficient to preclude significant hazardous materials impacts. This impact would be **less than significant.**

Development associated with commercial cannabis activities could temporarily increase the regional transport, use, storage, and disposal of hazardous materials and petroleum products (such as diesel fuel, lubricants, paints and solvents, and cement products containing strong basic or acidic chemicals) that are commonly used at construction sites. Hazardous waste generated during construction may consist of welding materials, fuel and lubricant containers, paint and solvent containers, and cement products containing strong basic or acidic chemicals. However, these types of routine uses are carefully regulated and this EIR assumes all hazardous construction materials would be used, stored, and disposed of in accordance with applicable federal, state, and local laws.

As discussed further in Section 3.8, “Hydrology and Water Quality,” SWRCB Construction General Permit (2009-0009 DWQ) requires spill prevention and containment plans to avoid spills and releases of hazardous materials and wastes into the environment. Inspections would be conducted by a Qualified SWPPP Practitioner to verify consistent implementation of general construction permit conditions and best

management practices to avoid and minimize the potential for spills and releases, and require the immediate cleanup and response thereto. Best management practices include, for example, the designation of special storage areas and labeling, containment berms, coverage from rain, and concrete washout areas.

Operation of commercial cannabis cultivation, processing, and other related operations could also involve the use of hazardous materials or petroleum products, such as fuel for power equipment and generators, pesticides, rodenticides. Additionally, indoor and mixed-light cannabis cultivation operations may use high-powered lights, which could contain hazardous components that could enter the environment during disposal. Cultivation may employ rechargeable batteries to power operations associated with the use of solar power. Eventually the batteries would no longer hold a significant charge and would need to be properly managed at the end of their life. In California, all types of batteries are considered to be a hazardous waste and are managed under the Universal Waste Rule, unless determined they do not exhibit a characteristic of a hazardous waste. Compliance with existing laws and regulations related to transport, use, and disposal of hazardous materials would avoid creating a substantial hazard to the public.

The operation of businesses that use, create, or dispose of hazardous materials is regulated and monitored by federal, State, and local regulations that provide a high level of protection to the public and the environment from the hazardous materials manufactured within, transported to, and disposed within the region. RCRA, Title 22 of the CCR, and the Hazardous Waste Control Law regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. These laws impose regulatory systems for handling hazardous waste in a manner that protects human health and the environment, including requirements for the classification of materials, packaging, hazard communication. Cal/EPA oversees the regulation and management of hazardous materials on a statewide level through DTSC. Use of hazardous materials requires permits and monitoring to avoid hazardous waste release through the local CUPA. Additionally, businesses that generate hazardous waste are required to have an EPA identification number to monitor and track hazardous waste activities. Commercial cannabis cultivation would be required to comply with North Coast RWQCB Order R5-2015-0023, as explained further in Section 3.8, “Hydrology and Water Quality.”

Depending on the size of the commercial cannabis facility and nature of activities, licensees may be required to prepare an HMBP and/or HMMP. Additionally, licensees under the proposed ordinance would be required to comply with OSHA and Cal/OSHA requirements, such as providing personal protective equipment, as necessary, to protect the health of workers. In addition, the proposed ordinance would require compliance with the following Employee Safety Practice.

- Training for specific job functions, which may include: emergency action responses planning; employee accident reporting and investigations; fire prevention; hazard communication policies, including maintenance of material safety data sheets; materials handling policies; job hazard analyses; and, personal protective equipment policies, including respiratory protection.

- Emergency contact information must be posted, including at a minimum: operation manager, emergency responder, and poison control.

The County Environmental Management Agency conducts inspections of every cultivation site for hazardous materials storage, as well as any hazardous waste disposal. This is done through delegation by CalEPA to the County as the CUPA. The County is responsible through the CUPA program for inspection of all facilities that store hazardous materials or handle hazardous wastes. Regulation of commercial cannabis cultivation and commerce sites provides for fees to support the CUPA program.

Further, any cannabis cultivation and processing would be required to adhere to the Department of Pesticide Regulations Legal Pest Management Practices guidance and inspection by the County’s Agricultural Department for proper use and storage of pesticides, rodenticides, and fertilizers such that the release or exposure of people to hazards and hazardous materials would not occur. Manufacturing and other commercial cannabis processing activities proposed under the ordinance could require greater storage volume or generate wastes, but those would also be required to comply with the aforementioned regulations and programs and, in the event of new construction, would require discretionary approval by the County.

Hazardous materials transported by truck use many of the same freeways, arterials, and local streets as other traffic. This creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes. Although the transportation of hazardous materials could result in accidental spills, leaks, toxic releases, fire, or explosion, the USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the CFR. These standard accident and hazardous materials recovery training and procedures are enforced by the State and followed by private State-licensed, certified, and bonded transportation companies and contractors.

Cannabis cultivation and other commercial cannabis activity would be required to store and use fuels, fertilizers, pesticides, fungicides, rodenticides, or herbicides, in compliance with the Humboldt County Environmental Health Division, California Environmental Protection Agency, Humboldt County Agricultural Commissioner's Office, and CDPR. Other potentially hazardous materials used under the proposed ordinance could include rechargeable batteries and chemicals (such as butane) used in processing and extraction. Application submittal requirements in the ordinance stipulate that sites meet or exceed minimum legal standards for use and storage of fuels, fertilizers, pesticides, fungicides, rodenticides, and/or herbicides. Annual inspections of approved cannabis applications ensure the project continues to comply with these requirements into the future. With enforcement of existing hazardous materials regulations and the application submittal and approval requirements of the proposed ordinance, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.7-2: Create potential human hazards from exposure to existing on-site hazardous materials.

Construction activities that disturb subsurface materials could encounter previously unidentified contamination from past practices, placement of undocumented fill, or even unauthorized disposal of hazardous wastes. Encountering these hazardous materials could expose workers, the public, or the environment to adverse effects depending on the volume, materials involved, and concentrations. In addition, construction activities could expose naturally occurring asbestos. This would be a **potentially significant** impact.

The proposed ordinance would allow the development of commercial cannabis operations on sites where existing or past industrial or commercial land uses have operated. Construction activities that disturb subsurface materials could encounter previously unidentified contamination from past practices, placement of undocumented fill, or even unauthorized disposal of hazardous wastes. Encountering these hazardous materials could expose workers, the public, or the environment to adverse effects depending on the volume, materials involved, and concentrations. In addition, construction activities could expose naturally occurring asbestos. The County has identified all parcels which appear to be underlain by ultramafic rock and any site disturbing activities would trigger a referral to the NCUAQMD for appropriate standards and recommendations for review based on specific procedures for determining ultramafic rock composition and the applicability of health and safety control measures. This would effectively address the potential for exposure to air-borne asbestos particles.

If contaminated soils and/or groundwater (i.e., identifiable by soil staining or odors) are encountered during construction activities, work would cease until appropriate worker health and safety precautions are implemented. A qualified hazardous materials specialist would be notified for an evaluation and the appropriate regulatory agency would be contacted. If deemed necessary by the appropriate agency, remediation would be undertaken in accordance with existing federal, State, and local regulations/requirements and guidelines established for the treatment of hazardous substances. Work would cease in the contaminated area until the nature and extent of contamination have been established, and proper disposal or remediation has occurred. This would likely require removal from the site and transportation to an EPA-approved disposal facility by a USDOT-certified hazardous waste transporter.

To address the potential for documented and undocumented hazards on a site, the American Society for Testing and Materials has developed widely accepted practice standards for the preliminary evaluation of site hazards (E-1527-05). Phase I ESAs include an on-site visit to determine current conditions; an evaluation of possible risks posed by neighboring properties; interviews with persons knowledgeable about the site's history; an examination of local planning files to check prior land uses and permits granted; file searches with appropriate agencies having oversight authority relative to water quality and/or soil contamination; examination of historic aerial photography of the site and adjacent properties; a review of current topographic maps to determine drainage patterns; and an examination of chain-of-title for environmental lines and/or activity and land use limitations. If a Phase I ESA indicates the presence, or potential presence of contamination, a site-specific Phase II ESA is generally conducted to test soil and/or groundwater. Based on the outcome of a Phase II ESA, remediation of contaminated sites under federal and State regulations may be required prior to development. Phase I ESAs can also be used to identify the potential for presence of hazardous building materials in situations where older structures intended for demolition could contain lead-based paint, asbestos containing materials, mercury, or polychlorinated biphenyls. It is common practice for lending institutions to require a Phase I ESA to be prepared to research and disclose the prior uses of the site and the likelihood that residual hazardous materials and/or waste might be present in underlying soil and/or groundwater when properties change hands. However, there are no general regulatory requirements to conduct a Phase I ESA, or subsequent investigation of potential contamination. Therefore, because it cannot be assumed these practices would occur, the impacts related to changes in land use are considered **potentially significant**.

Mitigation Measure 3.7-2a: Prepare Environmental Site Assessments

The following shall be included as performance standards in the proposed ordinance for proposed development of commercial cannabis facilities on existing commercial, business park, or industrial sites:

- Applications for new cannabis activities in commercial, business park, or industrial sites shall include a site assessment for the presence of potential hazardous materials, including an updated review of environmental risk databases. If this assessment indicates the presence or likely presence of contamination, the applicant shall prepare a Phase I ESA in accordance with the American Society for Testing and Materials' E-1527-05 standard. For work requiring any demolition, the Phase I ESA shall make recommendations for any hazardous building materials survey work that shall be done. All recommendations included in a Phase I ESA prepared for a site shall be implemented. If a Phase I ESA indicates the presence or likely presence of contamination, the applicant shall prepare a Phase II ESA, and recommendations of the Phase II ESA shall be fully implemented prior to ground disturbance, which will be made a condition of approval for the project.

Mitigation Measure 3.7-2b: Prepare a Hazardous Materials Contingency Plan for Construction Activities

The following shall be included as performance standards in the proposed ordinance for proposed development of commercial cannabis facilities on existing commercial, business park, or industrial sites:

- Applications for new cannabis activities in commercial, business park, or industrial sites shall include f a hazardous materials contingency plan for review and approval by Humboldt County Division of Environmental Health. The plan shall describe the necessary actions that would be taken if evidence of contaminated soil or groundwater is encountered during construction. The contingency plan shall identify conditions that could indicate potential hazardous materials contamination, including soil discoloration, petroleum or chemical odors, and presence of USTs or buried building material. The plan shall include the provision that, if at any time during constructing the project, evidence of soil and/or groundwater contamination with hazardous material is encountered, the project applicant shall immediately halt construction and contact Humboldt County Division of Environmental Health. Work shall not recommence until the discovery has been assessed/treated appropriately (through such mechanisms as soil or groundwater sampling and remediation if potentially hazardous materials are detected above threshold levels) to the satisfaction of Humboldt County Division of Environmental Health, RWQCB, and

DTSC (as applicable). The plan, and obligations to abide by and implement the plan, shall be incorporated into the conditions of approval for the project.

Significance after Mitigation

With enforcement of the above mitigation measures and adherence to existing hazardous materials regulations, impacts from any existing hazardous materials would be minimized. Preparation of, and compliance with, a Phase I ESA for properties at risk of potential hazardous materials and/or waste contamination would avoid adverse impacts. This would minimize the risk of an accidental release of hazardous substances that could adversely affect human health or the environment. Mitigation Measure 3.7-2b would establish a hazardous materials contingency plan to address potential soil and groundwater contamination, if discovered during construction activities. This impact would be reduced to a **less-than-significant** level.

Impact 3.7-3: Create a significant hazard to the public or environment due to upset and accident conditions.

Commercial cannabis facilities would not generally require intensive use of hazardous materials. Existing regulations effectively reduce the potential for individual projects to create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. This impact would be **less than significant**.

Commercial cannabis cultivation and supporting facilities could result in impacts related to use of hazardous materials and disturbance of potentially hazardous materials. The most likely incidents involving construction-related hazardous materials are generally associated with minor spills or drips. Small fuel or oil spills are possible, but would have a negligible impact on public health. All hazardous materials would be stored, handled, and disposed of according to the manufacturers' recommendations, and spills would be cleaned up in accordance with applicable regulations. Hazardous materials spills or releases, including petroleum products such as gasoline, diesel, and hydraulic fluid, regardless of quantity spilled, must be immediately reported if the spill has entered or threatens to enter a water of the State, including a stream, lake, wetland, or storm drain, or has caused injury to a person or threatens injury to public health. Immediate notification must be made to the local emergency response agency, or 911, and the Governor's Office of Emergency Services Warning Center. For non-petroleum products, additional reporting may be required if the release exceeds federal reportable quantity thresholds over a release period of 24 hours as detailed in Health and Safety Code Section 25359.4 and Title 40, Section 302.4 of the CFR. Federal and state laws provide for administrative penalties of up to $25,000 per day for each violation of emergency notification requirements. Criminal penalties may also apply. These federal and state requirements substantially reduce the risk of upset and accidental hazard conditions to the public or environment.

Cannabis cultivation activities may use small amounts of potentially hazardous materials (e.g., pesticides, rodenticides, fungicides, and insecticides). Additionally, certain manufacturing processes include the use of volatile solvents in association with extraction of cannabis oils. As indicated above, historic cannabis cultivation practices (particularly illegal cultivation on public lands) has involved improper use of these materials and resulted in soil and water contamination has affected habitat and wildlife, as well as public health hazards. (For a discussion of impacts to habitat and wildlife, see Section 3.4, "Biological Resources.")

Numerous existing laws and regulations are designed to prevent spills of hazardous materials and limit damage in the event that such materials are released. The proposed ordinance would only authorize lawful cultivation activities that comply with existing laws regarding storage and use of hazardous materials. California Health and Safety Code provisions and the California Accidental Release Program would require any cannabis cultivation facility storing more than a threshold quantity of regulated substances to prepare an HMBP and/or RMP. These plans would include emergency response procedures to coordinate response in the event of a release and chemical accident prevention measures. Further, the proposed ordinance would require setbacks of 300 to 600 feet from sensitive uses.

In general, cannabis cultivation would not make intensive use of hazardous materials. Existing regulations effectively reduce the potential for individual projects to create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.7-4: Emit hazardous emissions or handle hazardous materials within 0.25 mile of a school.

Cultivation sites are not anticipated to use large quantities of hazardous materials. Materials used in processing and extraction would be used in accordance with applicable regulations to limit the potential for accident or upset conditions. Setbacks from school sites are required in the proposed ordinance. This impact would be **less than significant**.

Cultivation sites may contain small quantities, if any, of hazardous chemicals. Areas host to cannabis cultivation are often located in remote rural areas, far from high traffic areas with a strong public presence (such as schools). Further, the proposed ordinance would require that cultivation areas, on-site processing, and microbusinesses are setback 600 feet setback from school sites. All operations would be required to comply with regulations related to the routine use, storage, and transport of hazardous materials. As discussed in detail in Impact 3.7-3, above, compliance with existing regulations would reduce the exposure to potential hazards associated with these land uses.

For new schools that may be developed, the California Education Code, including Section 17213(b) of the Education Code, establishes requirements for assessments and approvals that address the potential for existing contamination on the site, and whether nearby land uses might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials. Assessment of existing contamination is conducted in coordination with DTSC's School Property Evaluation and Cleanup Division, which is responsible for assessing, investigating, and cleaning up proposed school sites. This division ensures that selected properties are free of contamination or, if the properties were previously contaminated, that they have been cleaned up to a level that protects the students and staff who would occupy a new school. All proposed school sites that would receive State funding for acquisition or construction are required to go through a rigorous environmental review and cleanup process under DTSC's oversight.

The potential to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school is, therefore, a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.

Impact 3.7-5: Result in a safety hazard for people residing or working in a project area that is located within 2 miles of a public airport or private use airport.

Applications for new cannabis-related development near public airports would be required to comply with the applicable ALUCP. Further, development subject to the proposed ordinance would not result in new sensitive land uses or attract dense populations. The proposed ordinance would not create a safety hazard for people working or residing near a public or private airport. This impact would be **less than significant**.

Proposed new cannabis-related development around public use airports would be subject to criteria and polices set forth in the ALUCP when assessing land use compatibility. These criteria outline the types, densities, and heights of land uses permitted within each airport land use compatibility zone to provide for both safe airport operation and airport land use compatibility. Commercial cannabis-related uses provided for under the proposed ordinance would be subject to these requirements to prevent hazards to flight. The

ordinance is not expected to create new sensitive land uses or attract dense populations near airports. New development near airports allowed by the ordinance would be required to comply with safety and compatibility standards contained in the ALUCP, which are intended to reduce the likelihood of accidents affecting land uses on the ground. Thus, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.7-6: Impair emergency response or evacuation plans.

Future commercial cannabis facilities that would be allowed under the proposed ordinance would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. This impact would be **less than significant**.

Construction activities for commercial cannabis facilities could result in temporary lane closures, increased truck traffic, and other roadway effects that could slow or stop emergency vehicles, temporarily increasing response times, and impede existing services. Construction activities do not, however, have the potential to substantially hinder emergency response activities or physically interfere with established evacuation routes. To address any temporary road closures that would be required during construction, standard construction mitigation includes notification of emergency responders. For further discussion of traffic control during construction, refer to Section 3.12, "Transportation and Circulation."

As part of the performance standards in the proposed ordinance for outdoor and mixed-light cultivation, road standards must be met that illustrate a functional capacity and dead-end road length that would facilitate access by emergency personnel. Further, the Planning Department refers information relating to discretionary planning applications to fire districts, CalFire, and the Humboldt County Departments of Public Works, Environmental Health for review, as appropriate. Building permits for structures associated with cannabis-related activities are also referred to fire districts, CalFire, and the Humboldt County Departments of Public Works, Environmental Health for review, as appropriate. The responses to such referrals indicate whether a project could potentially impact emergency response and if it would, include measures to reduce the impact. These measures are included as part of the project approval, thereby providing assurance that effects on emergency response are minimized. The potential for construction activities or development to impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan would be a **less-than-significant** impact.

Mitigation Measures

No mitigation is required.

Impact 3.7-7: Create a significant risk from wildfires.

Commercial cannabis activities in rural areas, areas designated as High Fire Hazard Severity Zones, or at the urban-wildland interface could expose workers, structures, and firefighters to risk of loss from wildfire hazards. This hazard would not be substantially worse than that for other types of land uses in the same areas, and would be reduced compared to existing cannabis cultivation occurring under baseline conditions. Existing laws would be anticipated to reduce potential impacts. This impact would be **less than significant**.

Commercial cannabis activities and facilities could increase risk of fire and/or introduce ignition sources or flammable materials to an area. In particular, indoor and mixed-light cultivation practices could generate large electrical loads from high-intensity lights and other growing equipment, which could increase risk of an electrical fire. The Building Inspection Division requires electrical permits for all electrical systems to ensure conformance with applicable electrical codes, which substantially reduces the risk of electrical fires. Outdoor and/or mixed-light cultivation operations may involve the use of power equipment or gas- or diesel-fueled generators, which may generate a spark or provide flammable materials. Fire risk from such equipment used

for outdoor and/or mixed-light cultivation would not be substantially different from that posed by other agricultural activities that use similar equipment and practices.

While commercial cannabis activities would sometimes occur in rural areas, areas designated as High Fire Hazard Severity Zones, or at the urban-wildland interface which could expose workers and structures at the site to risk of loss from wildfire, this hazard would not be substantially different than that for other types of land uses in the same areas, and would be reduced compared to current cannabis cultivation occurring under baseline conditions.

Commercial cannabis activities permitted by the proposed ordinance are subject to the California Fire Code, which includes safety measures to minimize the threat of wildfire. Title 14 of the CCR sets forth the minimum development standards for emergency access, fuel modification, setback, signage, and water supply, which help prevent damage to structures or people by reducing wildfire hazards. In addition, Humboldt County applies standards to proposed development within the SRA to reduce the risk of fire. These standards are a locally adopted alternative version of the state's SRA Fire Safe Regulations (Humboldt County Code Title III, Div 11) as authorized by Section 4290 of the Public Resources Code, and have been approved by CAL FIRE as meeting or exceeding state regulations. New development in the SRA is subject to Fire Safe regulations, and the appropriate clearance of vegetation around such development is inspected by CAL FIRE and potentially by Humboldt County with other improvements at the time of construction (Humboldt County 2017a).

Licensed facilities under the proposed ordinance would be required to have certification from the local jurisdiction that they comply with building, electrical, and fire codes, which would require installation of fire suppression systems, where appropriate. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.8 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting within the County, including runoff, storm drainage, and flood control. Regulations and policies affecting local hydrology and water quality are discussed, and impacts are identified that may result from implementation of the proposed ordinance. Mitigation measures are recommended to reduce potential impacts, where appropriate.

Comment letters, in response to the notice of preparation for this EIR, addressed issues pertaining to watershed capacity, existing degraded water quality conditions, degradation of water quality from cultivation sites, groundwater overdraft potential, placement of structures in floodplains, and increased stormwater flows. These issues are addressed below.

3.8.1 Regulatory Setting

FEDERAL

Clean Water Act

The U.S. Environmental Protection Agency (EPA) is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA as well as the states. Various elements of the CWA address water quality. These are discussed below.

CWA Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations below, the State Water Resources Control Board (State Water Board) and its nine regional water quality control boards (RWQCBs) have designated authority in California to identify beneficial uses and adopt applicable water quality objectives.

CWA Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a total maximum daily load (TMDL) for each of the listed pollutants. The TMDL is the amount of the pollutant that the water body can receive and still comply with water quality objectives. The TMDL is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with water quality objectives.

In California, implementation of TMDLs is achieved through water quality control plans, known as basin plans. Basin plans contain specific water quality standards, as well as a program of implementation for how those water quality standards may be achieved. A TMDL might be one component of that program. Basin plans, their contents, and the applicability of Section 303(d) are discussed in further detail in the section on state regulations, below.

EPA must either approve a TMDL prepared by the state or disapprove the state's TMDL and issue its own. National Pollutant Discharge Elimination System (NPDES) permit limits for listed pollutants must be

consistent with the waste load allocation prescribed by the TMDL. After implementation of a TMDL, it is anticipated that the environmental issues associated with the regulated pollutant that led to listing of a given waterbody on the Section 303(d) list would be remediated.

CWA Section 404

In accordance with Section 404 of the CWA, the U.S. Army Corps of Engineers (USACE) regulates discharge of dredged or fill material into waters of the United States (US). Waters of the US and their lateral limits are defined in Title 33, Part 328.3(a) of the CFR to include navigable waters of the US, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Any activity resulting in the placement of dredged or fill material within waters of the US requires a permit from USACE. In accordance with Section 401 of the Clean Water Act, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate RWQCB indicating that the project will uphold water quality standards. Waters of the US and wetland protection requirements of the CWA administered by USACE are further discussed in Section 3.3, "Biological Resources."

CWA Section 401 and 402 National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the US. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint source stormwater runoff. Each NPDES permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. "Nonpoint source" pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving waters to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES permit system (see the discussion of state regulations below).

National Toxics Rule

In 1992, EPA issued the National Toxics Rule (NTR) (40 CFR 131.36) under the CWA to establish numeric criteria for priority toxic pollutants in 14 states and jurisdictions, including California, to protect human health and aquatic life. The NTR established water quality standards for 42 pollutants for which water quality criteria exist under CWA Section 304(a) but for which the respective states had not adopted adequate numeric criteria. EPA issued the California Toxics Rule (CTR) in May 2000. The CTR establishes numeric water quality criteria for 130 priority pollutants for which EPA has issued Section 304(a) numeric criteria that were not included in the NTR.

Federal Antidegradation Policy

The federal antidegradation policy, established in 1968, is designed to protect existing uses of waters and water quality and national water resources. The federal policy directs states to adopt a statewide policy that includes the following primary provisions:

- existing in-stream uses and the water quality necessary to protect those uses shall be maintained and protected;
- where existing water quality is better than necessary to support fishing and swimming conditions, that quality shall be maintained and protected unless the state finds that allowing lower water quality is necessary for important local economic or social development; and,

- where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

National Wild and Scenic Rivers Systems

The National Wild and Scenic Rivers System was created by Congress in 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average one-quarter mile on either bank in the lower 48 states and one-half mile on rivers outside national parks in Alaska to protect river-related values.

Rivers are classified as *wild*, *scenic*, or *recreational*.

Wild River Areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic River Areas – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational River Areas – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Regardless of classification, each river in the National System is administered with the goal of protecting and enhancing the values that caused it to be designated. Designation neither prohibits development nor gives the federal government control over private property. Recreation, agricultural practices, residential development, and other uses may continue. Protection of the river is provided through voluntary stewardship by landowners and river users and through regulation and programs of federal, state, local, or tribal governments. In most cases not all land within boundaries is, or will be, publicly owned, and the Act limits how much land the federal government can acquire from willing sellers. Visitors to these rivers are cautioned to be aware of and respect private property rights.

The Act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the federal government over waters as determined by established principles of law.

National Flood Insurance Act

The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from, and mitigating against disasters. Formed in 1979 to merge many of the separate disaster related responsibilities of the federal government into one agency, FEMA is responsible for coordinating the federal response to floods, earthquakes, hurricanes, and other natural or man-made disasters and providing disaster assistance to states, communities, and individuals. The Federal Insurance and Mitigation Administration within FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards. Established in 1968 with the passage

of the National Flood Insurance Act, the NFIP is a federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for state and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the federal government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the federal government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.

FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of NFIP. Floodplains are divided into flood hazard areas, which are areas designated per their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas (SFHAs) are the areas identified as having a one percent chance of flooding in each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development is not to proceed within the regulatory 100-year floodplain, if the development is expected to increase flood elevation by 1 foot or more.

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary maximum contaminant levels (MCLs). MCLs and the process for setting these standards are reviewed triennially. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to Department of Health Services (DHS). DHS is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

STATE

Porter-Cologne Water Quality Control Act

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants the State Water Board and each of the nine RWQCBs power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Clean Water Act. The applicable RWQCB for the proposed project is the Central Valley RWQCB. The State Water Board and the Central Valley RWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products.

Each RWQCB must formulate and adopt a water quality control plan (known as a "Basin Plan") for its region. The Basin Plans must conform to the policies set forth in the Porter-Cologne Act and established by the State Water Board in its state water policy. The Porter-Cologne Act also provides that a RWQCB may include within its Basin Plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

NPDES Construction General Permit for Stormwater Discharges Associated with Construction Activity

The State Water Board adopted the statewide NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Permit) in August 1999. The state requires that projects disturbing more than one acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Construction Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce non stormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan

(SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control.

State Drinking Water Standards

Title 22, Division 4, Chapter 15, of the California Code of Regulations establishes parameters for safe drinking water throughout the state. These drinking water standards are similar to, but in many cases more stringent than, federal standards. Title 22 contains both primary standards, and secondary standards related to aesthetics (taste and odor). These standards include limits for water quality parameters that may be found in runoff from permitted or unpermitted cultivation sites, such as heavy metals, pesticides, petroleum hydrocarbons, color, foaming agents, turbidity, and total dissolved solids/specific conductance.

Policy for Implementation of Toxics Standards in Inland Surface Waters, Enclosed Bays, and Estuaries of California

In 1994, SWRCB and USEPA agreed to a coordinated approach for addressing priority toxic pollutants in inland surface waters, enclosed bays, and estuaries of California. In March 2000, SWRCB adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, commonly referred to as the State Implementation Policy. This policy implements NTR and CTR criteria and applicable Basin Plan objectives for toxic pollutants. When an RWQCB issues any permit allowing the discharge of any toxic pollutant(s) in accordance with the CWA or the Porter-Cologne Act, the permit's promulgation and implementation must be consistent with the State Implementation Policy's substantive or procedural requirements. Any deviation from the State Implementation Policy requires the concurrence of USEPA if the RWQCB is issuing any permit under the CWA. Consistency with the State Implementation Policy would occur when water permits are issued for Proposed Program activities.

California Pesticide Management Plan for Water Quality

The California Pesticide Management Plan for Water Quality is a joint effort between the California Department of Pesticide Regulation (CDPR), county agricultural commissioners, SWRCB, and the RWQCBs to protect water quality from pesticide pollution. To reduce the possibility of pesticides entering groundwater or surface water, a four-stage approach was designed by CDPR and SWRCB. Stage 1 involves educational outreach to the community to prevent pesticide contamination in water supplies. Stage 2 occurs after pesticides are detected in a water supply, and an appropriate response is selected that is safe and site specific. If Stage 2 is not effective, then Stage 3 tactics are employed, which include implementing restricted material use permit requirements, regulations, and other regulatory authority by CDPR and the county agricultural commissioners. In addition, SWRCB and the RWQCBs can employ Stage 4 and a variety of water quality control planning programs and other regulatory measures to protect water quality as necessary.

Surface Water Protection Program

CDPR implements the California Pesticide Management Plan for surface water protection through its Surface Water Protection Program, under a Management Agency Agreement with SWRCB. The Surface Water Protection Program is designed to characterize pesticide residues, identify contamination sources, determine flow of pesticides to surface water, and prepare site-specific mitigation measures. The program addresses both agricultural and nonagricultural sources of pesticide residues in surface waters. It has preventive and response components that reduce the presence of pesticides in surface waters. The preventive component includes local outreach to promote management practices that reduce pesticide runoff. Prevention also relies on CDPR's registration process, in which potential adverse effects on surface water quality, and particularly those in high-risk situations, are evaluated. The response component includes mitigation options to meet water quality goals, recognizing the value of self-regulating efforts to reduce pesticides in surface water as well as regulatory authorities of CDPR, SWRCB, and the RWQCBs.

Pesticide Contamination Prevention Act

The Pesticide Contamination Prevention Act, approved in 1985, was developed to prevent further pesticide contamination of groundwater from legal agricultural pesticide applications. The act defines pesticide pollution as "the introduction into the groundwaters of the state of an active ingredient, other specified product, or degradation product of an active ingredient of an economic poison above a level, with an adequate margin of safety that does not cause adverse health effects." CDPR has compiled a list of pesticide active ingredients on the Groundwater Protection List that have the potential to pollute groundwater. These various pesticides are reviewed and their use is modified when they are found in groundwater.

Groundwater Protection Program

CDPR implements the Pesticide Contamination Prevention Act through its Groundwater Protection Program, which is coordinated with SWRCB under the California Pesticide Management Plan. The Groundwater Protection Program evaluates and samples pesticides to determine whether they may contaminate groundwater, identifies areas sensitive to pesticide contamination, and develops mitigation measures to prevent the movement of pesticides. CDPR may adopt regulations to carry out these mitigation measures. CDPR conducts four groundwater monitoring programs. The first monitors whether pesticides on the Groundwater Protection List with the potential to pollute have been found in groundwater. The second type is four-section monitoring, which monitors wells near a contaminated well. The third monitoring type is sensitive-area monitoring that identifies areas sensitive to pesticide pollution. The fourth type is investigative monitoring, used to identify and understand the factors that affect pesticide movement into groundwater.

State Water Rights System

SWRCB administers a water rights system for the diversion of surface waters (springs, streams, and rivers), including diversion of water from subterranean streams flowing in known and definite channels. The granting of a water right provides permission to withdraw water from a river, stream, or groundwater source for a "reasonable" and "beneficial" use. Water right permits and licenses identify the amounts, conditions, and construction timetables for a proposed diversion. Before issuing the permit, SWRCB must consider all prior rights and the availability of water in the basin, as well as the flows needed to preserve instream uses such as recreation and fish and wildlife habitat. Water rights are administered using a seniority system based on the date of applying for the water right—commonly referred to as "first in time, first in right." Junior water rights holders may not divert water in a manner that would reduce the ability of senior water rights holders to exercise their water right.

All surface water used for cannabis cultivation must be associated with a valid water right, whether the cultivator personally holds such a water right or it is held by the water purveyor supplying the cultivation operation (e.g., a municipal water system or a water delivery service).

Water Rights Administration for Cannabis Cultivation

Medical Cannabis Regulation and Safety Act (MCRSA) and Adult Use of Marijuana Act (AUMA) contain provisions that are directly relevant to SWRCB's water rights permit process. For example, Section 19332(d) of the Business and Professions Code requires that SWRCB, in accordance with Section 13149 of the California Water Code and in consultation with the California Department of Fish and Wildlife (CDFW) and CDFA, shall ensure that individual and cumulative effects of water diversion associated with cultivation of cannabis do not affect the instream flows needed for fish spawning, migration, and rearing or the flows needed to maintain natural flow variability. California Water Code Section 13149 goes on to describe that this is to be accomplished through adoption of principles and guidelines for diversion and use of water for cannabis cultivation in areas where cannabis cultivation may have the potential to substantially affect instream flows. The principles and guidelines adopted may include, but are not limited to, instream flow objectives, limits on diversions, and requirements for screening of diversions and elimination of barriers to fish passage. The principles and guidelines may include requirements that apply to groundwater extraction where SWRCB determines those requirements are reasonably necessary for purposes of this section. SWRCB, CDFW, and CDFA are actively coordinating on the development of draft principles and guidelines, which will be circulated for public review and comment prior to adoption.

Under the MCRSA and AUMA, applicants proposing to divert surface water must possess a valid water right. Specifically, an application for a license issued by CDFA must identify at least one of the following water sources, as specified in Section 8102(b)(24)(A)-(E) of the proposed regulations:

(1) Retail water supplier;

(2) Groundwater well;

(3) Rainwater catchment system;

(4) Diversion from a surface water body or underground stream flowing in a known and definite channel; or

(5) Diversion from a surface water body or underground stream flowing in a known and definite channel claiming an exception from the requirement to file a statement of diversion and use.

Section 8109 of the proposed regulations describes the supplemental information requirements for water diversions:

(1) A copy of a registration, permit, or license issued under Part 2 (commencing with Section 1200) of Division 2 of the California Water Code that covers the diversion;

(2) A copy of any statements of diversion and use filed with the SWRCB before July 1, 2017 detailing the water diversion and use;

(3) A copy of a statement of water diversion and use, filed with SWRCB before July 1, 2017, demonstrating that the diversion is authorized under a riparian right and that no diversion occurred between January 1, 2010, and January 1, 2017; or

(4) For a water source where the applicant has claimed an exception from the requirement to file a statement of diversion and use, documentation, submitted to SWRCB, establishing that the diversion is subject to subdivision (a), (c), (d), or (e) of Section 5101 of the California Water Code. SWRCB issued a notice on May 19, 2017, providing guidance, and making available the forms to be filed to meet these requirements.

California Water Code

The California Water Code is enforced by the California Department of Water Resources (DWR). The mission of DWR is "to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments" DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development statewide.

Diversion Water Use

California Water Code Section 5101 requires each person or organization that uses diverted surface water or pumped groundwater from a known subterranean stream after December 31, 1965 to file with the State Water Board an initial Statement of Water Diversion and Use prior to July 1 of the following year. Supplemental Statements are required at three-year intervals following the filing of an Initial Statement if there is continued diversion of water.

The main purpose of the Statement Program is to create a central repository for records of diversions of water. This repository differs from the records of appropriated water rights that are registered, permitted, and licensed. A Statement is not a confirmed water right; it is only a statement of diversion and use.

Groundwater Management

Groundwater Management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1-5, Sections 10750 through 10755.4. The Groundwater Management Act was first introduced in 1992 as Assembly Bill (AB) 3030, and has since been modified by Senate Bill (SB) 1938 in 2002, AB 359 in 2011, and the Sustainable Groundwater Management Act (SB1168, SB 1319, and AB 1739) in 2014. The intent of the Acts is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a Groundwater Management Plan.

Sustainable Groundwater Management Act of 2014

The Sustainable Groundwater Management Act of 2014 (SGMA) became law on January 1, 2015, and applies to all groundwater basins in the state (Water Code Section 10720.3). By enacting the SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1).

Pursuant to the SGMA, any local agency that has water supply, water management or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" for that basin (Water Code Section 10723). Local agencies had until January 1, 2017 to elect to become or form a groundwater sustainability agency. In the event a basin is not within the management area of a groundwater sustainability agency, the county within which the basin is located will be presumed to be the groundwater sustainability agency for the basin. However, the county may decline to serve in this capacity (Water Code Section 19724).

In exercising its authority under the SGMA, a groundwater sustainability agency must consider the interests of holders of overlying groundwater rights, among others, and may not make a binding determination of the water rights of any person or entity (Water Code Sections 10723.2, 10726.8). The SGMA also provides local agencies with additional tools and resources designed to ensure that the state's groundwater basins are sustainably managed.

The SGMA also requires DWR to categorize each groundwater basin in the state as high-, medium-, low-, or very low priority (Water Code Sections 10720.7, 10722.4) All basins designated as high- or medium-priority basins must be managed by a groundwater sustainability agency under a groundwater sustainability plan that complies with Water Code section 10727 et seq. If required to be prepared, groundwater sustainability plans must be prepared by January 31, 2020 for all high- and medium-priority basins that are subject to critical conditions of overdraft, as determined by DWR, or by January 31, 2022 for all other high- and medium-priority basins. In lieu of preparation of a groundwater sustainability plan, a local agency may submit an alternative that complies with the SGMA no later than January 1, 2017 (Water Code Section 10733.6).

The Eel River Groundwater Basin was designated by DWR as a "medium" priority that requires compliance with SGMA. See Section 3.8.2, "Environmental Setting" for additional detail.

California Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the State Water Board adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy provides as follows:

a) Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

b) Any activity which produces waste or increases the volume or concentration of waste and which discharges to existing high-quality waters would be required to meet waste discharge requirements.

California Wild and Scenic River Designation

Subject to a declaration that rivers with "extraordinary scenic, recreational, fishery, or wildlife values" should be preserved in their free-flowing state as the "highest and most beneficial use,"1 the California State Legislature created a California Wild and Scenic Rivers System in 1972, now administered by the California Resources Agency. While the U.S. Congress had created a national system designating the same rivers in 1968, the California system is intended to enhance local coordination of riparian management.

Under the California system, rivers were classified as wild, scenic, or recreational, according to the following criteria as stated in the California Public Resources Code Section 5093.53:

- Wild rivers are those "free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted."
- Scenic rivers are those "free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads."
- Recreational rivers are those "readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past."

California Administrative Code

Title 22 of the California Administrative Code (Article 16, Section 64449) defines secondary drinking water standards, which are established primarily for reasons of consumer acceptance (i.e., taste) rather than for health issues.

California Well Standards

Department of Water Resources Bulletins 74-81 and 74-90 authorized the establishment of well standards and regulations pertaining to the construction, alteration, and destruction of wells. California Water Code Section 13750.5 requires that those responsible for the construction, alteration, or destruction of water wells, cathodic protection wells, groundwater monitoring wells, or geothermal heat exchange wells possess a C-57 Water Well Contractor's License. The Contractors State License Board issue this license. California Water Code Section 13751 requires that anyone who constructs, alters, or destroys a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well must file with the Department of Water Resources a report of completion within 60 days of the completion of the work.

State Water Resources Control Board Principles and Guidelines for Cannabis Cultivation

The State Water Resources Control Board (State Water Board) is developing a policy for water quality control (policy) to establish interim principles and guidelines for cannabis cultivation. The principles and guidelines shall include measures to protect springs, wetlands, and aquatic habitats from negative impacts of cannabis cultivation. Principles and guidelines may include instream flow objectives, limits on diversions, and requirements for screening of diversions and elimination of barriers to fish passage. The principles and guidelines may include requirements that apply to groundwater extractions.

Principles and guidelines in the draft policy include minimum instream flows, forbearance periods, off-stream storage requirements, riparian buffers, maximum diversion rates, irrigation conservation measures, and other best management practices. Minimum instream flows and the forbearance periods help maintain natural flow variability and minimize the effects of cannabis cultivation on fisheries and wildlife by protecting water quantity during critical life stages. The riparian buffers, best management practices, and other operational guidelines help maintain healthy riparian corridors and minimize the water quality impacts resulting from cannabis cultivation.

The State Water Board policy provides compliance gage instream flow requirements by region. These requirements would require that cannabis cultivators check an online mapping tool to determine if water is available to divert from the parcel's assigned gage (i.e., the real-time daily average flow is greater than the Numeric Flow Requirement at the assigned compliance gage). The gage Numeric Instream Flow

Requirements provide a threshold for flow rate in cubic feet per second (cfs) for surface water flows and groundwater low flow thresholds (see Appendix E). Table 3.8-1 provides representative gage instream flow requirements for watersheds in Humboldt County included in the Draft Cannabis Cultivation Policy. These numbers are representative of flows from one location within the major watersheds of Humboldt County and are provided as an example. There are two types of flow thresholds, described below.

Numeric Instream Flow Requirements: The Numeric Instream Flow Requirements (minimum instream flow requirements) ensure that individual and cumulative effects of water diversion and discharge associated with cannabis cultivation do not affect the instream flows needed for fish spawning, migration, and rearing, and the flows needed to maintain natural flow variability.

Groundwater Low Flow Thresholds: The low flow threshold represents the minimum flow that should be in streams during all water type years to support aquatic ecosystems, including juvenile salmonid migration and rearing and water quality.

Table 3.8-1 Draft Gage Numeric Instream Flow Requirements

USGS Gage Number	Surface Water						Groundwater
	Watershed	November (cfs)	December (cfs)	January (cfs)	February (cfs)	March (cfs)	Low Flow Threshold (cfs)
11469000	Mattole	406	942	1,118	960	769	27
11476500	South Fork Eel	749	1,708	2,125	1,857	1,424	54
11477000	Lower Eel	3,293	7,218	9,280	8,443	6,013	145
11481000	Mad Redwood	641	1,406	1,555	1,453	1,245	57
11530000	Trinity	2,349	3,440	4,712	5,165	4,772	423
11530500	Lower Klamath	9,785	10,162	14,400	13,657	16,450	4,789

Source: SWRCB 2017a

The draft policy was released for public comment in June 2017, and the final policy is anticipated to be brought to the State Water Board for adoption in October 2017. Upon approval, the North Coast RWQCB Order R1-2015-0023, described below, would sunset and cannabis operations would be subject to the State Water Board's policy.

LOCAL

North Coast Regional Water Quality Control Board Basin Plan

The North Coast RWQCB Basin Plan provide the basis for protecting water quality in California. Basin Plans are mandated by both the CWA and the State Porter-Cologne Water Quality Act (Porter-Cologne). Sections 13240-13247 of Porter-Cologne specify the required contents of a regional basin plan.

The Basin Plan is the North Coast RWQCB's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. Beneficial uses designated within the North Coast Region include: municipal and domestic supply, agricultural supply, industrial service supply, industrial process supply, groundwater recharge, freshwater replenishment, navigation, hydropower generation, water contact recreation, non-contact water recreation, commercial and sport fishing, aquaculture, and various habitats. The Basin Plan was most recently updated in 2011. Please see the discussion immediately above (State Water Board) concerning management of cannabis operations.

North Coast Regional Water Quality Control Board Sediment TMDL Implementation Policy

As part of its efforts to control sediment waste discharges and restore sediment impaired water bodies, the Regional Water Board adopted the Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region, which is also known as the Sediment TMDL Implementation Policy, on November 29, 2004. This Policy was adopted through Resolution R1-2004-0087.

The Sediment TMDL Implementation Policy states that Regional Water Board staff shall control sediment pollution by using existing permitting and enforcement tools. The goals of the Policy are to control sediment waste discharges to impaired water bodies so that the TMDLs are met, sediment water quality objectives are attained, and beneficial uses are no longer adversely affected by sediment.

The Sediment TMDL Implementation Policy also directs staff to develop: (1) the Work Plan, that describes how and when permitting and enforcement tools are to be used; (2) the Guidance Document on Sediment Waste Discharge Control; (3) the Sediment TMDL Implementation Monitoring Strategy; and (4) the Desired Conditions Report.

North Coast Regional Water Quality Control Board Cannabis Cultivation Waste Discharge Regulatory Program

The North Coast RWQCB's Order R1-2015-0023: The Cannabis Cultivation Waste Discharge Regulatory Program (Order R1-2015-0023 or Order) addresses water quality impacts from cannabis cultivation and associated activities or other operations with similar environmental effects on private property in the North Coast Region. The Water Boards are the principal state agencies with primary responsibility for the coordination and control of water quality. Nonpoint source pollution, also known as polluted runoff, is the leading cause of water quality impairments in the North Coast. The majority of the streams in the North Coast are impacted by excess sediment, nutrients, and elevated temperatures. The problems are often associated with poorly planned forest clearing, earth-moving activities, and other land use management practices, resulting in polluted stormwater runoff to streams. Dry-season surface water diversions intensify these water quality impacts. The regulatory program has several components: A Waiver of Waste Discharge Requirements, Third Party Programs, Inspections, Enforcement, and Education and Outreach.

The Order includes enforceable requirements which cultivators need to become familiar with to ensure their operations do not impact water resources. Below is a summary of primary elements of the Order:

1. A tiered enrollment structure relative to the potential threat to water quality. Tier 1 is a low-threat tier based on compliance with defined standard conditions and site characteristics. Tier 2 is a management tier, which requires the development and implementation of a water resource protection plan. Tier 3 is a cleanup tier, which requires the development and implementation of a cleanup and restoration plan.

2. Standard conditions to protect water quality, in conjunction with a list of Best Management Practice (BMP), provide a framework for cultivators to assess their sites for appropriate tiers and determine what management measures are necessary to protect water quality. All BMPs in the order are considered enforceable conditions under the Order as applicable to a given site. The draft Order includes standard conditions regarding:

    a. Site maintenance, erosion control and drainage features
    b. Stream crossing maintenance and improvement
    c. Stream and wetland buffers
    d. Spoils management
    e. Water storage and use
    f. Irrigation runoff
    g. Fertilizers and soil amendments
    h. Pesticides
    i. Petroleum products and other chemicals
    j. Cultivation-related wastes

k. Refuse and human waste, and
l. Remediation, cleanup, and restoration activities.

3. Associated procedural forms including a notice of intent of enrollment, a monitoring and reporting form, and a checklist for remediation and restoration work in streams or wetlands.

4. General Prohibitions including discharges or threatened discharges to surface waters.

5. A framework for non-governmental third-party programs to assist cultivators with enrollment, compliance activities, and monitoring and reporting.

6. A framework for development and implementation of water resource protection and cleanup and restoration plans.

Humboldt County MS 4 Permit

In February 2013, the State Water Resources Control Board adopted the current version of the MS4 Permit for Humboldt County. The purpose of the MS4 Permit is to control the discharge of pollutants to stormwater drainage systems which ultimately drain to natural waterways. The state has stipulated that the MS4 Permit applies to McKinleyville, the unincorporated Eureka area, and Shelter Cove within unincorporated Humboldt County. Other areas with minor amounts of drainage infrastructure that are not subject to MSR Permit requirements include Redway, Manila, King Salmon, Fields Landing, Loleta, and Willow Creek.

The MS4 Permit requires the County to ensure that certain development projects comply with post-construction stormwater requirements based on "low impact development" (LID) standards. These standards, effective as of July 1, 2015, are intended to maintain a site's pre- development runoff characteristics by using design techniques that capture, treat, and infiltrate stormwater on site.

The MS4 General Permit specifies two size classes for post-construction requirements. Projects that create and/or replace 2,500 to 5,000 square feet of impervious surface ("small projects") will need to implement one or more designated site design measures to reduce project site runoff. Examples of site design measures include disconnection of rooftop drainage from impervious areas, tree planting and preservation, rain barrels, vegetated swales, and porous pavement.

Projects that create and/or replace 5,000 square feet or more of impervious surface ("regulated projects") will need to implement site design measures based on more detailed procedures and demonstrate compliance with runoff reduction thresholds. Some projects may be required to construct bioretention facilities. In addition, projects in the larger size category will need to comply with source control measures to minimize the contact between pollutants and stormwater runoff.

Procedures, standards, and specifications for implementing the post-construction requirements of the MS4 Permit are contained in the Humboldt Low Impact Development Stormwater Manual V2.0. This manual will also be used by the cities of Eureka, Arcata, Fortuna, and Trinidad for compliance with the MS4 Permit.

The Humboldt County Code addresses nonpoint source pollution and sedimentation under Title III, Land Use and Development Division 3, Building Regulations Section 331-12, Grading, Excavation, Erosion, and Sedimentation Control (hereafter, County Grading Ordinance).

Grading permits are intended to control and reduce erosion, reduce sediment delivered to drainages and streams, and protect fish habitat and other biological resources. According to the County Grading Ordinance, projects larger than one acre or that meet other criteria specified in the erosion and sediment control plan requirements must include implementation measures "based on recommendations contained in the latest edition of the State of California Erosion and Sediment Control Handbook or State Water Resources Control Board Best Management Practice Construction Handbook," or equivalent best

management practice erosion and sediment control guides, to prevent sedimentation or damage to on-site and off-site property.

For small projects that do not require a grading permit and for building permits that do not also require a grading permit, applicants can agree to adhere to a list of erosion control standards and specify implementation measures from a list provided by the County that will be used to comply with Erosion and Sediment Control Standards in the County's Grading Ordinance. The 2016 California Green Building Standards (Chapter 4, Residential Mandatory Measures, Section 4.106, subsections 1 through 3, Site Development, which took effect in January 2017) relating to new construction, add to, and compliment the procedures described above and specify more rigorous storm water management criteria to prevent erosion and retain sediment on site.

Requirements for projects less than one acre within MS4 areas will be subject to much more stringent requirements.

Humboldt County General Plan

The following policies in the current General Plan would apply to the project:

Section 3291, Hazards

1. General

    A. Regulate land use to ensure that development in potentially hazardous areas will not preclude preserving and promoting public safety. Potentially hazardous areas include, but are not limited to, steep slopes, unstable soils areas, on active earthquake fault lines, in extreme wildland fire areas, in airport flight path zones, and in flood plains and tsunami runup areas.

3. Flood

    A. The County shall participate in the Federal Flood Insurance Program to regulate land uses in flood hazard areas in order to minimize loss of life and property, and in order to minimize public flood-related expense.

    B. Agricultural lands which are in flood plain areas shall be retained for use in agriculture.

Section 3361, Water Resources

1. Ensure that land use decisions are consistent with the long term value of water resources in Humboldt County.

2. Regulate development that would pollute watershed areas.

8. Continue participation in all state, regional or local water resource planning efforts effecting surface run-off or groundwater supplies.

Section 4235 Public Services and Facilities, Drainage

1. Drainage needs of each community shall be studied as part of each community plan.

2. Natural drainage ways shall be utilized where possible to convey drainage flows consistent with streamside management policies in the General Plan.

Section 4531, Wastewater Facilities

4. Areas planned for additional development which are dependent on individual septic tank leach field disposal systems shall have minimum lot sizes based on the following factors:

    A. soil suitability,
    B. slope,

C. water source (on site-well or serviced),
D proximity to sensitive habitats.

5. Septic systems shall not be permitted where the slope exceeds 30% or within 50 feet of an unstable land form.

6. Sewage disposal systems placed on an existing lot must meet all of the requirements of the Humboldt-Del Norte Department of Public Health and the North Coast Regional Water Quality Control Board.

Humboldt County Code

Section 331-14 contains detailed rules and regulations regarding Grading, Excavation, Erosion, and Sedimentation Control. The County establishes requirements for a grading permit for any activity disturbing greater than 50 cubic yards of material. Larger projects involving the grading of more than 5,000 cubic yards of material must be conducted in accordance with an approved grading plan prepared by a civil engineer. The grading plan must be accompanied by a soils engineering report and engineering geology report prepared by a licensed professional. Sites involving the grading of more than one acre must include a site-specific erosion and sediment control plan incorporating BMPs (illustrated in Attachment 1 of Section 331-14), designed to prevent sedimentation or damage to on-site and off-site properties. Additional requirements apply to grading in areas with slopes steeper than 33 degrees.

Title IV, Division 3 (Wells) provides standards associated with obtain a well permit from the County. Section 631-4 requires that all well permit applications identify any wells within 200 feet. Section 631-10 establishes standards for the design of well facilities consistent with California Department of Water Resources Bulletin 74-81.

3.8.2 Environmental Setting

This discussion is based on information from several sources, including the Humboldt County General Plan Update EIR, General Plan Background Reports, and data available for agency websites. Topics covered below consist of the existing conditions of surface water, groundwater, stormwater, and floodplain areas in Humboldt County.

SURFACE WATER

A watershed is an area of land within which all rain and snowfall drains or seeps into a particular stream, water body, or aquifer. Ten of Humboldt County's 12 planning watersheds each drain to a single stream or river, all of which either drain directly to the Pacific Ocean or to another river that empties into the Pacific. Eureka Plain and Trinidad are drained by several smaller streams, which terminate in Humboldt Bay or the Pacific Ocean, respectively.

Humboldt County is part of the Klamath-North Coast Hydrologic Basin Planning Area, which includes all basins draining into the Pacific Ocean from the Oregon border southerly through the Russian River Basin. The County contains eight watersheds:

- Mad-Redwood,
- Lower Eel,
- South Fork Eel,
- Mattole,
- Lower Klamath,
- Salmon,
- Trinity, and
- South Fork Trinity.

These watersheds are shown in Exhibit 3.8-1.

Source: adapted by Ascent Environmental 2017

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Exhibit 3.8-1 **Watersheds and USGS Gages**

SURFACE WATER QUALITY

The state and Federal wild and scenic rivers programs and total maximum daily load designations are programs aimed at waterway protection and rehabilitation, respectively. A summary of the waterways subject to these programs is described as follows.

Wild and Scenic Rivers

Federally Designated

Federally designated rivers include the Klamath, Trinity, and Eel Rivers. A description of these waterways and their outstandingly remarkable values is provided below.

Klamath River

The designated reaches of the Klamath River includes:

- From the mouth to 3,600 feet below Iron Gate Dam. The Salmon River from its confluence with the Klamath to the confluence of the North and South Forks of the Salmon River.
- The North Fork of the Salmon River from the Salmon River confluence to the southern boundary of the Marble Mountain Wilderness Area.
- The South Fork of the Salmon River from the Salmon River confluence to the Cecilville Bridge.
- The Scott River from its confluence with the Klamath to its confluence with Schackleford Creek. All of Wooley Creek.

The Klamath River is designated as having outstandingly remarkable values for fisheries (National Wild and Scenic Rivers Systems 2017a).

Trinity River

The designated reaches of the Trinity River include:

- From the confluence with the Klamath River to 100 yards below Lewiston Dam.
- The North Fork from the Trinity River confluence to the southern boundary of the Salmon-Trinity Primitive Area.
- The South Fork from the Trinity River confluence to the California State Highway 36 Bridge crossing.
- The New River from the Trinity River confluence to the Salmon-Trinity Primitive Area.

The Trinity River is designated as having outstandingly remarkable values for fisheries (National Wild and Scenic Rivers Systems 2017b).

Eel River

The designated reaches of the Eel River include:

- From the mouth of the river to 100 yards below Van Ardsdale Dam.
- The Middle Fork from its confluence with the main stem to the southern boundary of the Yolla Bolly Wilderness Area.
- The South Fork from its confluence with the main stem to the Section Four Creek confluence.
- The North Fork from its confluence with the main stem to Old Gilman Ranch.

- The Van Duzen River from the confluence with the Eel River to Dinsmure Bridge.

The Eel River is designated as having outstandingly remarkable values for fisheries and recreation (National Wild and Scenic Rivers Systems 2017c).

California

Sections of rivers in the Klamath, Trinity, and Eel River basins were classified as wild, scenic, or recreational by the California State Legislature, as summarized in Table 3.8-2.

Table 3.8-2 Wild, Scenic, and Recreational Rivers of Humboldt County

River	Section	Designations
Klamath River, Mainstem	From 100 yards below Iron Gate Dam to the Pacific Ocean	Recreational
Trinity River, Mainstem	From 100 yards below Lewiston Dam to the river mouth at Weitchpec	Scenic, Recreational
Trinity River, South Fork	From the junction of the river with State Highway Route 36 to the river mouth near Salyer	Wild, Scenic
Eel River, Mainstem	From 100 yards below Van Arsdale Dam to the Pacific Ocean	Wild, Scenic, Recreational
Eel River, South Fork	From the mouth of Section Four Creek near Branscomb to the river mouth below Weott	Wild, Recreational
Eel River, Middle Fork	From the intersection of the river with the southern boundary of the Middle Eel-Yolla Bolly Wilderness Area to the river mouth at Dos Rios	Wild, Scenic, Recreational
Van Duzen River	From Dinsmores Bridge downstream to the river mouth near Fortuna	Scenic, Recreational

Source: California Public Resources Code Section 5093.545.

List of Impaired Waterways

Every six years the North Coast RWQCB evaluates water quality information and identifies water bodies that do not meet water quality standards and are not supporting their beneficial uses. Those waters are placed on a list of impaired water bodies that identifies the pollutant or stressor causing impairment and establishes a schedule for development a control plan or address the impairment. Table 3.8-3 shows the most recent list of impaired waterways (303d list) within the North Coast Region. As shown below, listing is primarily associated with sediment/siltation and temperature. This type of pollution is associated with historic timber production activities, unpaved roads, and cannabis cultivation. See Section 3.4, "Biological Resources" for additional information related to aquatic habitat conditions.

Table 3.8-3 North Coast NWQCB Impaired Water Bodies in Humboldt County (Categories 4a, 4b, and 5)* the 2012 303(d) List

Water Body Hydrologic Unit	Water Body Name	Listing Extent	Pollutant	Category
Cape Mendocino HU	Mattole River HA, Mattole River	Entire water body	Sedimentation/ Siltation	4a
			Temperature	4a
Eel River HU	Lower Eel River HA (includes the Eel River Delta)	Mainstem Eel River	Aluminum	5
		McNulty Slough	Oxygen, Dissolved	5
		Entire water body except McNulty Slough	Temperature	4a
		Entire water body	Sedimentation/ Siltation	4a
	Middle Fork Eel River HA, Eden Valley HSA & Round Valley HSA	Mainstem Middle Fork Eel River	Aluminum	5
		Entire water body	Sedimentation/ Siltation	4a
			Temperature	4a

Table 3.8-3 North Coast NWQCB Impaired Water Bodies in Humboldt County (Categories 4a, 4b, and 5)* the 2012 303(d) List

Water Body Hydrologic Unit	Water Body Name	Listing Extent	Pollutant	Category
Eel River HU (continued)	Middle Fork Eel River HA, Wilderness HSA & Black Butte River HSA	Entire water body	Temperature	4a
	Middle Main Eel River HA	Mainstem Eel River	Aluminum	5
		Tributaries to the Middle Main Eel River	Temperature	4a
		Entire water body	Sedimentation/ Siltation	4a
	North Fork Eel River HA, Lower North Fork Eel River Watershed	Entire water body	Sedimentation/ Siltation	4a
			Temperature	4a
	North Fork Eel River HA, Upper North Fork Eel River Watershed	Entire water body	Temperature	4a
	South Fork Eel River HA	Mainstem South Fork Eel River	Aluminum	5
		Entire water body	Sedimentation/ Siltation	4a
		Entire water body except Dutch Charlie Creek and Redwood Creek	Temperature	4a
	Upper Main Eel River HA (included Tomki Creek)	Entire water body	Sedimentation/ Siltation	4a
			Temperature	4a
	Upper Main Eel River HA, Lake Pillsbury HSA, Lake Pillsbury	Entire water body	Mercury	5
	Van Duzen River HA	Entire water body	Sedimentation/ Siltation	4a
Eureka Plain HU	Elk River Watershed, Lower Elk River, and Martin Slough	Lower mainstem Elk River and Martin Slough	Indicator Bacteria	5
		Entire water body	Sedimentation/ Siltation	5
	Elk River Watershed, Upper Elk River	Entire water body	Sedimentation/ Siltation	5
	Elk River Watershed, Upper Little South Fork Elk River	Entire water body	Sedimentation/ Siltation	5
	Freshwater Creek	Entire water body	Sedimentation/ Siltation	5
	Gannon Slough	Campbell Creek	Indicator Bacteria	5
	Humboldt Bay	Entire water body	Dioxin Toxic Equivalents	5
			PCBs	5
	Jacoby Creek Watershed	Entire water body	Sediment	5
	Jolly Giant Creek	Jolly Giant Creek	Indicator Bacteria	5
Klamath River HU	Copco Lake	Copco 1	Mercury	5
		Copco 1 and 2	Microcystin	4a
	Iron Gate Reservoir	Entire water body	Mercury	5
			Microcystin	4a

Table 3.8-3 North Coast NWQCB Impaired Water Bodies in Humboldt County (Categories 4a, 4b, and 5)* the 2012 303(d) List

Water Body Hydrologic Unit	Water Body Name	Listing Extent	Pollutant	Category
Klamath River HU (continued)	Lost River HA, Tule Lake, and Mt Dome HSAs	Klamath Straits Drain	Mercury	5
		Entire water body	Oxygen, Dissolved	4a
			pH (high)	4a
			Nutrients	4a
	Tule Lake and Lower Klamath Lake National Wildlife Refuge	Entire water body	pH (high)	4a
	Lower HA, Klamath Glen HSA	Mainstem Klamath River	Organic Enrichment/Low Dissolved Oxygen	4a
		Entire water body	Nutrients	4a
			Sedimentation/ Siltation	5
			Temperature	4a
	Middle HA and Lower HA, Scott River to Trinity River	China Creek, Grider Creek, Thompson Creek, Walker Creek	Sediment	5
		Mainstem Klamath River	Microcystin	4a
			Organic Enrichment/ Low Dissolved Oxygen	4a
		Entire water body	Nutrients	4a
	Middle HA and Lower HA, Scott River to Trinity River	Entire water body except: Portuguese Creek and its Tributaries, Cedar Creek and its Tributaries, (3) Twin Valley Creek and its Tributaries, (4) North Fork Dillon Creek and its Tributaries from the headwaters to Vann Creek, (5) Canyon Creek and its Tributaries from the headwaters to confluence with Seiad Creek, (6) Elk Creek and its Tributaries from the headwaters to Bear Creek, (7) Tenmile Creek and its Tributaries, (8) Clear Creek and its Tributaries from the headwaters to the confluence with Tenmile Creek, and (9) Fort Goff Creek and its Tributaries.	Temperature	4a
	Middle HA, Iron Gate Dam to Scott River	Mainstem Klamath River	Organic Enrichment/ Low Dissolved Oxygen	4a
			Microcystin	4a
			Aluminum	5
		Entire water body	Nutrients	4a
			Temperature	4a
		Beaver Creek, Cow Creek, Deer Creek, Hungry Creek, West Fork Beaver Creek	Sediment	5
	Middle HA, Oregon to Iron Gate	Mainstem Klamath River	Organic Enrichment/ Low Dissolved Oxygen	4a
			Microcystin	4a
		Entire water body	Nutrients	4a
			Temperature	4a

Table 3.8-3 North Coast NWQCB Impaired Water Bodies in Humboldt County (Categories 4a, 4b, and 5)* the 2012 303(d) List

Water Body Hydrologic Unit	Water Body Name	Listing Extent	Pollutant	Category
Klamath River HU (continued)	Salmon River HA (except the Wooley Creek HSA)	Entire water body except: (1) Uncles Creek and its Tributaries, (2) Plummer Creek and its tributaries, (3) the North Fork Salmon River and its Tributaries from the confluence with the Right Hand Fork of the North Fork Salmon River to the downstream boundary of the Marble Mountain Wilderness, (4) Right Hand Fork of the North Fork Salmon River and its tributaries, (5) the North Fork Salmon River and its Tributaries from the headwaters to the confluence with the Right Hand Fork of the North Fork Salmon River, and (6) the South Fork Salmon River from the headwaters to the confluence with Garden Gulch.	Temperature	4a
	Salmon River HA, Wooley Creek HSA	Entire water body except: (1) Wooley Creek and its tributaries from the head waters to the confluence with the North Fork Wooley Creek, (2) Wooley Creek and its Tributaries from the confluence of the North Fork Wooley Creek to Haypress Creek, and (3) North Fork Wooley Creek and its Tributaries.	Temperature	4a
	Scott River HA	Entire water body except: (1) Mill Creek and its Tributaries from the headwaters to the confluence with Etna Creek and (2) Canyon Creek and its Tributaries from the headwaters to the downstream boundary of the Marble Mountain Wilderness.	Sedimentation/ Siltation	4a
			Temperature	4a
		Mainstem Scott River from Young's Dam to Boulder Creek	Aluminum	5
			Biostimulatory Conditions	5
			Oxygen, Dissolved	5
			pH	5
		Shackleford Creek above Campbell Lake	pH	5
	Shasta River HA	Entire water body	Organic Enrichment / Low Dissolved Oxygen	4a
			Temperature	4a
		Mainstem Shasta River	Aluminum	4a
	Shasta River HA, Lake Shastina	Entire water body	Mercury	5
Mad River HU	Mad River	Entire water body	Sedimentation/Siltation	4a
			Temperature	5
			Turbidity	4a
		Mainstem Mad River	Aluminum	
	Norton Creek	Widow White Creek	Indicator Bacteria	5
	Ruth Lake	Entire water body	Mercury	5

Table 3.8-3 North Coast NWQCB Impaired Water Bodies in Humboldt County (Categories 4a, 4b, and 5)* the 2012 303(d) List

Water Body Hydrologic Unit	Water Body Name	Listing Extent	Pollutant	Category
Redwood Creek HU	Redwood Creek	Entire water body	Sedimentation/Siltation	4a
		Entire water body except Larry Dam Creek	Temperature	5
Trinidad HU	Little River HA	Little River	Indicator Bacteria	5
	Clam Beach	Entire water body	Indicator Bacteria	5
Trinity River HU	Lower Trinity River HA	Entire water body except: (1) the New River and its tributaries, (2) Big French Creek and its tributaries, (3) the North Fork Trinity River and its tributaries, including the East Fork North Fork Trinity River and its tributaries, and (4) Manzanita Creek and its tributaries.	Sedimentation/ Siltation	4a
	Middle Trinity River HA	Entire water body	Sedimentation/Siltation	4a
	South Fork Trinity HA	Entire water body	Sedimentation/Siltation	4a
			Temperature	5
	Trinity Lake (was Claire Engle Lake)	Entire water body	Mercury	5
	Upper Trinity River HA	Entire water body except the Stuart Fork and its tributaries	Sedimentation/ Siltation	4a
	Upper Trinity HA, Trinity River, East Fork Trinity River	Entire water body	Mercury	5
			Sedimentation/Siltation	4a

* Category 4a - At least one use is not supported, a TMDL has been developed and the TMDL has been approved by the USEPA.

Category 4b - At least one use is not supported, but a TMDL is not needed as an existing regulatory program is reasonably expected to result in the attainment of the water quality standard. The North Coast Regional Water Quality Control Board does not currently have any water bodies in Category 4b.

Category 5 - At least one use is not supported and a TMDL is needed.

† Listing based solely upon fecal coliform data.

SURFACE WATER FLOW RATES

Historic surface water flow rates are compiled based on recorded instream flows at the 8-digit hydrologic unit code (HUC-8) watershed scale for Humboldt County. The supply estimate aggregates flow data when more than one United States Geological Survey (USGS) gage is present within an HUC-8 watershed to calculate daily minimum watershed supply. The analysis provides a baseline for comparison against estimated demands from increased diversion activity associated with cannabis cultivation to assess potential impacts to instream beneficial uses during periods of low flow. The data consists of streamflow measurements recorded by USGS gages located within the Humboldt County watersheds, as shown in Exhibit 3.8-1. The site number and associated metadata; including stream gage site name, watershed name, available data records, and tributary watersheds to each gage; are contained within Table 3.8-4. Data is not available for the Salmon Watershed or the South Fork Trinity Watershed.

Table 3.8-4 USGS Gages used in the analysis

Site Number	Site Name	Watershed	Water Years (WY) with Records	Tributary HUC-8 Watersheds
11469000	Mattole River near Petrolia, CA	Mattole	WY1912-WY1913, WY1951-Present	Mattole
11476500	South Fork Eel River near Miranda, CA	South Fork Eel	WY1940-Present	South Fork Eel
11477000	Eel River at Scotia, CA	Lower Eel	WY1911-WY1914, WY1917-Present	Lower Eel (portion), South Fork Eel
11478500	Van Duzen River near Bridgeville, CA	Lower Eel	WY1951-Present	Lower Eel (portion)
11479000	Yager Creek near Carlotta, CA	Lower Eel	WY1954-WY1955, WY1957-WY1960, WY1966-WY1972	Lower Eel (portion)
11479700	Elk River near Falk, CA	Mad Redwood	WY1958-WY1967	Mad Redwood (portion)
11481000	Mad River near Arcata, CA	Mad Redwood	WY1912-WY1913, WY1951-Present	Mad Redwood (portion)
11481200	Little River near Trinidad, CA	Mad Redwood	WY1956-Present	Mad Redwood (portion)
11482500	Redwood Creek at Orick, CA	Mad Redwood	WY1912-WY1913, WY1954-Present	Mad Redwood (portion)
11530000	Trinity River at Hoopa, CA	Trinity	WY1912-WY1913, WY1917-WY1918, WY1932-Present	Trinity, South Fork Trinity
11530500	Klamath River near Klamath, CA	Lower Klamath	WY1911-WY1926, WY1951-WY1995, WY1998-Present	Lower Klamath, Salmon, Trinity, South Fork Trinity

Source: USGS Surface-Water Daily Data for California website (data compiled by NHC, June 2017)

Exhibits 3.8-2 through 3.8-7 provide graphic representation of median and minimum flows associated with watersheds in Humboldt County. As shown, watersheds in Humboldt County flow at their highest rates from approximately November through June of each year, within minimum flow in late August through early October. This pattern is reflected for data recorded for minimum flows and median flows.

Note that data along the y-axis of these graphs is presented as logarithm, base 10, because of the substantial disparity been these two data points throughout the year.

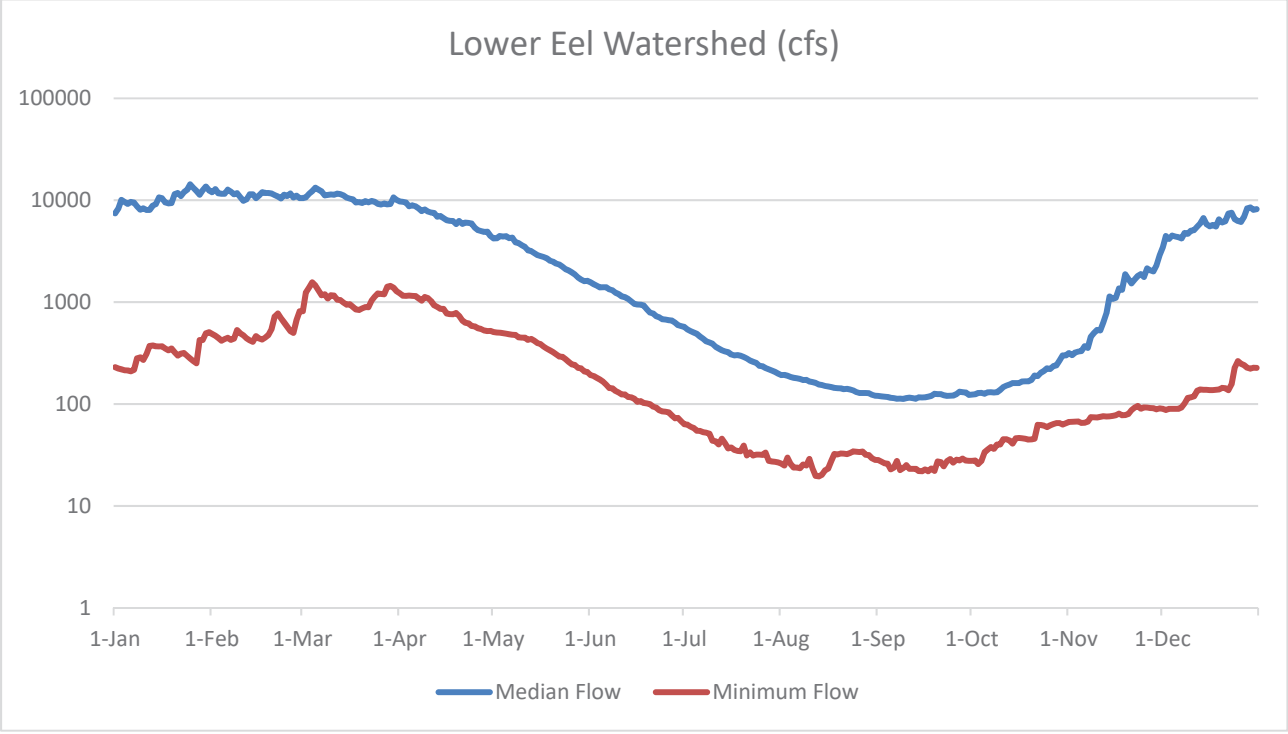

Exhibit 3.8-2 Lower Eel Watershed Historic Median and Minimum Flow Rate

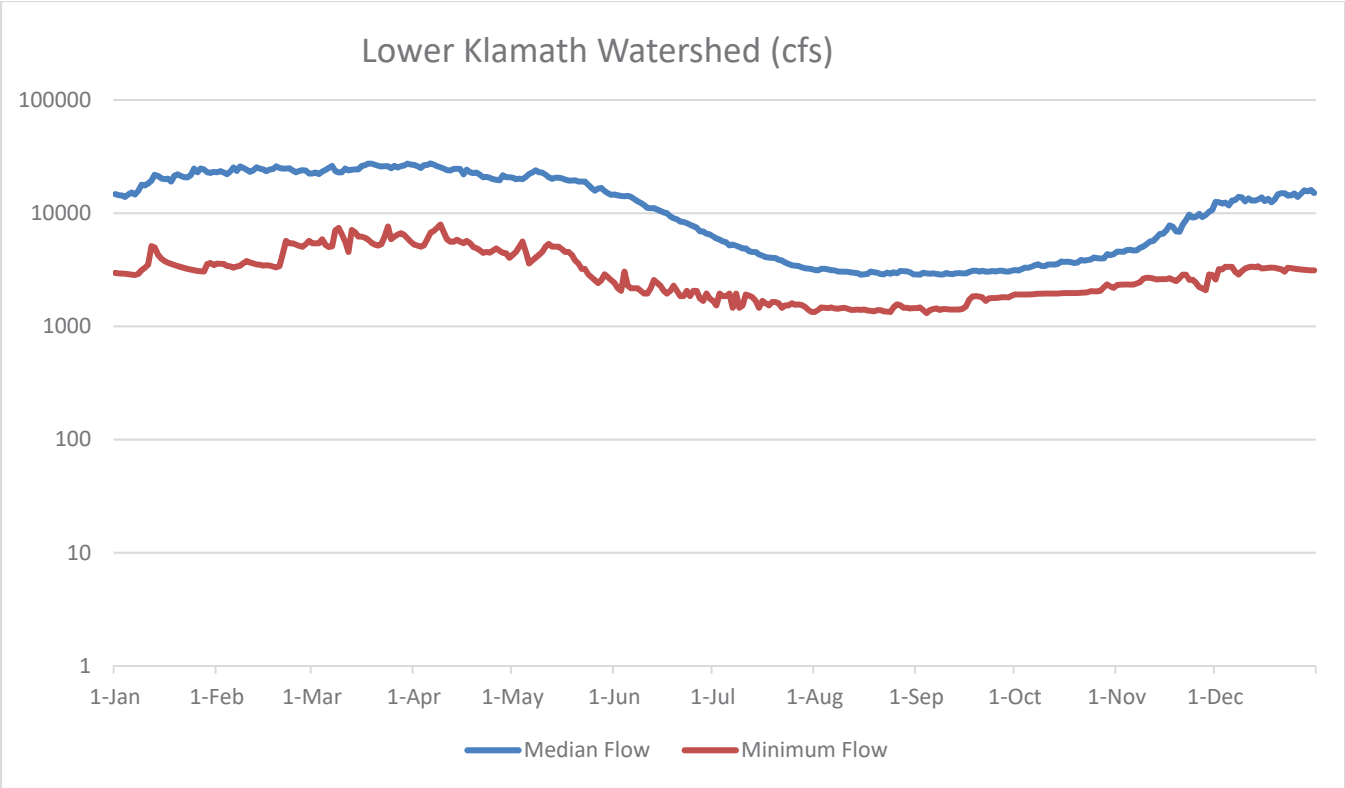

Exhibit 3.8-3 Lower Klamath Watershed Historic Median and Minimum Flow Rate

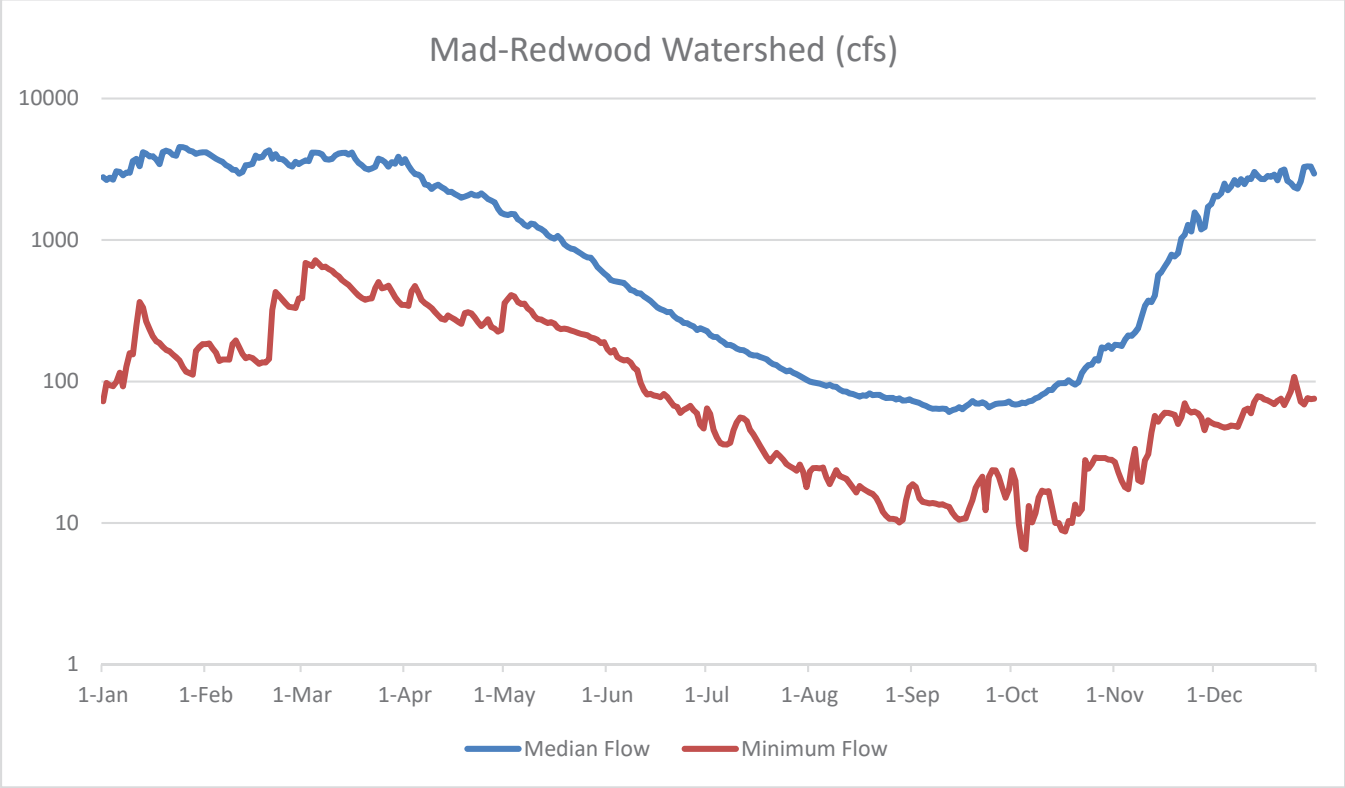

Exhibit 3.8-4 Mad-Redwood Watershed Historic Median and Minimum Flow Rate

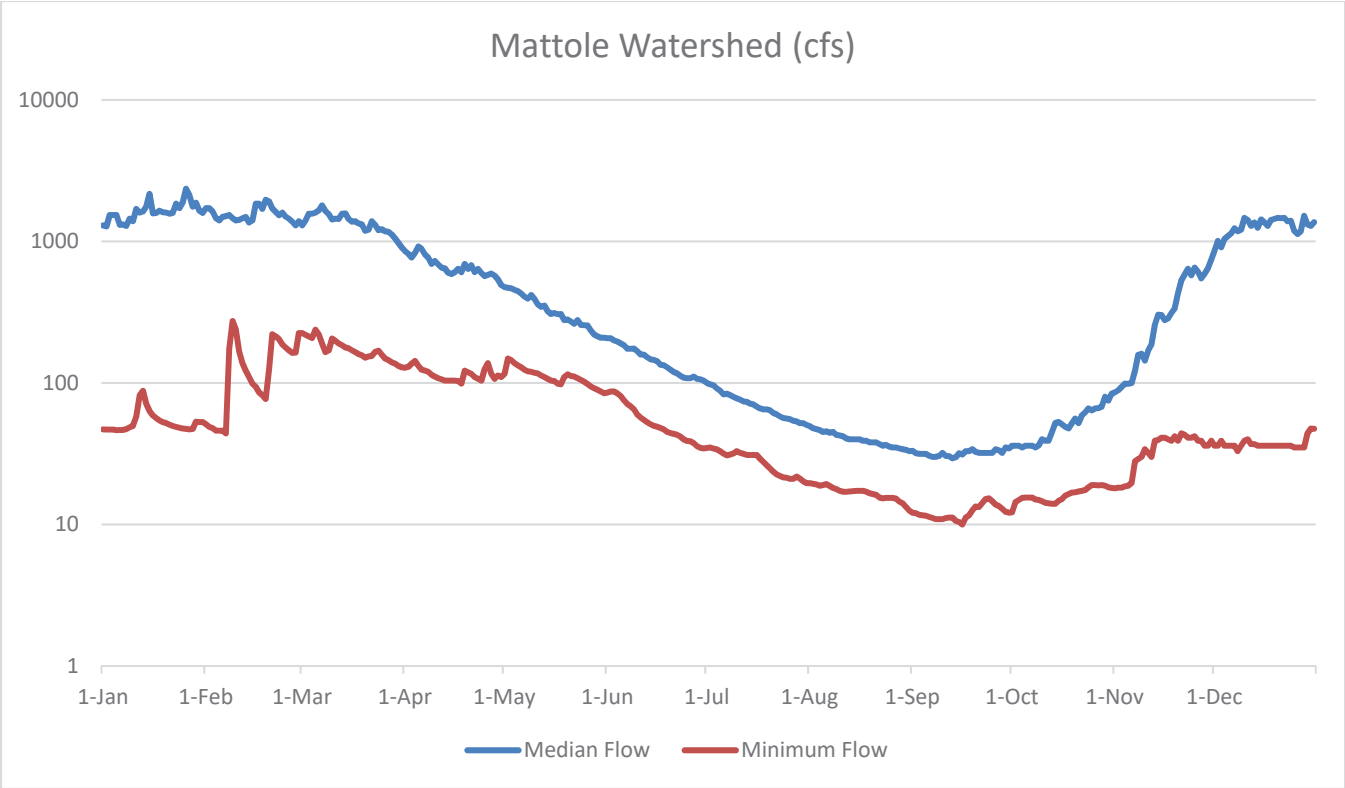

Exhibit 3.8-5 Mattole Watershed Historic Median and Minimum Flow Rate

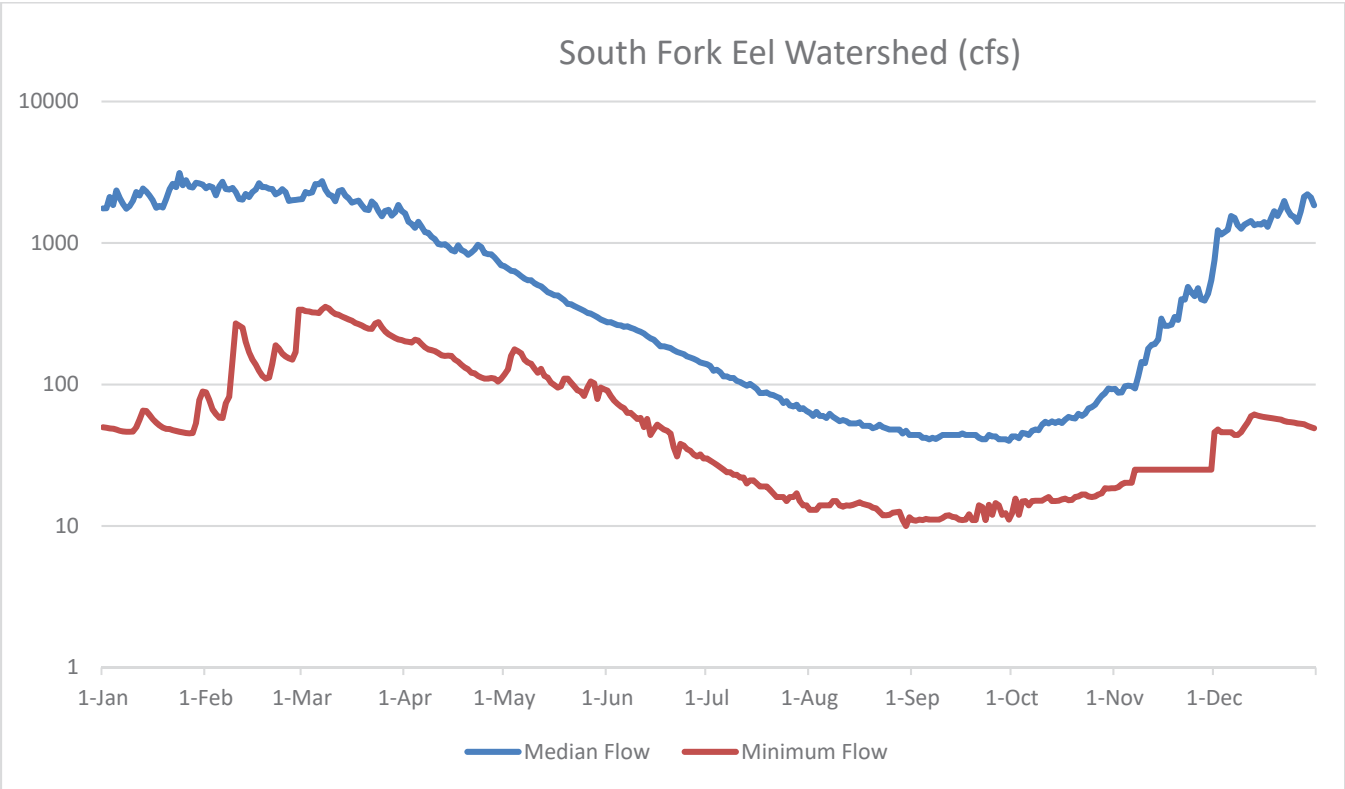

Exhibit 3.8-6 South Fork Eel Watershed Historic Median and Minimum Flow Rate

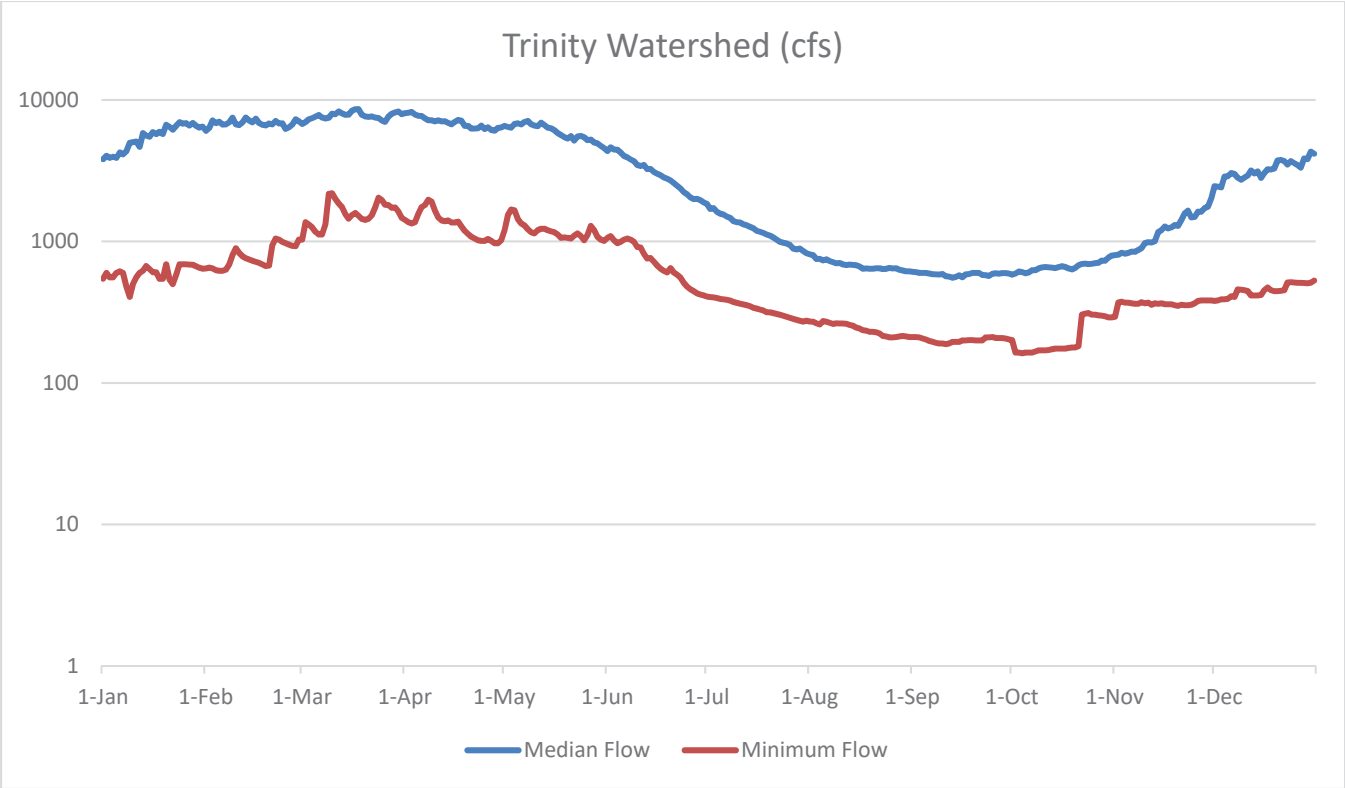

Exhibit 3.8-7 Trinity Watershed Historic Median and Minimum Annual Flow Rate

GROUNDWATER

The western portion of Humboldt County is defined as part of the California Coastal Basin Aquifer. Individual aquifers in Humboldt County are in the valleys of the Klamath Mountains and the Coast Ranges and are distributed along California's Pacific Coast. This region has been subjected to intense tectonic forces for millions of years leading to folding and faulting and the rise of the Klamath and Salmon Mountains in Northern California. Terrestrial, marine, and volcanic rocks deposited in intermontane valleys compose the aquifers referred to as coastal basin aquifers.

Humboldt County is in the North Coast Hydrologic Area and has four principal groundwater basins: Hoopa Valley, Mad River Valley, Eureka Plain, and Eel River Valley, and ten minor basins. The Mad River Valley, the Eureka Plain, and the Eel River Valley are a part of the Coastal Basins. The hydrologic basins in Humboldt County provide very large surface water volumes. While mean annual runoff in Humboldt County from the major rivers and streams is approximately 23 million acre-feet, over 80 percent of this flow occurs during November through March, the total potential annual groundwater yield of the entire County is only approximately 100,000 acre-feet. Ground water has been developed for individual domestic requirements, the agricultural demands of the Eel and Mad River delta areas, and to provide supplements to municipal water supply. Potential concerns are saltwater intrusion in coastal areas and the effects of groundwater withdrawal on streams that rely on groundwater recharge to sustain flows during the dry season. See Exhibit 3.8-8 for the location of Groundwater Basins in Humboldt County (Humboldt County 2017).

A review of water level data available from the California Department of Water Resources Water Data Library, which maintains groundwater level data for 18 wells in the County indicates that groundwater surface elevations in the County are generally stable. However, available information regarding Humboldt County groundwater aquifer production or capacity is not sufficient to support conclusions regarding groundwater capacity. Better estimates of groundwater supply are needed to ensure that wells outside the boundaries of water services providers would not surpass the capacity of a particular aquifer under various future rainfall scenarios (Humboldt County 2017).

Information on the four major groundwater basins is provided as follows, based on DWR Bulletin 118 and the 2017 Humboldt County General Plan Update Draft EIR. Groundwater supplies outside of groundwater basins include conditions that consist of fractured bedrock, which makes quantification of supplies difficult. Data is not available for aquifer in the higher elevations of Humboldt County, outside of the listed groundwater basins.

Hoopa Groundwater Basin: The Hoopa Valley Groundwater Basin occupies a small alluvial valley of the Trinity River extending north from the southern boundary of the Hoopa Valley Indian Reservation. The basin is bounded on the east, south, and southwest by Upper Jurassic marine sedimentary and metasedimentary rocks of the Western Jurassic Belt of the Klamath Mountains. The basin is bounded to the northwest by undifferentiated Pre-Cretaceous metamorphic rocks and to the north by Pre-Cretaceous metasedimentary rocks. The valley is drained by the Trinity River. Tributary streams include Mill, Supply, Hostler, and Soctish Creeks. Groundwater supply is considered undependable. Annual precipitation ranges from 59- to 63-inches (DWR 2004a).

The storage capacity for the basin is estimated to be 19,200 acre-feet, with a maximum well yield estimated to be 300 gallons per minute (gpm). Impairment related to the groundwater basin is related to locally high iron concentrations (DWR 2004a).

Eureka Plain Groundwater Basin: The Eureka Plain Groundwater Basin is bounded by the Little Salmon Fault to the south, Humboldt Bay and Arcata Bay to the west and northwest, and by Wildcat series deposits to the east. The northeast basin boundary, shared with the Mad River Basin, is the northwest trending Freshwater Fault. It is unknown if the basin is hydrologically contiguous with the Mad River Basin. Humboldt Bay separates the primary basin deposits from dune sand deposits to the west. The faulted southern and northern basin boundaries may extend to the near surface and form hydrologic barriers in portions of dune sand deposits. Annual precipitation in the basin ranges from 39- to 47-inches, increasing to the southeast (DWR 2004b).

The storage capacity for this basin is not available. The average well yield is estimated to be 400 gpm, with a maximum of 1,200 gpm. Groundwater impairments include localized high boron, iron, manganese, and phosphorus concentrations (DWR 2004b).

Humboldt Community Services District is currently able to deliver 1,500 gallons per minute (or 2,400 acre-feet per year) to the Humboldt Hill area from wells located within the Eureka Plain groundwater basin. The quality of groundwater in the Eureka Plain is generally acceptable for most uses, although concentrations of dissolved iron in water from many wells may exceed the US EPA's secondary drinking-water recommendation of 300 micrograms per liter, and ionic and bacterial levels make this groundwater unsuitable for domestic or municipal use (Humboldt County 2017).

Mad River Groundwater Basin: The Mad River Groundwater Basin consists of two subbasins: Dows Prairie and Mad River Lowland. The Dows Prairie Subbasin is located on the coast north of the Mad River Lowland Subbasin and is bounded by Little River to the north and Mad River to the south. The subbasin is bounded to the east by the Franciscan Formation. The region is an elevated terrace drained by Mill Creek, Strawberry Creek, and White Creek. Development of groundwater is primarily in the western portion of the subbasin. The Hookton Formation is the main geologic unit in the area. The Franciscan Formation underlies the Hookton Formation and is essentially nonwater-bearing. Annual precipitation in the basin ranges from 39- to 53-inches, increasing to the northeast (DWR 2004c).

The Mad River Lowland Subbasin is one of the principal groundwater basins in the Eureka area. The basin includes the coastal floodplain from the Freshwater Fault north to the Mad River and the elevated terrace areas to the east. The basin is bounded by Arcata Bay to the south, the Mad River to the north, and mountains of the Jurassic and Cretaceous Franciscan Formation to the east. The basin also includes Blue Lake Valley to the east, which is bounded by both the Franciscan Formation and outcrops of the Wildcat series sediments. The Wildcat series is a group of five formations ranging in age from Miocene to Pleistocene consisting of sandstone, marine siltstone, and claystone. Between Mad River and Arcata Bay, the coastal plain is dissected by flood-stage channels of the river that are 15- to 20-feet deep. The river discharges to the ocean approximately 5 miles north of Arcata Bay and is tidal for about 1-mile inland (DWR 2004d).

Exhibit 3.8-8 **Ground Water Basins**

The storage capacity is estimated to be 10,500 acre-feet for the Dows Prairie Subbasin and 26,700 acre-feet for the Mad River Lowland Subbasin. The average well yield is estimated to be 72 gpm, with a maximum of 120 gpm for the Mad River Lowland Subbasin; and is unknown for Dows Prairie Subbasin. Groundwater impairments include localized high manganese, fluoride, and phosphorus concentrations (DWR 2004).

McKinleyville lies within the Mad River Valley Basin, which is fed by the lower Little River and Mad River. Groundwater is primarily used for pastureland irrigation in this area, with industry and public-supply withdrawals benefiting to a lesser degree. Current rates of withdrawal do not appear to exceed recharge rates. Agricultural activities, sewage disposal, and fertilizer use deposit nutrient- and bacterium-rich water into the local aquifer, but groundwater pollution is not considered substantial (Humboldt County 2017).

Eel River Groundwater Basin: The Eel River Valley Groundwater Basin is one of the principal groundwater basins in the Eureka area of Humboldt County. The area includes the lower 8 miles of the Van Duzen River Valley and the Eel River Valley. The basin is bordered on the north by the Little Salmon Fault, on the south by the Plio-Pleistocene Carlotta Formation, and to the east by the Wildcat series; however, the actual extents of the eastern boundary is uncertain. The Wildcat series is a group of five formations ranging in age from Miocene to Pleistocene consisting of sandstone, marine siltstone, and claystone. The Carlotta Formation forms the uppermost formation of the Wildcat series. Surficial deposits of the Carlotta Formation are observed north and south of the Van Duzen River valley, located in the southeastern portion of the basin, and is an important water-bearing formation (DWR 2004).

The basin includes the Eel River delta and channel gravels, floodplain clays and silts, and older terrace gravels of the Eel River and Van Duzen River. The basin also includes outcrops of the Hookton and Carlotta Formations in the northern and southern portions of the valley. Annual precipitation in the basin ranges from 41 to 55 inches, increasing the southeast (DWR 2004).

The storage capacity for this basin is estimated to be 125,000 acre-feet. The average well yield is estimated to be up to 1,200 gpm. Groundwater impairments include high iron concentration and locally high total dissolved solids, manganese, magnesium, calcium, boron, nitrite, and phosphorus concentrations (DWR 2004).

The Avenue of the Giants Community Planning Area (including Stafford, Redcrest, Weott, Myers Flat, Miranda, and Phillipsville) is associated with the Eel River groundwater basins, with the prime source being the Eel-Van Duzen delta. According to the Natural Resources and Hazards Report (Page 1-38), approximately 10,000 acre-feet of the estimated annual yield of 40,000 to 60,000 acre-feet is currently being pumped for agriculture. The Eel River groundwater basin water is considered suitable for individual domestic needs as well as for irrigation. Groundwater in rural Humboldt County is generally directed to individual domestic needs and irrigation for farmed areas of the deltas and the Eel River groundwater basin's well water is considered suitable for these uses (Humboldt County 2017).

Compliance with the SGMA is required for basins that are identified as "high" or "medium" priority. The Eel River Valley groundwater basin has been assigned an initial priority of "medium." The other 13 mapped groundwater basins in the County have been given a "very low" priority, although the groundwater basin boundaries and prioritizations could change in the future based on local habitat considerations, stream flows and improved hydrologic and geologic information. The SGMA identifies two compliance options for "high" or "medium" priority basins: one is forming a Groundwater Sustainability Agency and adopting a Groundwater Sustainability Plan; and the other is for an entity to submit a Groundwater Sustainability Plan Alternative if basins conditions demonstrate that the basin has operated under sustainable yield for the past ten years.

The County of Humboldt Public Works Department has been acting as the lead for compliance with the SGMA for the Eel River groundwater basin. The County coordinated the formation of the Eel River Valley Groundwater Working Group to assist with a groundwater program in response to SGMA. The County received a Department of Water Resources (DWR) Prop 1 Grant to complete the Eel River Valley Groundwater Basin Assessment (Basin Assessment). The Basin Assessment is a geologic and hydrogeologic investigation to support a determination of whether the basin is being managed sustainably without causing undesirable results.

The results of the Basin Assessment indicate that there is sufficient evidence to prepare an Alternative for compliance with the SGMA. The Alternative is intended to accomplish the same goals as a Groundwater Sustainability Plan (GSP) without the formation and administration of a Groundwater Sustainability Agency. In summary, the GPS alternative states that groundwater levels at the basin scale have been generally stable, including during the droughts of 1976-1977 and 1987-1992, and recent drought conditions from 2013 through 2015. Well elevation levels generally do not drop below a minimum elevation during droughts. This finding is supported by the hydrogeological conceptual model which documents highly favorable conditions for reliable recharge and a significant amount of water storage, on the order of two million acre-feet. Groundwater use is a small percentage of annual recharge and a small percentage of groundwater storage volume. Water use within the Basin over the next five years is projected to be closely comparable to existing conditions. The position of the seawater/freshwater transition zone mapped in 2016 is comparable to the extent measured in 1975. Existing data indicate acceptable water quality and the absence of a contaminant plume affecting water supplies. The underlying conditions for potential land subsidence are not present. Late-summer low-flows are a concern in the Lower Eel River and Lower Van Duzen River; however, the primary anthropogenic factors are upstream diversions, sedimentation, and post-flood sediment deposits, and changing forest composition at the watershed scale. Multiple lines of evidence demonstrate that groundwater use within the Basin is not causing undesirable results associated with beneficial uses of interconnected surface waters (Humboldt County 2016).

Stormwater Drainage Systems

Stormwater is an important factor in the distribution of sediments, chemicals, and other natural and human-produced compounds, throughout a watershed. Runoff from heavy rains picks up these potential pollutants and carries them downstream, where they may be deposited or may remain suspended in sensitive ecological areas. With Humboldt County's wet climate and large amount of land dedicated to timber production and agriculture, pollution because of stormwater runoff is a particularly important issue.

The Humboldt County Public Works Department (HCPWD) is responsible for storm drainage within the unincorporated areas of the County and maintains flood control levees along the Eel River at Sandy Prairie, the Mad River at Blue Lake, and Redwood Creek at Orick. Aside from McKinleyville and the unincorporated area around Eureka, the majority of the County does not have improved storm water conveyance systems, and what does exist varies in condition. Much of the infrastructure is very old and is reaching the end of its design life. Outside of the County's urban areas, stormwater follows a natural drainage pattern before either infiltrating or entering a waterway. The County maintains a substantial number of culverts (estimated in the thousands) under County roadways. These culverts are located throughout the County's many drainage swales, creeks, and streams (Humboldt County 2017).

100-YEAR FLOODPLAIN

Standard measurement of floodplains includes demarcation of areas expected to be flooded during floods with these recurrence intervals, as determined by the Army Corps of Engineers. The Federal Emergency Management Agency (FEMA) has adopted the 100-year (1 percent annual chance) flood as the base for floodplain management purposes. FEMA has mapped flood- prone areas. The maps provide the basis for regulating floodplains in conformance with the National Flood Insurance Program. The County has adopted floodplain regulations to continue participation in the federal flood insurance program.

Humboldt County's 100-year floodplains are shown Exhibit 3.8-9. As shown on these maps, the largest 100-year floodplain areas are the Eel River delta and Lower Eel River up to its confluence with the South Fork Eel; the Van Duzen River upstream of its confluence with the Lower Eel River; the region between the lowest five miles of the Mad River and the northern end of Humboldt Bay; the Mad River ten miles upstream of its mouth; the downstream ends of the Elk River, Salmon Creek, and Freshwater Creek (on the Eureka Plain); and the Maple Creek delta in the Trinidad planning watershed. The Natural Resources and Hazards Report, Vol. 1 discusses FEMA's designated 100-year flood zones in Humboldt County's planning watersheds, with respect to Community Planning Areas (CPAs) and other populated areas.

Exhibit 3.8-9 **Flood Plain Map**

DAM FAILURE POTENTIAL

Dam failure would cause a flood hazard similar to that described above, except that inundation would occur more rapidly. There are 20 dams of concern that are either in Humboldt County or impound rivers that flow through the County. A failure of any of these dams would threaten life and property to some degree. Dam failure inundation areas affect lands planned for development along the Klamath, Trinity, and Mad Rivers, including Willow Creek, Orleans, and Glendale. Resource lands adjacent to the Middle Fork and Lower Eel River could also be affected by dam failure on that river. The time from dam failure until the resulting floodwaters reach developed portions of the County will be 5.5 hours on the Mad River (Robert W. Matthews Dam), about 6 hours on the Eel River (Van Arsdale Dam), and 7 hours on the Trinity River (Humboldt County 2017).

TSUNAMI INUNDATION AREAS

Tsunami inundation areas lie almost exclusively within the Coastal Zone, where they are addressed as part of the Hazards section of the certified Local Coastal Program and the Coastal Act. Most existing and planned development that is located within mapped tsunami evacuation areas is located within the Humboldt Bay segment of the Humboldt County Coastal Zone. The tsunami hazard policy in the Humboldt Bay Area Plan was amended in 2012 to prohibit new habitable living space below the predicted tsunami run-up elevation calculated at maximum tide plus a minimum of three (3) feet to account for future sea level rise and one foot of freeboard space, as well as other measures to reduce tsunami hazard (Humboldt County 2017).

EXISTING STRESSORS ON HYDROLOGY AND WATER QUALITY FROM CULTIVATION

Predominantly unregulated for years, thousands of cannabis cultivators have developed cultivation sites in remote areas of California near streams. In many cases the routine cannabis cultivation practices result in damage to streams and wildlife. These practices (e.g., clearing trees, grading, and road construction) have been conducted in a manner that causes large amounts of sediment to flow into streams during rains. The cannabis cultivators have also discharged pesticides, fertilizers, fuels, trash, and human waste around the sites, that then discharges into waters of the state. In the North Coast region, the state has invested millions of dollars to restore streams damaged by decades of timber harvesting. Cannabis cultivation is now reversing the progress of these restoration efforts (SWRCB 2017b).

In addition to these water quality discharge related impacts, cannabis cultivators also impair water quality by diverting water from streams in the dry season, when flows are low. Diversion of flow during the dry season have caused complete elimination of stream flows. The effects of these diversions have been exacerbated in recent years by periods of drought (SWRCB 2017b). Water quality related constituents of concern associated with cannabis cultivation discharges include nitrogen, pathogens (represented by coliform bacteria), phosphorus, salinity, and turbidity. Water quality can be affected by excessive use of fertilizer, soil amendments, or other sources. The constituents have the potential to discharge to groundwater by infiltration and to other waters of the state by either surface runoff or by groundwater seepage (SWRCB 2017b).

3.8.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

Water demands were based information obtained from applications for existing and new commercial cannabis cultivation sites (see; Section 2.1.2, “Physical Description Cannabis Cultivation and Commerce Processes”). An evaluation of the submitted applications indicates that approximately 82 percent of cultivation sites would be outdoor, 1 percent would be indoor, and 17 percent would be mixed-light. As described in Chapter 2, “Project Description,” indoor cultivation uses approximately 11 gallons per canopy square foot per year; and mixed-light and outdoor operations use between 1.23 gallons to 14.71 gallons per

canopy square foot per year (median value of 7.97 gallons per canopy square foot per year). Assuming that each outdoor site would complete one harvest, each mixed-used site would complete two harvests, and each indoor site would complete five harvests, demand was determined to be 17.4 gallons per square foot or 760,000 gallons per acre of cultivation. The analysis addresses the water demand associated with cultivation acreage of existing and 1,012 new sites (see Section 2.4.6, "Reasonably Foreseeable Compliance Responses"). Water demands for irrigation associated with the proposed ordinance consists of estimates from both new and existing application, compared to the median and minimum flow values from available water years. Demand was aggregated within watersheds to determine downstream effects from upstream withdrawals assuming new cultivation sites would be located in same watersheds as the proposed new cultivation applications that were submitted to the County in December 2016.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a potentially significant impact on hydrology and water quality if it would:

- violate any water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or a dam; or
- result in substantial risk of inundation by seiche, tsunami, or mudflow.

ISSUES NOT DISCUSSED FURTHER

Environmental impact analyses under CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment and not the environment's impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal. 4th 369*). Allowable uses within zoning pertinent to the proposed ordinance would be similar to those currently allowed within agricultural,

industrial, and commercial areas. Thus, the proposed ordinance would allow for commercial cannabis operations to occur within specific zones of the County (see Chapter 2, "Project Description") but would not exacerbate any existing conditions related to the potential for seiche, tsunami, mudflow, or dam failure. These topics are not discussed further.

Humboldt County Code Division 3, Building Regulations, Chapter 5, Flood Damage Prevention is applied to all lands situated within the areas of special flood hazard as identified on the Federal Insurance Administration's FIRM for Humboldt County. These regulations are intended to protect lives and property from flood hazards and require that building permit applications be compared to the flood hazard maps published by FEMA to determine whether a proposed new residence will be located in an area with potential flood hazards. If a commercial cannabis operation site appears to be subject to flood hazards, the applicant is required to submit a site-specific engineering analysis to ensure the design of the structure meets federal requirements for flood hazard protection before approving the building permit. Thus, issues related to placement of structure within the 100-year flood area are not discussed further.

IMPACT ANALYSIS

Impact 3.8-1: Construction water quality impacts.

New and modifications to existing commercial cannabis operations in the County that may occur under the proposed ordinance would require ground-disturbing activities that could result in erosion and sedimentation, leading to degradation of water quality. Construction related to commercial cannabis operations would be subject to compliance with North Coast Regional Water Quality Control Board and County regulations that require water quality controls for construction to prevent impacts to water quality. Thus, potential water quality impacts may occur during construction and would be considered **less than significant**.

Unregulated cannabis cultivation operations have been found to be disruptive to the natural functioning of surface water ecosystems. Cannabis is a water- and nutrient-intensive crop, the cultivation of which is associated with clearing of vegetation, surface water diversion, and agrochemical pollution (Carah et. al. 2015). Ground disturbance and clearing resulting from cannabis cultivation leads to a decrease in soil stability, and an increase in erosion. The result of this is increased inputs of sediment and soil into waterways, which degrades water quality.

Development of new commercial cannabis cultivation sites and modification of existing cultivation sites under the proposed ordinance would involve preparation of level surfaces such as terraces, construction of water detention features for water storage, and roadway construction or improvement. Site preparation and construction of these features would require activities such as grading, placement of fill, and excavation. These types of land disturbance activities could lead to accelerated erosion and sedimentation that causes poor water quality from high turbidity, total suspended solids, and total dissolved solids in local waterways.

Channel morphology, substrate composition, gradient, and type of riparian vegetation, among other factors, influence the velocity and flow of surface water, and therefore the ability of a river or stream to move sediment. When the volume and pattern of surface water discharge are altered from their natural character, increases or decreases in the force of moving water will result, translating to increases or decreases in the rate of erosion. During the winter months, Humboldt County experiences substantial rainfall and at high elevations, snowfall. Snowmelt in the spring leads to large freshet stream flow volumes in the rivers and streams of the county. Topography in much of the unincorporated county is rugged and steep, with slopes in the upper Coastal Range mountains frequently exceeding angles of 35 degrees. This confluence of physiographic conditions enhances the risk of runoff erosion associated with new commercial cannabis cultivation site preparation and construction, especially during storm and high flow events. Poorly constructed unpaved roads are prone to accelerated wear and erosion that can lead to catastrophic failure. Road failure, especially at culverts or other types of watercourse crossings, can degrade water quality and destroy riparian habitats. Terraces or water storage ponds that do not consider local topography and soil

conditions might also be subject to failures that degrade local waterways. These effects on a drainage system are detrimental to aquatic life and the natural functioning of local ecosystems. As identified in Table 3.8-3, there are several surface water features in the County that are designated as "impaired."

Development carried out under the proposed ordinance would also include construction of new facilities for the manufacturing, processing, and dispensing of cannabis. Construction activities would include clearing, grading, and excavation for new or expanded facilities. Excavations might relate to the construction of foundations, roads and driveways, and utility trenches. These developments would be restricted to appropriately-zoned areas. Industrial pollutants related to the construction of facilities could become exposed to storm water drainage and in turn enter or contaminate local surface water or groundwater.

The North Coast RWQCB requires compliance with the General Permit for disturbances over one acre. Construction site erosion control methods and other BMPs would be included in the development of a SWPPP, per the requirements of the General Permit. Implementation of BMPs during construction would safeguard against violation of the General Permit and associated water quality impacts.

In addition, Section 331-14 of the County Code contains detailed rules and regulations regarding Grading, Excavation, Erosion, and Sedimentation Control. The County establishes requirements for a grading permit for any activity disturbing greater than 50 cubic yards of material. Larger projects involving the grading of more than 5,000 cubic yards of material must be conducted in accordance with an approved grading plan prepared by a civil engineer. The grading plan must be accompanied by a soils engineering report and engineering geology report prepared by a licensed professional. Sites involving the grading of more than one acre must include a site-specific erosion and sediment control plan incorporating BMPs, designed to prevent sedimentation or damage to on-site and off-site properties.

The proposed ordinance would require demonstration of compliance with the North Coast RWQCB Order No. 2015-0023 or any subsequent water quality standards established (e.g., State Water Board interim principles and guidelines). The intent of Order No. 2015-0023 is to mitigate impacts to water quality and its beneficial uses from existing and new cannabis cultivation construction and operational activities to less-than-significant levels. As noted above, Order No. 2015-0023 requires measures to protect water quality and includes standard conditions for site maintenance, erosion control, stream and wetland buffers, spoils management, remediation, and restoration activities. The proposed ordinance also includes water quality protection requirements for roadways servicing commercial cannabis operations that identifies use of BMPs to address point and non-point sources of sediment and other pollutants (see Chapter 2, "Project Description," for a detailed description of these performance standards).

In February 2013, the State Water Resources Control Board adopted the current version of the Humboldt County MS4 Permit. The purpose of the MS4 Permit is to control the discharge of pollutants to stormwater drainage systems, which ultimately drain to natural waterways. The state has stipulated that the MS4 Permit applies to McKinleyville, the unincorporated Eureka area, and Shelter Cove within unincorporated Humboldt County. Other areas with minor amounts of drainage infrastructure that are not subject to MSR Permit requirements include Redway, Manila, King Salmon, Fields Landing, Loleta, and Willow Creek. Regardless, all areas of the County would be subject to the County Grading, Excavation, Erosion, and Sediment Control Code, described above. These requirements would limit the potential for sedimentation or damage to on-site and off-site properties and waterways.

Because construction-related activities would be subject to specific requirements, through the County Code, MS4 permit requirements, Construction General Permit requirements, and the performance standards in the proposed ordinance for the control and minimization of erosion, sedimentation, and chemical transport, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.8-2: Operational water quality impacts.

Commercial cannabis operations in the County that may occur under the proposed ordinance have the potential to modify surface drainage and flows in such a manner that increased sedimentation and erosion could take place, leading to water quality degradation. The long-term operational use of pesticides, fertilizers, and other chemicals can also have a negative effect on water quality and ultimately affect the health and sustainability of organisms that rely on high quality waters. As a result, potential impacts would be **significant**.

Cannabis cultivation, like most other agricultural activities, involves the use of soil amendments, fertilizers, pesticides, and other agrochemicals to protect and enhance plant growth. If not properly controlled, these chemicals can enter waterways and cause excess nutrification or toxicity and have negative effects on aquatic species. Industrial or agrochemical contaminants could become entrained in storm water runoff or make direct contact with surface waters if they are not properly managed or contained, and could ultimately contaminate surface and groundwater resources. Comingling of surface water and chemical contaminants can occur where contaminants are stored proximal to watercourses, or if they are used in a manner that results in overuse (overspray, inability to be properly absorbed, etc.). Among the primary sources of contaminated runoff are roads, landscaping, industrial coverage, accidental spills, and illegal dumping. Runoff from roads or parking lots often contains oil, grease, and heavy metals from automotive leaks and spills. Storage, use, and disposal of building maintenance chemicals such as paints or solvents would be done in compliance with local, state, and federal laws regulating the use of such chemicals, and in accordance with manufacturers' label instructions.

Historic unregulated cannabis cultivation operations within public and private lands have led to illegal water diversions, alteration of natural drainage features, unpermitted removal of sensitive vegetation, and impacts to aquatic habitat from improper use of rodenticides and insecticides (see "Existing Stressor on Hydrology and Water Quality," discussion above under Section 3.8.2, "Environmental Setting"). This can contribute to adverse water quality of surface water, including waterways already subject to 303(d)-listing. In addition, ponds and other irrigation equipment may leak or be subject to failure, resulting in substantial water releases. This may lead to erosion of soil particles and dispersal of sediment and other contaminants into waterways.

The proposed ordinance contains requirements associated with the design of ponds that reduces the risk of leaks or systems failures. The proposed ordinance also includes performance standards that require proper storage and use of any fuels, fertilizer, pesticide, fungicide, rodenticide, or herbicide, and provisions for annual on-site inspections to ensure those standards are being met. The proposed ordinance also requires demonstration of compliance with the North Coast RWQCB Order No. 2015-0023 or any subsequent water quality standards established (e.g., State Water Board interim principles and guidelines) for existing and new commercial cannabis operations. As noted above, Order No. 2015-0023 requires measures to protect water quality and includes standard conditions for site maintenance, erosion control, stream and wetland buffers, spoils management, and the proper use and storage of regulated fertilizers, pesticides, and other chemicals to avoid impacts to water quality. The reader is referred to Section 3.7, "Hazards and Hazardous Materials," for a further discussion of pesticide and other chemical usage impacts. However, this applies only to cultivation sites of 2,000 square feet or greater, thus some sites may not be required to follow practices to prevent, minimize, control, and reduce the discharges to waterways.

Compliance with laws and regulations controlling on-site pollutants would ensure that the threat of pollution from improperly constructed sites would not result in water quality degradation. However, as noted above, any cannabis cultivation activities under 2,000 square feet in disturbance area would not be required to comply with the North Coast RWQCB Order 2015-0023 and its specific requirements pertinent to the control and minimization of erosion, sedimentation, and chemical transport. As a result, impacts would be **significant**.

Mitigation Measure 3.8-2: Minimum Size of Commercial Cultivation Activities

The County shall amend the proposed ordinance to require compliance with the requirements of North Coast RWQCB Order 2015-0023 or any subsequent water quality standards to apply to all new commercial cannabis cultivation operations and not limited by a minimum cultivation area size.

Significance after Mitigation

Mitigation Measure 3.3-1 would require all new commercial cannabis activities in the County to comply with the conditions of North Coast RWQCB Order 2015-0023 or any subsequent water quality standards. Coupled with the County's program of storm water pollution prevention and remediation, cannabis-related activities within the County would be required to implement BMPs, subject to regular inspections by local and state regulators, thus limiting the amount of pollution entering receiving waterways. Implementation of the proposed ordinance for existing cannabis operations that intend to comply with the performance standards of the ordinance would result in water quality benefits over existing conditions. Consequently, with implementation of Mitigation Measure 3.8-2 in combination with the performance standards of the proposed ordinance, impacts to surface and groundwater quality would be **less than significant**.

Impact 3.8-3: Groundwater supply impacts.

Commercial cannabis operations in the County that may occur under the proposed ordinance have the potential to deplete local groundwater supplies and affect adjacent wells as a result of cultivation water demands. The proposed ordinance provisions include requirements for testing and protection of neighboring wells as part of new well installation. While these requirements would address the potential effects of short-term well operation, it is not known if operation of wells for cannabis cultivation over an extended period could result in isolated locations that affect the operability of adjacent wells. As a result, this would be **potentially significant** impact.

The proposed ordinance requires each commercial cannabis operation to obtain and disclose a legal water supply source under the proposed ordinance. Possible water supplies include domestic water service from a local service provider, existing riparian water rights to utilize surface water on the site, approved surface water diversions, rain water capture to storage facilities, and groundwater (The reader is referred to Section 3.13, "Utilities and Service Systems," for a further analysis of water supply impacts of public water systems). Groundwater is anticipated to be the primary source of water supply to new operations given restrictions on surface water use between the months of May and October, permit requirements for water rights and diversion structures, and that the surface water supplies for Eel River, Klamath River, South Fork of the Trinity River, Trinity River, Van Duzen River, and Mad River have been fully appropriated.

Generally, groundwater is available in many parts of the County, particularly in areas that overlay the 4 major groundwater basins and 10 minor subbasins. Groundwater in the County is subject to varying degrees of impairment, as discussed above under Section 3.8.2, "Environmental Setting." Aquifers are present outside of these areas as well; however, data pertaining to groundwater quantity and quality is limited.

Depending on the location of extraction and condition of local groundwater resources, it is possible for drawdown at a well in one location to affect groundwater elevations in other wells. One of the most important factors is distance; larger parcels generally have larger areas to draw from, thereby reducing the potential to adversely affect adjacent properties. The close proximity of wells to other wells, and structure and volume of the groundwater basin (among many factors), can influence if a well would affect other wells. The effect of wells in fractured bedrock on groundwater elevations is dependent on the connectivity of fracture and joint sets in the bedrock. No mapping of subsurface features, including fracture locations, orientations, or depths has been completed on a county-wide scale; nor would this be feasible given that these are subsurface structures and are unique and variable from location to location. Thus, groundwater management in these types of conditions is best conducted through managing the distances between wells and through well testing.

The proposed ordinance contains testing requirements for new wells on parcels 10 acres or smaller located within 400 feet of property lines to determine if drawdown could occur on any adjacent wells. It is presumed that parcels larger than this contain sufficient buffer to prevent effects to wells on adjacent properties. The testing requirements further identify that use of a well for cannabis-related irrigation may be prohibited, limited or subject to provisional approval and monitoring, depending on the results of the testing. The well tests (in the ordinance) are designed to prevent drawdown on adjacent properties; however, it is not possible

to assure that, over the long-term and in variable hydrologic conditions where wells are located closer than 400 feet from adjacent properties, that some isolated wells could be affected by adjacent cannabis operations. Given this uncertainty, this impact is **potentially significant**.

Mitigation Measure 3.8-3: Annual groundwater monitoring and adaptive management.

The following requirement will be included as an additional performance standard of the ordinance associated wells on small parcels:

- As part of the ordinance's annual inspection process, cultivation operators shall provide the County with groundwater monitoring data for on-site well facilities that documents well production and changes in groundwater levels during each month of the year. Should this monitoring data identify potential drawdown impacts to adjacent well(s) and indicate a connection to operation of the on-site wells, the cultivation operators, in conjunction with the County, shall develop adaptive management measures to allow for recovery of groundwater levels. Adaptive management measures may include forbearance (e.g., prohibition of groundwater extraction from the months of May to October), water conservation measures, reductions in on-site cannabis cultivation, alteration of the groundwater pumping schedule, or other measures determined appropriate. Adaptive management measures will remain in place until groundwater levels have recovered based on annual monitoring data provided to the County as part of subsequent annual inspections.

Significance after Mitigation

Mitigation Measure 3.8-3 will require the reporting of annual monitoring of groundwater conditions to the County as part of the annual inspections required under the ordinance. This monitoring will identify if on-site well operations are resulting in groundwater drawdown impacts and what adaptive measures that will be implemented to recover groundwater levels and protect adjacent wells. Because implementation of this mitigation measure would be required as part of annual commercial cannabis operations permit renewals, it would provide on-going protection of local groundwater resources. Thus, implementation of Mitigation Measure 3.8-3 would reduce this impact to a **less-than-significant** level.

Impact 3.8-4: Surface drainage impacts on on-site and off-site flooding.

Commercial cannabis operations in the County that may occur under the proposed ordinance could alter local drainage characteristics of individual sites and influence on-site or off-site flooding. As a result, impacts would be **potentially significant**.

In areas where new construction for commercial cannabis facilities would take place, the peak flow and volume of storm water runoff generated from such areas would be affected by development through conversion of vegetated or otherwise pervious surfaces to impervious surfaces (e.g. roads, roofs, driveways, walkways) and by the development of drainage systems that might more effectively connect these impervious surfaces to streams or other water bodies. The travel time of runoff originally travelling as overland sheet flow could be reduced when routed into constructed conveyance systems directly from impervious surfaces. Compaction from cannabis processing activities such as drying, curing, grading, or trimming areas could also reduce the local permeability of natural surfaces. Construction of new cultivation areas, roadways or improvement of existing roadways in compliance with the performance standards of the proposed ordinance could alter peak drainage flow rates and result in changes in flood elevations in waterways. Overall, improvements related to commercial cannabis facilities could increase the rate and volume of runoff and eliminate some natural storage and infiltration capacity along drainage paths. Consequently, sites could be subject to on-site ponding, or on-site or off-site flooding. Thus, this impact is **potentially significant**.

Mitigation Measure 3.8-4: Provision of drainage facilities to attenuate increases in drainage flows.

The County shall include the following drainage requirement in the proposed ordinance application requirements:

- Applications will provide details of drainage facilities and stormwater management. This will include a drainage analysis of increases or alteration of on-site and off-site drainage flows from project facilities and identification of drainage swales, detention basins, or other facilities that will ensure that the project will retain pre-project drainage conditions.

Significance after Mitigation

Mitigation Measure 3.8-4 will require all commercial cannabis-related activities provide necessary drainage improvements to offset any increases in drainage flows that could flood on-site or off-site areas. Thus, implementation of this mitigation measure result in a **less-than-significant** impact to on-site and off-site flooding.

Impact 3.8-5: Effects of diversion of surface water.

New commercial cannabis cultivation operations in the County that may occur under the proposed ordinance could result in decreased flow rates on County streams and rivers because of surface water diversion. Low flows are associated with increased temperature and may also aggravate the effects of water pollution. While available data indicates that some rivers in Humboldt County would not be substantially affected by surface water demand during typical water years, data is not available for the potential effects on individual tributaries. Thus, substantial decreases to some individual tributary flows could occur, which could result in degraded water quality conditions. This impact would be **potentially significant**.

The adverse effects on surface water flows and water quality associated with current and illegal cannabis cultivation has been well documented. In Humboldt County, surface water diversions for existing and illegal cannabis operations typically occur along smaller watersheds, which can substantially reduce or eliminate surface water flows during dry summer months. There is additional concern that more severe and prolonged drought conditions, related to climate change, could further diminish summer stream flow rates in northern California (Bauer 2015).

Low flows are associated with increased temperature. However, low flows also aggravate the effects of water pollution. Dilution is the primary mechanism by which the concentrations of contaminants (e.g., copper, lead) discharged from industrial facilities and other point and some non-point sources are reduced. However, during a low flow event, there is less water available to dilute effluent loadings, resulting in higher in-stream concentration of pollutants (EPA 2017).

Based on assumptions developed from submitted commercial cannabis cultivation applications (see "Methods and Assumption," above), water is expected to be drawn from within all major watersheds in Humboldt County. Based on the assumption that existing and new cannabis operations would require approximately 760,000 gallons per acre per year, and the distribution of applications received by the County, watershed flows would decrease from approximately 0.35 to 5.23 cfs to meet water demand requirements (Table 3.8-5). This assumes that water would only be drawn during the diversion period allowed under the proposed ordinance (October 31 through May 15).

Table 3.8-5 Cannabis Irrigation Flow Rate Demand by Watershed

Watershed	Cannabis Irrigation Water Demand (cfs)
Lower Eel	5.23
Lower Klamath	1.30
Mad-Redwood	1.84
Mattole	1.37
South Fork Eel	2.03
Trinity	0.95

Exhibits 3.8-10 through 3.8-15 provide hydrographs of the recorded median and minimum flows associated with the major watersheds in Humboldt County, and flows associated with irrigation requirements for existing and new cannabis cultivation, based on the calculations described above. The data presented in the following exhibits provides a conservative analysis that assumes water demand is entirely served by surface water or groundwater that is connected to surface water, and that a majority of the estimated demand consist of existing cultivation activities).[1] Diversions would be avoided during low flow periods of the year because of forbearance requirements under the proposed ordinance, as shown for the months of June through October. Note that data along the y-axis of these graphs is presented as logarithm, base 10, because of the substantial disparity been these data points throughout the year. Median and minimum flow rates and the percentage of flow rate reduction associated with cannabis operations is provided in Table 3.8-6.

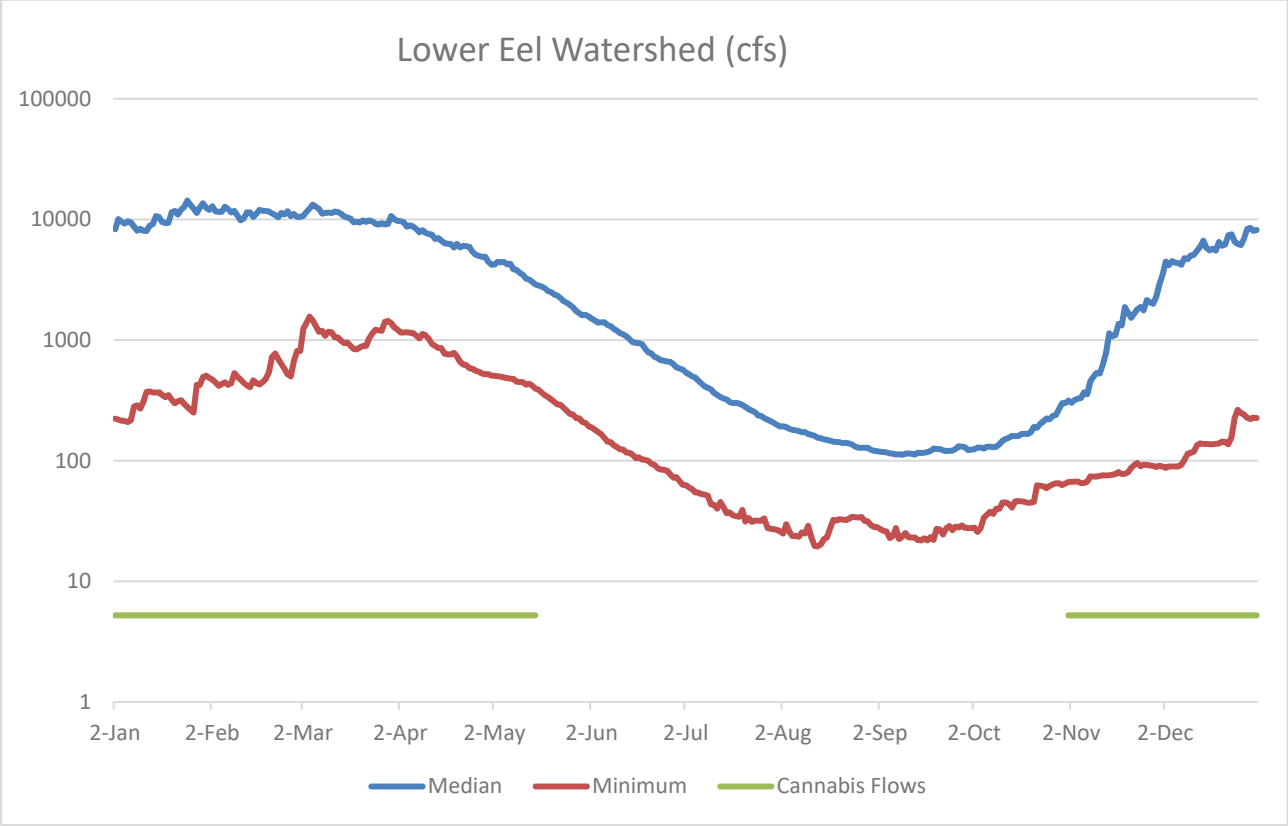

Exhibit 3.8-10 Contribution of Cannabis Water Demands in Comparison to Lower Eel Watershed Flows During Diversion Period

[1] As identified in Impact 3.8-3, it is expected that most commercial cannabis cultivation operations would utilize groundwater for water supply rather than surface water sources. As identified in Chapter 2.0, "Project Description," 67 percent of the total applications received by the County consist of existing cultivation operations that intend to comply with the ordinance.

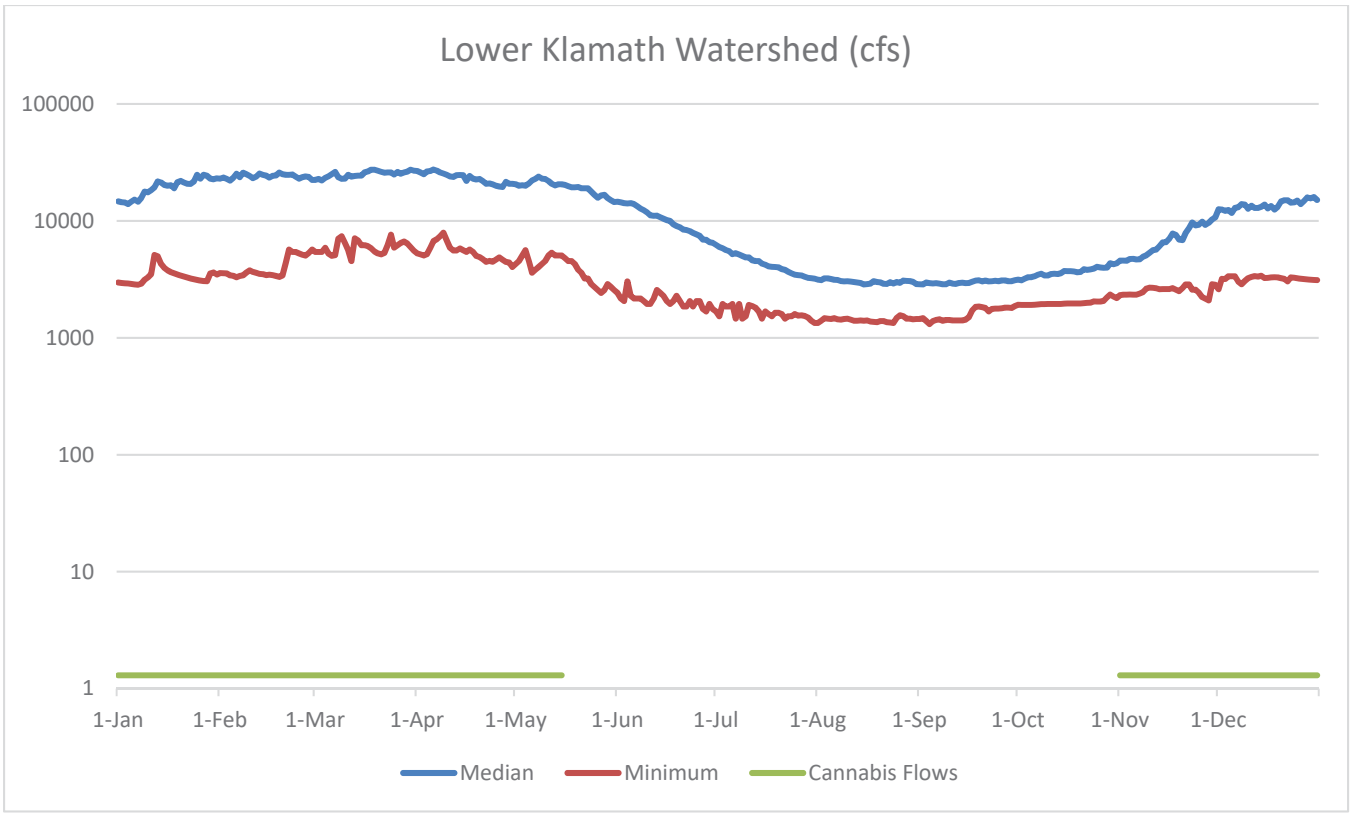

Exhibit 3.8-11 Contribution of Cannabis Water Demands in Comparison to Lower Klamath Watershed Flows During Diversion Period

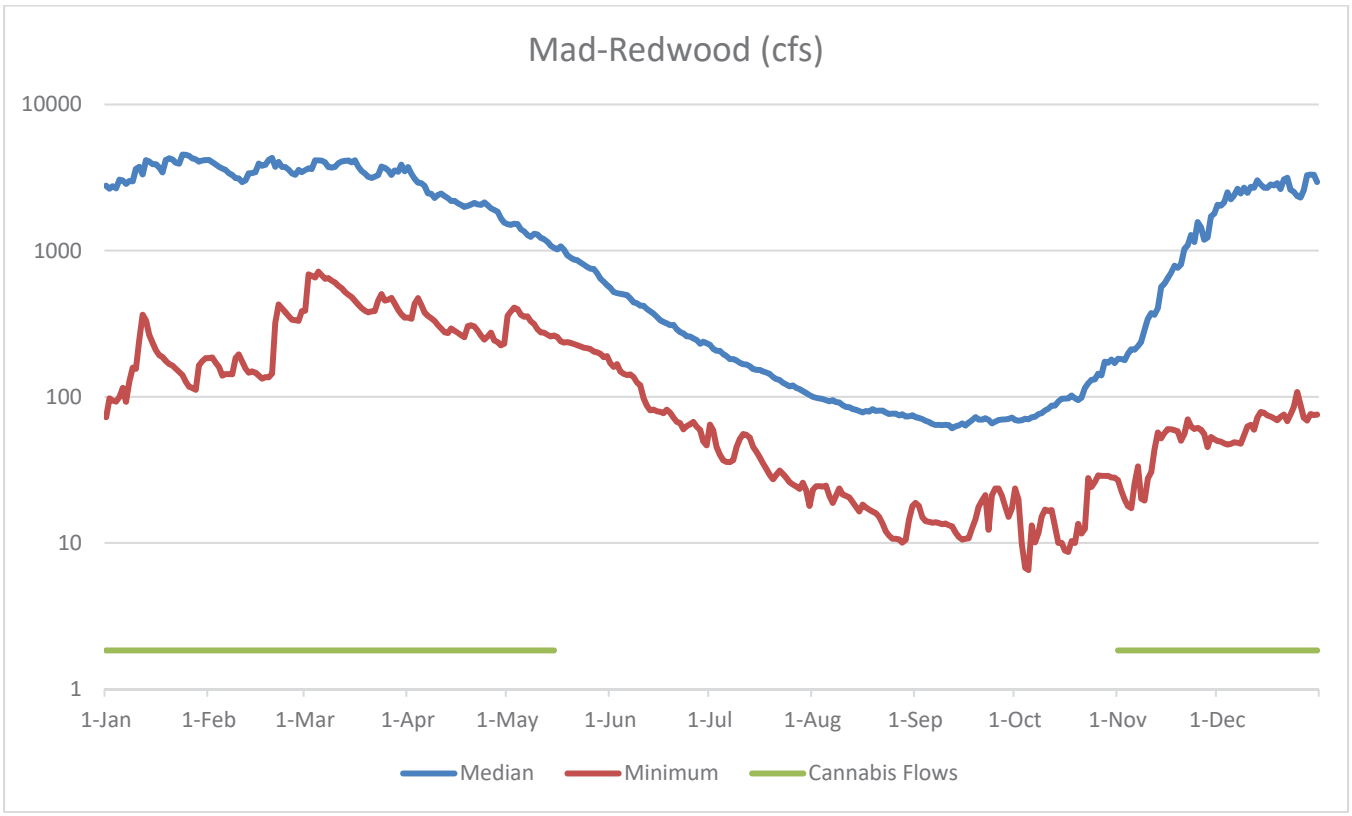

Exhibit 3.8-12 Contribution of Cannabis Water Demands in Comparison to Mad Redwood Watershed during Diversion Period

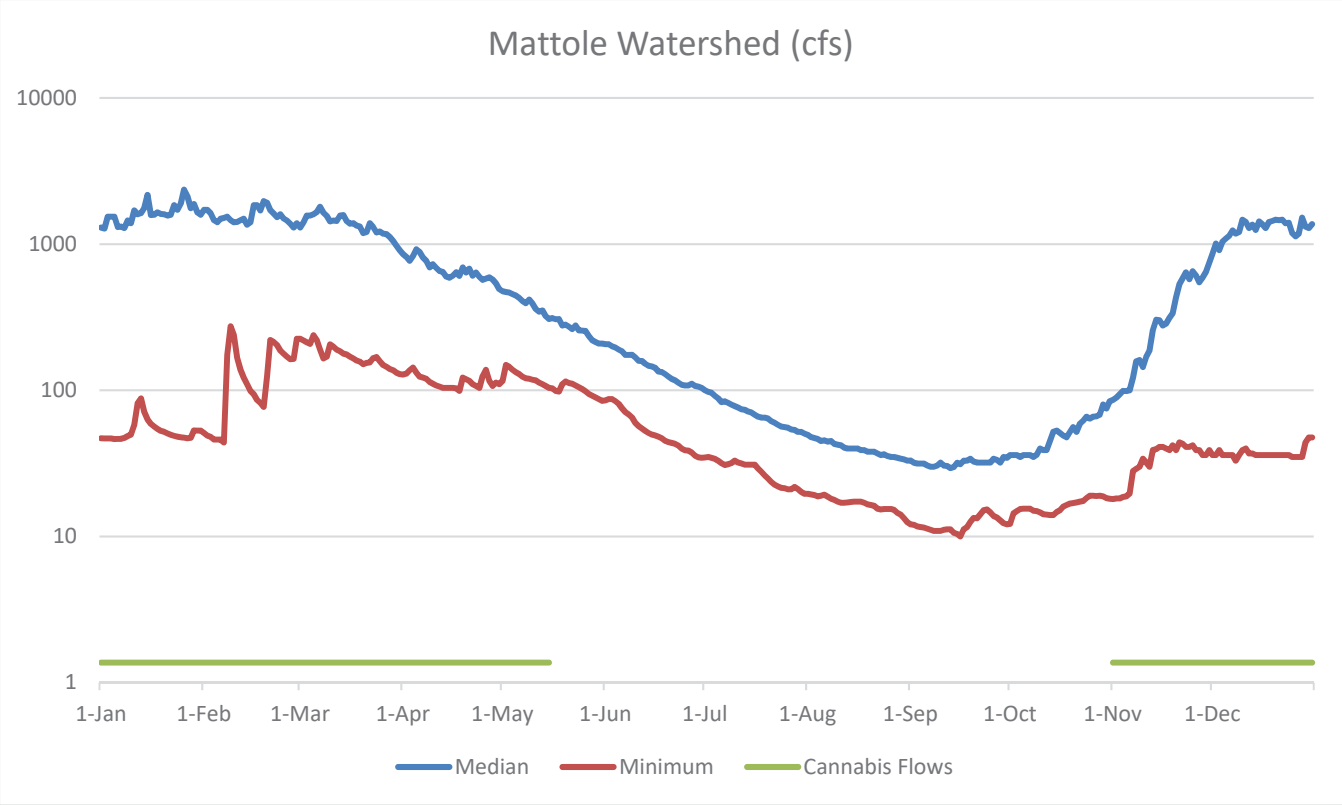

Exhibit 3.8-13 Contribution of Cannabis Water Demands in Comparison to Mattole Watershed Flows During Diversion Period

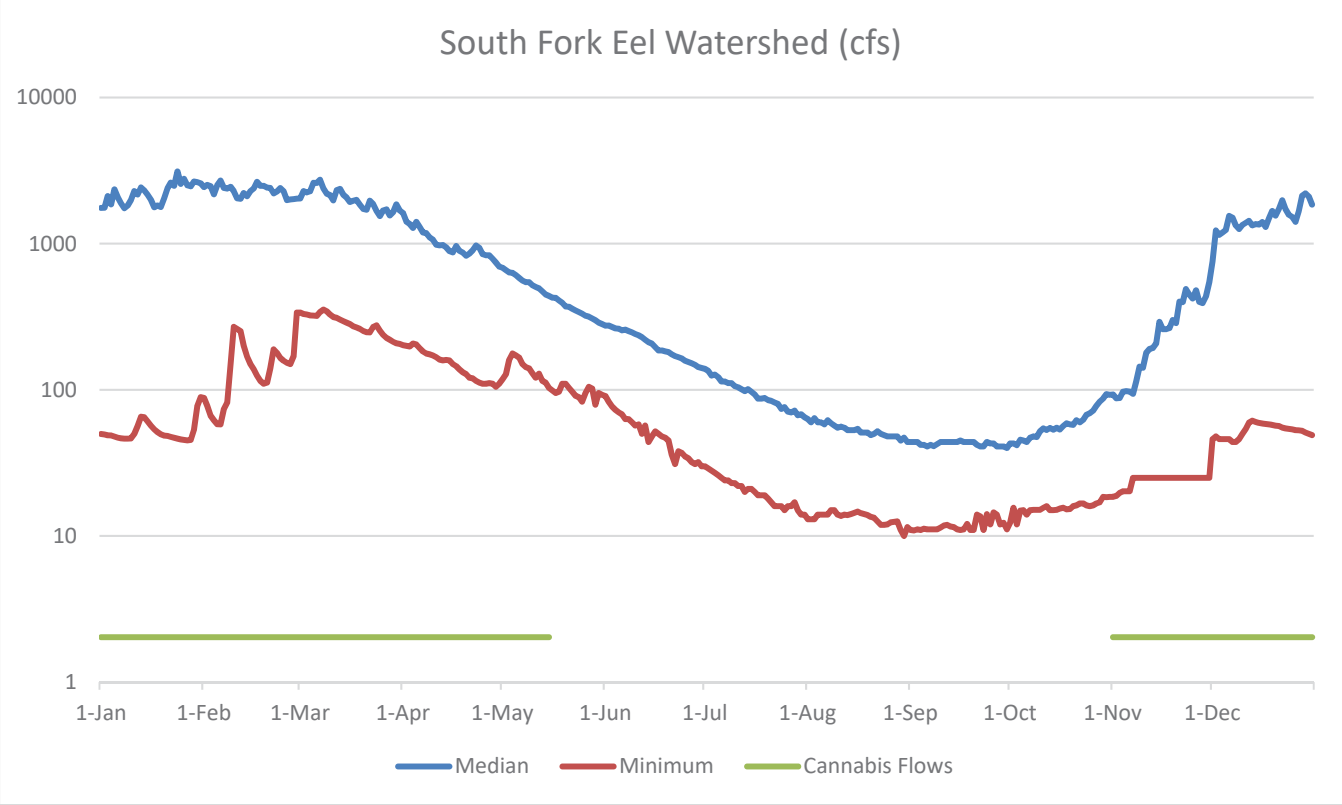

Exhibit 3.8-14 Contribution of Cannabis Water Demands in Comparison to South Fork Eel Watershed Flows During Diversion Period

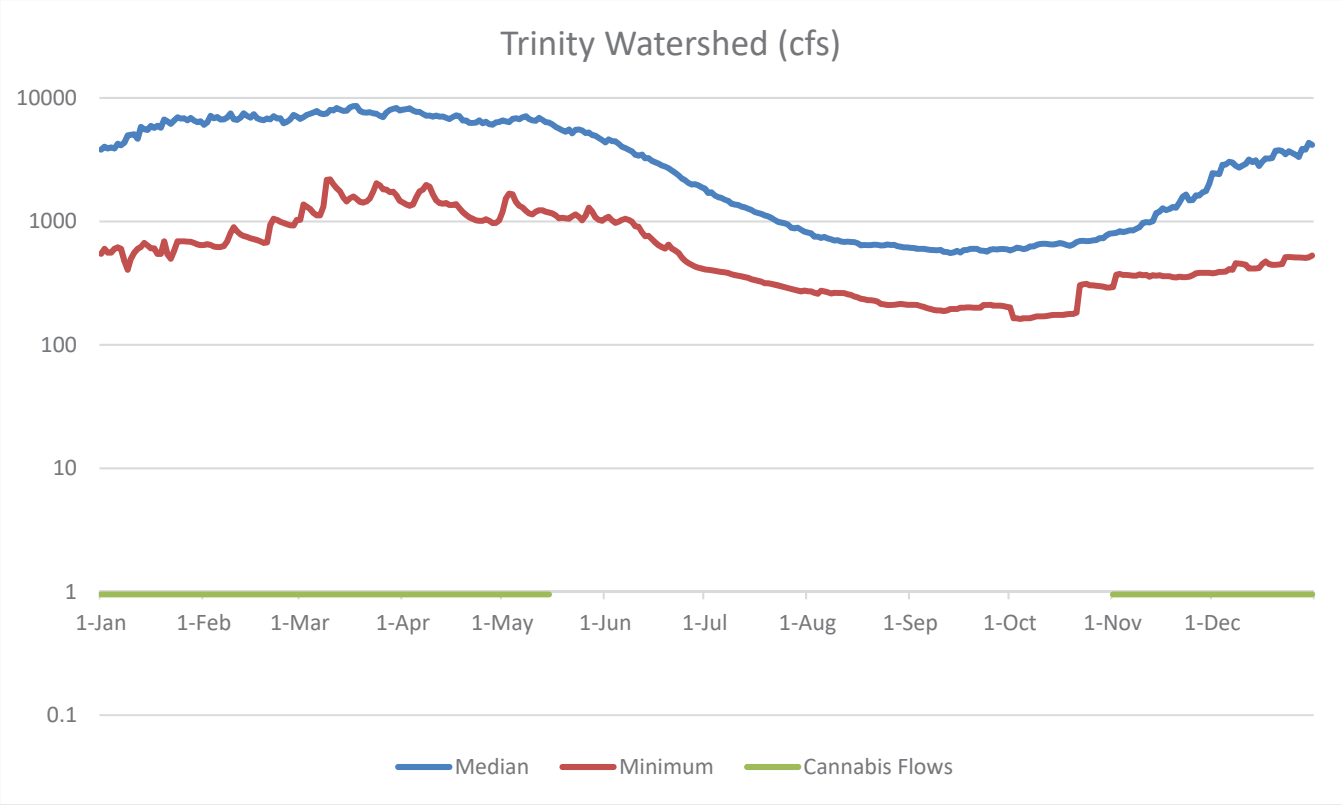

Exhibit 3.8-15 Contribution of Cannabis Water Demands in Comparison to Trinity Watershed Flows During Diversion Period

As shown in Exhibits 3.8-10 through 3.8-15, the period of diversion allowed under the proposed ordinance would occur while flow rates are at their highest during the year and avoids periods of lower flows. Overall, during median flow years, cannabis irrigation demands would represent a minor percentage of the average monthly flows (less than 1 percent). However, when compared to historic minimum flow years, water demand could exceed 8 percent (e.g., South Fork Eel Watershed in November). This could be a substantial decrease in flows that could lead to adverse water quality effects such as increased temperature and increased concentrations of pollutants entering the waterway, compared to existing conditions. This would be of particular concern if flows dropped below the Numeric Flow Requirement for the river or tributary (see Table 3.8-1), which is the level set by the State Water Board for protection of beneficial uses.

In addition to the potential effects on overall watershed flows, data is not available for the potential effects on individual tributaries. Furthermore, these data represent what may reasonably occur because of implementation of the proposed ordinance and it is unknown where diversions may occur and the precise quantities that may be demanded. The proposed ordinance contains requirements for prohibiting water diversions during low flow periods (May 15 through October 31), water conservation measures, metering, and recordkeeping requirements. The proposed ordinance would also assist in improving surface water flow conditions through regulating existing cannabis cultivation surface water diversions that submit applications for permits and intend to comply with the ordinance. Existing cannabis cultivation operations that do not obtain permits under the proposed ordinance will be considered illegal. The County in coordination with other agencies will conduct enforcement activities on illegal cannabis cultivation operations that will result in either compliance with the ordinance or closure of the operation.

While the proposed ordinance performance standards would address surface water resource issues, thresholds are not available to determine adequate flows to protect beneficial uses. Thus, substantial decreases to smaller waterways flows could occur, which could result in degraded water quality conditions. This impact would be **potentially significant**.

Table 3.8-6 Flow Rate Reduction associated with Irrigation for Cannabis Cultivation Compared to Historic Median and Minimum Flows in Cubic Feet per Second

	January	February	March	April	May	June	July	August	September	October	November	December
Lower Eel												
Median	10,359	11,349	10,578	6,917	6,917	1,009	339	154	120	177	1,178	5,886
Minimum	315	519	1,132	848	848	118	41	28	25	47	79	150
Cannabis Flows Percentage of Median	0.05%	0.05%	0.05%	0.08%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.44%	0.09%
Cannabis Flows Percentage of Minimum	1.66%	1.01%	0.46%	0.62%	0.62%	0.00%	0.00%	0.00%	0.00%	0.00%	6.61%	3.49%
Lower Klamath												
Median	19,576	24,103	25,119	23,480	23,480	10,414	4,395	3,022	2,988	3,675	6,966	13,729
Minimum	3,400	4,039	5,971	5,422	5,422	2,106	1,633	1,424	1,594	2,001	2,530	3,203
Cannabis Flows Percentage of Median	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.03%	0.04%	0.04%	0.04%	0.02%	0.01%
Cannabis Flows Percentage of Minimum	0.04%	0.03%	0.02%	0.02%	0.02%	0.06%	0.08%	0.09%	0.08%	0.06%	0.05%	0.04%
Mad-Redwood												
Median	3,698	3,614	3,711	2,316	2,316	365	154	84	68	105	725	2,677
Minimum	164	220	505	304	304	96	37	18	16	17	44	67
Cannabis Flows Percentage of Median	0.05%	0.05%	0.05%	0.08%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	0.25%	0.07%
Cannabis Flows Percentage of Minimum	1.12%	0.84%	0.36%	0.60%	0.60%	0.00%	0.00%	0.00%	0.00%	0.00%	4.14%	2.74%
Mattole												
Median	1,640	1,561	1,367	677	677	147	70	40	32	51	338	1,278
Minimum	53	133	175	116	116	55	28	17	12	16	34	37
Cannabis Flows Percentage of Median	0.08%	0.09%	0.10%	0.20%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.41%	0.11%
Cannabis Flows Percentage of Minimum	2.57%	1.03%	0.78%	1.18%	1.18%	0.00%	0.00%	0.00%	0.00%	0.00%	4.05%	3.69%
South Fork Eel												
Median	2,225	2,314	2,026	1,018	1,018	207	95	53	43	59	263	1,508
Minimum	52	147	283	151	151	51	20	13	12	16	24	53
Cannabis Flows Percentage of Median	0.09%	0.09%	0.10%	0.20%	0.20%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.13%
Cannabis Flows Percentage of Minimum	3.87%	1.38%	0.72%	1.34%	1.34%	0.00%	0.00%	0.00%	0.00%	0.00%	8.49%	3.87%
Trinity												
Median	5,542	6,855	7,739	6,970	6,970	3,118	1,235	680	587	664	1,220	3,235
Minimum	599	792	1,585	1,325	1,325	741	338	241	201	214	364	452
Cannabis Flows Percentage of Median	0.02%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.03%
Cannabis Flows Percentage of Minimum	0.16%	0.12%	0.06%	0.07%	0.07%	0.00%	0.00%	0.00%	0.00%	0.00%	0.26%	0.21%

Source: USGS Gage Data compiled by NHC and Ascent in 2017

Mitigation 3.8-5: Implement water diversion restrictions and monitoring and reporting requirements.

The text of the proposed ordinance shall be modified to align with the State Water Resources Control Board Cannabis Cultivation Policy when it is approved, which may include the following measures that are in the draft policy as of July 1, 2017:

- The period of forbearance shall extend from April 1 through October 31 of each year, and be subject to the following additional restrictions:
  - From November 1 through December 14 of each year, the surface water diversion period shall not begin until after seven consecutive days in which the surface waterbody's real-time Numeric Flow Requirement are met (see Appendix E).
  - From December 15 through March 31 of each surface water diversion period, surface water diversion may occur on any day in which the surface waterbody's real-time daily average flow is greater than the Numeric Flow Requirement (see Appendix E).
  - Groundwater users will be required to demonstrate that the groundwater source is not hydrologically connected to an adjacent surface water feature and is not subject to the forbearance requirements through the establishment of a flow gage in the stream or river and groundwater pumping tests to monitor and verify no connection to the satisfaction of the County and/or State Water Resources Control Board. The monitoring and testing protocol shall be reviewed and approved by the County and/or State Water Resources Control Board prior installation of the well and flow gage.
  - Cannabis cultivators shall bypass a minimum of 50 percent of the surface water flow past their point of diversion, as estimated based on visually observing surface water flow at least daily.
  - Water diversion rates may be further restricted in a manner to provide minimum instream flow requirements needed for fish spawning, migration, and rearing, and the flows needed to maintain natural flow variability by the State Water Resources Control Board and/or California Department of Fish and Wildlife as part of state surface water diversion approvals in circumstances where multiple diversions existing along a single waterway.
  - The cannabis cultivator shall not divert more than a maximum instantaneous diversion rate of 10 gallons per minute, unless authorized under an existing appropriative water right.
- Cannabis cultivators shall plug, block, cap, disconnect, or remove diversion intake structures associated with cannabis cultivation activities during the source water forbearance period, unless the diversion intake is used for other beneficial uses.
- Diverted water storage systems for cannabis cultivation shall be separated from storage systems used for other beneficial uses within a cultivation site.
- Cannabis cultivation shall inspect for leaks in mainlines, laterals, in-irrigation connections, sprinkler headers, and/or the ends of drop tape and feeder lines on a monthly basis. Any leaks discovered shall be immediately repaired upon detection. Worn, outdated, or inefficient irrigation system components and equipment shall be regulatory replaced to ensure a properly function, leak-free irrigation system at all times. Records of the date of inspections, repairs, and replacements shall be maintained.
- Cannabis cultivators shall retain irrigation, inspection, and repair records at the cannabis cultivation site and shall make all records available for review by the Water Boards, CDFW, and the County upon request for a period of 10 years.

Significance after Mitigation

When State Water Board Policy is adopted, Mitigation Measure 3.8-5 will require cannabis-related surface water diversions to meet flow rate standards during a limited period of time through the year, which correlates to the greater level of water availability within watersheds in Humboldt County. Monitoring of flow and inspection and repair of leaks and old equipment will ensure that cannabis cultivation activities are consistent with permitted diversion rates established by legal water rights. Because implementation of this mitigation measure would ensure that Numeric Flow Requirements are met throughout Humboldt County, this impact would be **less than significant**. Even if the State Water Board's policy on water diversion is not yet approved prior to adoption of this ordinance, this mitigation is reasonably protective of surface water resources because it would restrict diversions to ensure that Numeric Flow Requirements are met and beneficial uses are protected that are based on information from the State Water Board.

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3.9 LAND USE AND PLANNING

This section evaluates the proposed ordinance relative to existing land use plans, policies, and regulations, with a focus, as required by CEQA, on consistency with policies adopted for the purpose of reducing environmental impacts. The analysis also evaluates whether implementation of the proposed ordinance would result in the physical division of an established community.

Comment letters received in response to the notice of preparation expressed concerns regarding project development within the designated spheres of influence of incorporated cities and other areas designated for residential development, buffers and setbacks, land use conflicts with residential areas, and other neighborhood impacts. Project elements such as proposed land use restrictions, including setbacks and limits on parcel size and cultivation area are addressed in Chapter 2, "Project Description." Potential land use conflicts and potential conflicts with plans and zoning (including city spheres of influence) are discussed under Impacts 3.9-1 and 3.9-2. Other neighborhood or quality of life impacts (including concerns about increased odors, noise, traffic, and light pollution) are addressed throughout this EIR under the relevant technical section.

3.9.1 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to land use apply to the project.

STATE

State Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the city's or county's judgment, bears relation to its planning. Cities typically identify a "sphere of influence" in their general plans; these are areas outside the city corporate boundaries that comprise the probable future boundary and service area of the city. The general plan addresses a broad range of topics, including at a minimum land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the city's or county's vision for the area.

The State Zoning Law (California Government Code, Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses within a specific zone district, are required to be consistent with the general plan.

Local general plan policies and zoning ordinances, as they relate to the project, are summarized below.

California Coastal Act

The California Coastal Act of 1976 requires that each coastal jurisdiction prepare a local coastal program (LCP), including a coastal land use plan. The LCP also includes zoning ordinances and zoning district maps, and, where required by the coastal land use plan, other applicable implementation measures. Once the LCP is reviewed and certified by the local government and the California Coastal Commission as consistent with the Coastal Act's policies, the LCP becomes the guiding and regulatory document for development and resource conservation in the coastal zone. As noted below, the County has adopted six coastal planning areas that function as LCPs.

State Aeronautics Act

The State Aeronautics Act (Public Utilities Code Section 21001) sets forth requirements for airport land use compatibility planning around public use airports. The *California Airport Land Use Planning Handbook* (California Department of Transportation 2011) provides guidance for determining consistency between a general plan and an Airport Land Use Compatibility Plan (ALUCP). The ALUCP contains policies relating to airport noise, the height of structures, trees, and other objects near an airport that affect the use of that airport, and potential safety risks both to people on the ground and to the occupants of aircraft. General plan amendments must be consistent with any applicable ALUCP unless a local governing body overrules the plan by a 2/3 vote and makes specific findings. Prior to amendment of a general plan, a local agency must refer the proposed amendment to the Airport Land Use Commission (ALUC).

LOCAL

Humboldt County General Plan

Humboldt County's General Plan was last updated in a comprehensive manner in 1984. However, the current General Plan contains elements and community planning maps and policies that were adopted as long ago as 1966. There is a complete discussion of the current General Plan in Chapter 2, Project Description. Chapter 2 describes the existing Humboldt County General Plan – Volume I - Framework Plan, adopted in 1984; the ten Community Plans, adopted between 1981 and 2002; the Northern Humboldt, Arcata, and Southern Humboldt General Plans which were adopted between 1965 and 1968; as well as the Open Space and Conservation Elements, Recreation Element, Noise Element, Trails Element, and Seismic Safety and Public Safety Elements; all of which comprise the County's current General Plan. These components of the General Plan apply to varying degrees in different areas of the County. The Housing Element for the Humboldt County General Plan was adopted by the Board of Supervisors on May 13, 2014.

Community Plan Areas

The Framework General Plan identified and mapped 18 inland Community Plan Areas (CPA). Some CPAs have an adopted Community Plan, and others do not. The purpose of a Community Plan is to develop an internally consistent General Plan, allow for expanded public participation in the planning process, and meet the needs of individual communities. Given that the Hoopa Valley Community Plan boundary is coterminous with the Hoopa Valley Reservation and almost exclusively under the jurisdiction of the Hoopa Valley Tribe and the Bureau of Indian Affairs, no community plan was prepared for that area, and the Hoopa Valley CPA is not included in further discussion. The following is a brief description of the inland Community Plan Areas:

- The Arcata CPA (no adopted Community Plan) is approximately 5,000 acres and is comprised of five separate areas, including pocket areas between the City of Arcata and the coastal zone boundary, portions of the Aldergrove, Warren Creek and West End Road areas, and the Fickle Hill area.

- The Avenue of the Giants CPA (Community Plan adopted in 1999) includes five separate areas totaling approximately 11,250 acres, begins in Stafford in the north and extends south along SR 254 (the Avenue of the Giants), and includes Pepperwood, Holmes, Redcrest, and the communities of Shively and Larabee across the Eel River. The Avenue of the Giants CPA area also includes the four additional separate community areas: Weott, Myers Flat, Miranda, and Phillipsville. This CPA contains mapped Urban Developed Areas in Miranda, Myers Flat, Phillipsville, and Weott, and Urban Expansion Areas in Redcrest and Weott.

- The Blue Lake CPA (no adopted Community Plan) is approximately 7,500 acres and surrounds the City of Blue Lake, including the West End/Hatchery Road areas on the south side of the Mad River and the Liscom Hill and Korbel areas on the north side of the river.

- The Carlotta-Hydesville CPA (Community Plan adopted in 1985) is approximately 12,000 acres and extends east along the Van Duzen River and SR 36 from the coastal zone boundary, and includes the communities of Carlotta and Hydesville with a mapped Urban Development Area in Hydesville.

- The Eureka CPA (Community Plan adopted in 1995) is approximately 11,000 acres and includes the developed area around Eureka outside of the coastal zone, including Cutten, Ridgewood, Pine Hills, Humboldt Hill, and portions of Myrtletown.

- The Fortuna CPA (Community Plan adopted in 1984) is approximately 5,500 acres and includes the Palmer Creek area and pocket areas around the City of Fortuna, including Rohnerville; Wolverton Gulch; the Mill Street area and the golf course; and the areas along Loop Road, Newburg Road, and Carson Woods Road. Urban Development and Urban Expansion Areas are mapped within the Palmer Creek area and around the City of Fortuna.

- The Fieldbrook-Glendale CPA (no adopted Community Plan) is approximately 12,500 acres in area and includes the Fieldbrook valley and community, and extends south to include Glendale.

- The Freshwater CPA (Community Plan adopted in 1984) is approximately 7,000 acres and includes the inland portions of Indianola, upper Mitchell Heights and Cummings Road, and the entire Freshwater valley.

- The Garberville-Redway-Benbow-Alderpoint CPA (Community Plan adopted in 1985) is approximately 13,000 acres and includes the communities of Alderpoint, Benbow, Garberville and Redway, as well as areas between them and the hill slopes along Old Briceland Road west of Garberville. This CPA includes mapped Urban Expansion Areas in Redway.

- The Jacoby Creek Community Plan (adopted in 1982 – prior to the adoption of the Framework Plan) is approximately 11,500 acres and includes the entire Jacoby Creek drainage as well as the communities of Jacoby Creek and Bayside. This CPA includes a large Urban Development Area in the lower Jacoby Creek valley and an Urban Expansion Area along Graham Road.

- The McKinleyville Community Plan (adopted in 2002) is approximately 10,000 acres and includes the developed McKinleyville area and the surrounding watersheds as well as the Dows Prairie area. Most of the developed area of McKinleyville is mapped as an Urban Development Area and the Dows Prairie, Beau Pre Heights, and areas off of Azalea Avenue are mapped as Urban Expansion Area.

- The Orick Community Plan (adopted in 1985) is approximately 1,350 acres and includes the inland portion of the town of Orick. Core areas along US 101 are mapped as Urban Development Area, and as Urban Expansion Areas.

- The Orleans CPA (no adopted Community Plan) is approximately 5,500 acres containing the Orleans community on either side of the Klamath River and surrounded by Six Rivers National Forest.

- The Rio Dell-Scotia CPA (no adopted Community Plan) is approximately 4,200 acres and includes the Monument, Dinsmore Plateau, and Metropolitan areas around the City of Rio Dell. In addition, the Scotia area is proposed to be added as part of the County's General Plan Update process, connecting this CPA to the Avenue of the Giants CPA.

- The Shelter Cove CPA (no adopted Community Plan) is approximately 1,800 acres and contains the inland residential areas on the upper hill slopes.

- The Trinidad-Westhaven CPA (no adopted Community Plan) is approximately 1,900 acres in area and includes the hill slopes primarily east of US 101 between Stumptown Road and Little River.

- The Willow Creek CPA (adopted in 1984) is approximately 5,000 acres and includes the developed area of Willow Creek along SR 299 and SR 96 as well as along Patterson and Seeley McIntosh Roads. The Green Point area where SR 299 crosses Redwood Creek is also included in this CPA.

Within the Humboldt County coastal zone there are six LCP coastal planning areas, listed below from north to south:

- The North Coast Area Plan extends from the Del Norte/Humboldt County line to Patrick's Point and includes the lagoons, portions of Orick and Big Lagoon.
- The Trinidad Area Plan, extends south from the North Coast Area Plan to Little River, and includes all of the developed area of Patricks Point, areas surrounding Trinidad, and Westhaven.
- The McKinleyville Area Plan extends from the Trinidad segment to the Mad River.
- The Humboldt Bay Area Plan extends from the Mad River to Table Bluff and includes the north and south spits, the Arcata Bottoms, Indianola, Freshwater, Mitchel Heights, King Salmon, Fields Landing, and the Humboldt Bay Wildlife Refuge.
- The Eel River Area Plan extends from Table Bluff to Centerville and includes Loleta, Fernbridge, the Ferndale bottoms, Waddington, and Alton.
- The South Coast Area Plan extends from the Eel River Area Plan to the Mendocino County line and includes Cape Mendocino, the Petrolia area, the King Range, and Shelter Cove.

Humboldt County Zoning Regulations

Humboldt County Inland Zoning Regulations can be found in Title III, Chapter 4 and Coastal Zoning Regulations can be found in Title III, Chapter 3). When a general plan amendment creates inconsistency with zoning regulations, the zoning regulations must be changed to re-establish consistency "within a reasonable time" (Government Code 65860(c)). However, state law does not specify what constitutes "a reasonable time" to re-establish consistency, so the Governor's Office of Planning and Research General Plan Guidelines (2003) recommends that "for extensive amendments to the general plan (such as a revision that results in the inconsistency of large areas)," two years would be considered a reasonable amount of time.

The Humboldt County Zoning Regulations set forth regulations relating to minimum lot size, maximum building height and setback from property lines, as well as the uses that are principally permitted and those that require a use permit. The Zoning Regulations also specify procedures for things such as variances to compensate for hardships such as the size, shape, or topography of a site, and for zoning modifications, consistent with the General Plan.

The Zoning Regulations contain the following zoning districts:

Table 3.9-1 Zoning Districts

Use Types	Inland Zoning Districts	Coastal Zoning Districts
Commercial	C-1: Community Commercial Zone C-2: Community Commercial Zone C-3: Industrial Commercial Zone CH: Highway Service Commercial Zone	CN: Commercial Neighborhood CG: Commercial General CR: Commercial Recreational CRD: Coastal Dependent Commercial Rec.
Industrial	MB: Business Park Zone ML: Limited Industrial Zone MH: Heavy Industrial Zone	MB: Business Park Zone ML: Industrial, Light MG: Industrial General MC: Industrial Coastal Dependent
Public	AV: Airport Zone	PF1: Public Facility – Urban PF2: Public Facility - Rural
Natural Hazard/Flood	DF: Design Floodway Zone FP: Flood Plain Zone	NR: Natural Resource

Table 3.9-1 Zoning Districts

Use Types	Inland Zoning Districts	Coastal Zoning Districts
Residential	RS: Residential Suburban Zone R-1: Residential One-Family Zone R-2: Residential Two-Family Zone R-3: Residential Multiple Family Zone R-4: Apartment Professional Zone RA: Rural Residential Agriculture	RA: Rural Residential Agricultural RS: Residential Single Family R-2: Residential Mixed RM: Residential Multi-Family
Resource	AE: Agriculture Exclusive Zone AG: Agriculture General Zone FR: Forestry Recreation Zone TPZ: Timberland Production Zone	AE: Agriculture Exclusive Zone TC: Coastal Timberland TPZ: Timberland Production Zone
Unclassified	U: Unclassified Zone	N/A

In addition to the principal zone districts, there are over 20 different combining zones that may be applied to modify in some way the land uses allowed in the principal zone when necessary for sound and orderly planning. Examples of combining zones include: "AP," Airport Safety Review, which is intended to assist in maintaining compatibility between proposed land uses and development and Humboldt County airports; "B"', Special Building Site, which is intended to be combined with any principal zone in which sound and orderly planning indicate that lot area and yard requirements should be modified; and "F," Flood Hazard Areas, which is applied to minimize public and private losses because of flood and tsunami conditions in specific areas of the County.

City General Plans and Spheres of Influence

There are seven incorporated cities within Humboldt County: Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad (see Exhibit 2-2). All cities except the city of Ferndale have spheres of influences (SOI) beyond their city boundaries ranging in size from 160 acres (City of Trinidad) to 8,200 acres (City of Eureka). The boundaries of the city SOIs are subject to review and approval by the Humboldt County Local Agency Formation Commission. The general plans of these cities were adopted between 1966 and 2014, and they have designated planning areas that include some or all of their SOI. The city general plans are applicable to the incorporated portions of their respective planning areas, while the County's General Plan is applicable to the SOIs. Consequently, the focus of this discussion is only on the SOIs, because the proposed ordinance would apply to these areas.

None of the cities in the County has executed an agreement with the County pursuant to Government Code Section 56425(b) associated with SOI areas. Government Code Section 56425(b) provides a mechanism for a city and county to agree development standards and planning and zoning requires within the SOI that reflects the concerns of the affected city. Without the establishment of such an agreement, the Humboldt County General Plan and County Code are the only applicable land use regulations for the SOI areas. (Humboldt County 2017).

City of Arcata

The *City of Arcata General Plan* (2008) does not include policies specific to the city's SOI. The General Plan Land Use Plan Map designates the following land uses in the SOI area: Natural Resources, Agricultural – Exclusive, Agricultural – Residential, Residential – Very Low Density, Residential – Low Density, Public Facility, Commercial – General, and Industrial – Limited.

City of Blue Lake

According to the City of Blue Lake's 2010 Municipal Service Review (MSR), the City SOI has been pre-zoned to preserve agricultural lands and prevent sprawl and development, and the City may wish to annex these

lands in the future for preservation purposes. The MSR identified that the SOI would be re-evaluated under the next MSR process and could be reduced in size. (Humboldt Local Agency Formation Commission 2010).

City of Eureka

The current City of Eureka General Plan (2017) designates residential, commercial, industrial, public/quasi-public, and open space uses in its SOI. However, the General Plan provides no policy guidance regarding the SOI.

City of Ferndale

The City of Ferndale's Sphere of Influence does not extend beyond its city boundaries. Therefore, there are no policies within the *City of Ferndale General Plan* (1986) that are specific to the city's SOI.

City of Fortuna

The City of Fortuna General Plan Land Use Diagram includes the following land use designations within its SOI: Open Space, Agriculture, Parks, Greenways & Recreation, Public, Industrial, Residential Rural, and Residential Medium. There are no policies within the *City of Fortuna General Plan* (2010) that are specific to the city's SOI.

City of Rio Dell

There are no land use designations or policies within the *City of Rio Dell General Plan Land Use Element* (2011) that are specific to the city's SOI.

City of Trinidad

There are no land use designations or policies within the *City of Trinidad General Plan* (1976) that are specific to the city's SOI.

Airport Land Use Compatibility Plan

The Humboldt County ALUCP for Humboldt County Airports was adopted in 1998 by the Humboldt County ALUC. The ALUCP sets forth the criteria and policies that the ALUC uses in assessing the compatibility between the public use airports and land use development in the areas surrounding them. State law requires that the County, because of its authority over land uses within the ALUC planning area, modify the general plan and any affected specific plans to be consistent with the ALUCP.

Humboldt County is served by nine public airports: the California Redwood Coast – Humboldt County Airport (previously Arcata-Eureka Airport), Dinsmore Airport, Garberville Airport, Kneeland Airport, Murray Field, Rohnerville Airport, Samoa Field, Shelter Cove Airport, and Hoopa Airport. The California Redwood Coast – Humboldt County Airport, located in McKinleyville, is the only County airport with scheduled passenger flights.

3.9.2 Environmental Setting

With 3,570 square miles (approximately 2.3 million acres) of land, Humboldt County is the fourteenth largest county in California as well as one of the more rural. The seven incorporated cities occupy 24,040 acres, or just about one percent of the total land area. Approximately 30 percent of the County is either in public ownership or tribal lands. Federal ownership includes National Forests, National Parks, and public land controlled by the Bureau of Land Management totaling 110,000 acres. The State Parks System includes 76,500 acres, with other state lands comprising approximately 8,500 acres. Tribal lands total approximately 130,500 acres (including reservations, rancherias, and other trust lands), or 5.7 percent of the total land area in the county (Humboldt County 2017:2-1.).

Timber and agriculture lands account for the majority (approximately 60 percent) of the unincorporated County's rural land uses, including approximately 1,175,000 acres of Timberland Production Zone and 289,000 acres in Williamson Act preserves. It should be noted that some Williamson Act preserve areas also

include Timberland Production Zone zoned land. Rural residential land, which may also contain timber, agriculture, and grazing lands, occupies approximately 152,863 acres of the unincorporated area. Single-family residential-zoned lands cover 21,412 acres and an additional 560 acres are designated for multi-family housing. (Humboldt County 2017:2-1.)

As identified in Chapter 2,0, "Project Description," it is estimated that there are up to 15,000 cannabis cultivation operations that exist in the County.

3.9.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

Evaluation of potential land use impacts from implementation of the proposed ordinance is based on a review of documents, including the current Humboldt County General Plan, and the Humboldt County Code; various community plans, LCPs, and city general plans; and the ALUCP (1993). In determining the level of significance, this analysis assumes permitted cannabis operations under the proposed ordinance would comply with relevant state and other County ordinances and regulations related to land use.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant land use and planning impact if it would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of any agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect; or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

ISSUES NOT DISCUSSED FURTHER

There are several HCPs that apply to lands in Humboldt County. For a discussion of potential conflicts with applicable HCPs or natural community conservation plans, see Section 3.4, "Biological Resources."

IMPACT ANALYSIS

Impact 3.9-1: Potential for physical division of an established community.

Commercial cannabis operations in the County that may occur under the proposed ordinance could create land use conflicts, including potential physical division of established communities, if not regulated properly. The proposed ordinance contains permitting requirements that would manage conditions that create public nuisances by enacting restrictions on the location, type, and size of cannabis cultivation sites and commercial activities in Humboldt County, as well as other permitting requirements such as setbacks, security, and other protective measures. Because the project would include the above permitting requirements, land use conflicts that could result in the division of established communities would not occur. Therefore, this impact would be **less than significant**.

Cannabis is defined by the proposed ordinance and by state (Health and Safety Code Section 11362.777[a] and Business and Professions Code Section 26067[a]) as an agricultural product. As identified in Chapter 2, "Project Description," cannabis cultivation operations include structures and features that are similar to other agricultural activities. These include water storage ponds, accessory structures (e.g., barns and nurseries),

caretaker housing, fencing, and roads. These structure and feature types are common in the County and are components of the rural and agricultural landscape character of the County. These features would not create new barriers or physical features (e.g., new highways or land use type that would obstruct existing public access and movement) that could physically divide an established community. Thus, new and/or modified cannabis cultivation operations would not result in the physical division of an established community.

Implementation of the proposed ordinance would also involve commercial cannabis supporting land uses that include processing, distribution, microbusinesses, nurseries, and testing facilities. The ordinance would require that these uses placed in areas zoned for commercial, agricultural, or industrial uses and would complement these areas as their activities would be located within warehousing-type buildings and would operate with similar levels of employment and hours of operation. These operations would be contained within buildings and would not create new barriers or physical features that could physically divide an established community.

One of the purposes of the proposed ordinance is to regulate existing and future commercial cannabis operations to control potential adverse environmental impacts and land use conflicts. The proposed ordinance includes requirements for applicants to obtain Zoning Clearance Certificates, Special Permits, or Use Permits for all commercial cannabis activities. Zoning clearance certificates or permits may be issued within the allowable zoning districts listed in Chapter 2, "Project Description." All existing and proposed commercial cannabis activities would be required to obtain the above certificates and/or permits to achieve full compliance with the proposed ordinance.

The proposed ordinance includes regulations specifying buffers from sensitive land uses to reduce potential land use conflicts and other public nuisances. For example, commercial cannabis operations would be required to comply with the following setback standards:

- 300 feet from adjacent residences;
- 600 feet from sensitive land uses (schools, churches, public parks, and tribal cultural resources); and
- 600 feet from school bus stops.

Because the commercial cannabis operations would consist of facilities that complement existing land uses, it would not create new barriers or physical features that could physically divide an established community within Humboldt County. The proposed ordinance also includes setbacks and performance standards to reduce potential land use conflicts and other public nuisances. Therefore, this impact is **less than significant**. It is acknowledged that commercial cannabis operations under the proposed ordinance may result in physical impacts that can be considered nuisances within the County, such as increased nighttime lighting, odors, noise, and traffic. These issues are evaluated in Sections 3.1, "Aesthetics," 3.3, "Air Quality and Greenhouse Gas Emissions," 3.10, "Noise," and 3.12, "Transportation and Circulation," respectively.

Mitigation Measures

No mitigation is required.

Impact 3.9-2: Conflict with relevant plans, policies, and zoning adopted for the purpose of avoiding or mitigating an environmental effect.

The Humboldt County General Plan contains policies that protect natural resource lands, direct growth on community development lands, and promote land use compatibility. The proposed ordinance would amend the Humboldt County Code that implements the General Plan land use policy direction, and would be consistent with General Plan land use provisions. Further, the proposed ordinance contains permitting requirements that provides a mechanism for the County to ensure compliance with relevant plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**.

The proposed ordinance contains measures that would establish land use regulations for the cultivation, manufacture, testing, distribution, and storage of commercial cannabis within the County. Land uses within

the County are regulated by the *Humboldt County General Plan*, the Humboldt County Code; various community plans, LCPs, and city general plans; and the ALUCP to ensure uses are compatible with existing development. The project's consistency with each of these is evaluated below.

Humboldt County General Plan and County Code

The proposed ordinance includes requirements for applicants to obtain zoning clearance certificates, special permits, or use permits with limitations from the Planning Department for all commercial cannabis activities. Zoning clearance certificates or permits may be issued within the allowable zoning districts listed in Chapter 2, "Project Description." All existing and proposed commercial cannabis activities would be required to obtain the above certificates and/or permits to achieve full compliance with the proposed ordinance. Because the applicants would be required to obtain necessary permits, the County would have a mechanism for control of land use changes.

The Humboldt County Code is the regulatory device for implementing development in a manner that is consistent with the General Plan and is also more specific than the General Plan in terms of allowed uses. The proposed ordinance is intended to implement and be consistent with existing General Plan policy provisions. For example, cultivation activities associated with cannabis are similar to those of other agricultural crop production. Consequently, the proposed ordinance allows outdoor cannabis cultivation in agricultural zones that are typically associated with agricultural plan designations, such as the Agricultural Exclusive (AE) and Agricultural Grazing (AG) designations. Similarly, commercial cannabis supported uses are a commercial use, and the proposed ordinance allows this type of use in commercial zones that are typically associated with designations, such as the Commercial General (CG) and Commercial Services (CS).

In addition, the Framework Plan includes policies for the protection of the environment. For instance, as described in Section 3.4, "Biological Resources," the Framework Plan includes Biological Resources Standard 3432.5, which identifies setback requirements from streams and wetlands. Cannabis activities permitted under the proposed ordinance would be required to conform to these setback requirements.

Furthermore, the proposed ordinance does not include any changes to the General Plan policies or land use designations. Because the proposed ordinance allows cannabis activities, consistent with the underlying General Plan land use designations and general plan policies protecting the environment, the project would comply with relevant plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**.

Community Plans

Within Humboldt County there are ten adopted community plans: Avenue of the Giants (adopted 1999), Carlotta-Hydesville (adopted 1985), Eureka (adopted 1995), Fortuna (adopted 1984), Freshwater (adopted 1984), Garberville-Redway-Benbow-Alderpoint (adopted 1985), Jacoby Creek (adopted 1982), McKinleyville (adopted 2002), Orick (adopted 1985), and Willow Creek (adopted 1984). These community plans each have unique land use designations, goals, policies, and implementation programs intended to implement the General Plan and provide detailed guidance on the long-term development of these areas. These community plans are included as part of the County General Plan.

The proposed ordinance is intended to implement and be consistent with existing community plans. For example, outdoor cannabis cultivation is similar to other forms of agricultural crop production, so the proposed ordinance allows outdoor cannabis cultivation in agricultural zones that are typically associated with agricultural community plan designations, such as the Agricultural Exclusive (AE) and Agricultural Suburban (AS) designations. Similarly, cannabis distribution is a commercial use, and the proposed ordinance allows this type of use in commercial zones that are typically associated with commercial community plan designations, such as the Commercial General (CG) and Commercial Services (CS) community plan designations.

In addition, community plans include policies for the protection of the environment. For instance, Section 3422 of the McKinleyville Community Plan identifies setback requirements from streams and wetlands.

Cannabis activities permitted under the proposed ordinance would be required to conform to these setback requirements.

Furthermore, the proposed ordinance does not include any changes to community plan policies or land use designations, and therefore would not conflict with community plans. Chapter 2, "Project Description," describes the commercial cannabis activities that could be permitted on various land uses within the County, including the community plan areas. Because the community plans are required to be consistent with the County General Plan, and the proposed ordinance allows cannabis activities consistent with the underlying community plan land use designations and community plan policies that protect the environment, the project would comply with relevant community plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**.

Local Coastal Plans

Six LCP coastal planning areas are located within the Humboldt County coastal zone: North Coast, Trinidad, McKinleyville, Humboldt Bay, Eel River, and South Coast. LCPs have been prepared for each of these six areas, and these plans are included as part of the County General Plan.

The proposed ordinance is intended to implement and be consistent with existing LCPs. For example, outdoor cannabis cultivation activities are similar to those of other forms of agricultural crop production. Consequently, the proposed ordinance allows outdoor cannabis cultivation in agricultural zones that are typically associated with agricultural coastal plan designations, such as the AE and AG coastal plan designations. Similarly, cannabis distribution is a commercial use, and the proposed ordinance allows this type of use in commercial zones that are typically associated with commercial community plan designations, such as the CG coastal plan designation.

In addition, coastal plans include policies for the protection of the environment. For instance, Section 3.41 of the McKinleyville Area Plan identifies setback requirements from wetlands. Cannabis activities permitted under the proposed ordinance would be required to conform to these setback requirements.

Furthermore, the proposed ordinance does not include any changes to the coastal plan policies or land use designations, and therefore would not conflict with the coastal plans. Cannabis cultivation (outdoor, mixed-light, and indoor) as well as manufacturing facilities, distribution facilities, retail nursery, processing facilities, and wholesale nurseries may be permitted in the coastal zone, subject to a Zoning Clearance Certification, Special Permit, or Use Permit (see Chapter 2, "Project Description"). Because the proposed ordinance allows cannabis activities consistent with the underlying Coastal Plan land use designations and Coastal Plan policies that protect the environment, the project would comply with relevant coastal plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, this impact would be **less than significant**.

City Land Use Jurisdiction (General Plans and Spheres of Influence)

There are seven incorporated cities within Humboldt County: Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad. Each of these cities have adopted general plans that are applicable to the incorporated portions of their respective planning areas, while the County's General Plan is applicable to the city SOIs. None of the cities in the County has executed an agreement with the County pursuant to Government Code Section 56425 to ensure that development within the SOI occurs in a manner that reflects the concerns of the city and occurs in a manner that provides logical and orderly development of the area. Thus, the County has land use authority within the city SOIs.

While implementation of the proposed ordinance could result in the permitting of a commercial cannabis operation within a city's SOI that may conflict with applicable city general plan land use designations for its SOI, the proposed ordinance also includes requirements for discretionary permits for all cannabis activities within 1,000 feet of a SOI. This provides city residents and city leaders an opportunity to express their concerns to the County decision-makers at a public hearing before any cannabis activity can be approved within 1,000 feet of a SOI. It is acknowledged that commercial cannabis operations may result in physical impacts that can be considered nuisances, such as increased nighttime lighting, odors, noise, and traffic.

These issues are evaluated in Sections 3.1, "Aesthetics," 3.3, "Air Quality and Greenhouse Gas Emissions," 3.10, "Noise," and 3.12, "Transportation and Circulation," respectively.

Because the proposed ordinance would only apply to areas that are subject to County jurisdiction, the project would not conflict with city zoning ordinances intended to protect the environment. The relevant County general plan, community plan and coastal plan policies that protect the environment within the SOI of cities would be applied to all cannabis activities within SOIs. Therefore, this impact would be **less than significant**.

Airport Land Use Compatibility Plan

Proposed new development around public use airports would be subject to review by the ALUC. As described above, the ALUC uses criteria and polices set forth in the ALUCP when assessing land use compatibility. These criteria outline the types, densities, and heights of land uses permitted within each airport land use compatibility zone to provide for both safe airport operation and airport land use compatibility. In general, the project would not include development of structures tall enough to present hazards to flight nor would it create new sensitive land uses or attract dense populations. Nonetheless, because applicants would be required to comply with ALUC review requirements for development proposed within the airport land use compatibility zones, the project would not conflict with the ALUCP. Therefore, this impact would be **less than significant**.

Section 3.7, "Hazards and Hazardous Materials," provide further discussion of project compatibility with the ALUCP.

Mitigation Measures

No mitigation is required.

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3.10 NOISE

This section includes a description of acoustic fundamentals, existing ambient noise conditions in Humboldt County, and an analysis of potential short- and long-term noise impacts associated with activities that would likely result from implementation of the proposed ordinance.

Comment letters, in response to the notice of preparation for this EIR, addressed issues pertaining to noise associated with the operation of commercial cannabis facilities, including the use of generators. This is addressed in the analysis below.

3.10.1 Concepts Related to Evaluation of Noise

ACOUSTIC FUNDAMENTALS

Prior to discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is needed to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determines the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB).

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz, and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are A-weighted decibels. Table 3.10-1 describes typical A-weighted noise levels for various noise sources.

Table 3.10-1 Typical A-Weighted Noise Levels

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	— 110 —	Rock band
Jet fly-over at 1,000 feet	— 100 —	
Gas lawn mower at 3 feet	— 90 —	
Diesel truck at 50 feet at 50 miles per hour	— 80 —	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, daytime, Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	— 60 —	
Quiet urban daytime	— 50 —	Large business office, Dishwasher next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime	— 30 —	Library, Bedroom at night
Quiet rural nighttime	— 20 —	
	— 10 —	Broadcast/recording studio
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: Caltrans 2013b: Table 2-5

Human Response to Changes in Noise Levels

As discussed above, the doubling of sound energy results in a 3-dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher and lower frequency sounds of the same magnitude with less intensity (Caltrans 2013b:2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people are able to begin to detect sound level increases of 3 dB in typical noisy environments. Further, a 5-dB increase is generally perceived as a distinctly noticeable increase, and a 10-dB increase is generally perceived as a doubling of loudness (Caltrans

2013b:2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3-dB increase in sound would generally be perceived as barely detectable.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2006:7-3, Caltrans 2013b:6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2006:7-4; Caltrans 2013a:7). This is based on a reference value of 1 micro inch per second.

The typical background vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2006:7-8; Caltrans 2013a:27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2006:7-5).

Vibrations generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment.

Table 3.10-2 summarizes the general human response to different ground vibration-velocity levels.

Table 3.10-2 Human Response to Different Levels of Ground Noise and Vibration

Vibration-Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

Notes: VdB = vibration decibels referenced to 1 µ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2006:7-8

Common Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

Equivalent Continuous Sound Level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that actually occurs during the same period (Caltrans 2013b:2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period.

Maximum Sound Level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013b:2-48; FTA 2006:2-16).

Day-Night Level (L_{dn}): L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10-dB "penalty" applied to sound levels occurring during nighttime hours between 10 p.m. and 7 a.m. (Caltrans 2013b:2-48; FTA 2006:2-22).

Community Noise Equivalent Level (CNEL): CNEL is the energy average of the A-weighted sound levels occurring over a 24-hour period, with a 10-dB penalty applied to sound levels occurring during the nighttime hours between 10 p.m. and 7 a.m. and a 5-dB penalty applied to the sound levels occurring during evening hours between 7 p.m. and 10 p.m. (Caltrans 2013b:2-48).

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors:

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuate rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels, as wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also effect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013b:2-41; FTA 2006:5-6, 6-25). Barriers higher than the line of sight provide increased noise reduction (FTA 2006:2-12). Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation (FTA 2006:2-11).

3.10.2 Regulatory Setting

FEDERAL PLANS, POLICIES, REGULATIONS, AND LAWS

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was originally established to coordinate Federal noise control activities. In 1981, EPA administrators determined that subjective issues such as noise would be better addressed at more local levels of government. Consequently, in 1982 responsibilities for regulating noise control policies were transferred to State and local governments. However, documents and research completed by the EPA Office of Noise Abatement and Control continue to provide value in the analysis of noise effects.

LOCAL

Humboldt County General Plan

The *Humboldt County General Plan* (1998) contains the following standards regarding noise that may be applicable to the project:

Policies

- 5. Noise

A. Existing and potential incompatible noise levels in problem areas should be reduced through operational or source controls where the County has responsibility for such controls.

B. Existing and potential incompatible noise levels in problem areas should be reduced through land use planning, subdivision review, building code enforcement, and other administrative means.

C. The land use noise compatibility matrix (Figure 3-2 [as shown in Table 3.10-3 of this Draft EIR]) shall be utilized as the standard for General Planning and zoning purposes.

Table 3.10-3 Land Use/Noise Compatibility Standards

Land Use Category	Maximum interior exposure, L_{dn}[1]	Land Use Interpretation for L_{dn} Value			
		Clearly Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential-Single Family, Duplex, Mobile Homes	45	Under 55	55-60	60-75	Above 75
Residential-Multiple Family, Dormitories, etc.	45	Under 55	55-60	60-75	Above 75
Transient Lodging	45	Under 65	65-70	70-80	Above 80
School Classrooms, Libraries, Churches	45	Under 60	60-65	65-75	Above 75
Hospitals, Nursing Homes	45	Under 60	60-65	65-75	Above 75

Table 3.10-3 Land Use/Noise Compatibility Standards

Land Use Category	Maximum interior exposure, L_{dn}[1]	Land Use Interpretation for L_{dn} Value			
		Clearly Acceptable	Normally Acceptable	Normally Unacceptable	Clearly Unacceptable
Auditoriums, Concert Halls, Music Shells	35	Under 50	50-60	60-70	Above 70
Sports Arenas, Outdoor Spectator Sports	N/A	Under 60	60-65	65-75	Above 75
Playgrounds, Neighborhood Parks	N/A	Under 55	55-65	65-75	Above 75
Golf Courses, Riding Stables, Water Rec., Cemeteries	N/A	Under 60	60-70	70-80	Above 80
Office Buildings, Personal, Business and Professional	50	Under 65	65-75	75-80	Above 80
Commercial-Retail, Movie Theaters, Restaurants	50	Under 65	65-75	75-80	Above 80
Commercial-Wholesale, Some Retail, Ind., Mfg., Util.	N/A	Under 70	70-80	80-85	Above 85
Manufacturing, Communications (Noise Sensitive)	N/A	Under 55	55-70	70-80	Above 80
Livestock Farming, Animal Breeding	N/A	Under 60	60-75	75-80	Above 80
Agriculture (except Livestock), Mining, Fishing	N/A	Under 75	Above 75	N/A	N/A
Public Right-of-Way	N/A	Under 75	75-85	Above 85	N/A
Extensive Natural Recreation Areas	N/A	Under 60	60-75	75-85	Above 85

Notes: N/A=Not applicable

[1] Due to exterior sources.

Source: Humboldt County 2015

3.10.3 Environmental Setting

PREDOMINANT NOISE SOURCES

The predominant sources of noise in Humboldt County include highway and roadway traffic; aircraft in the vicinity of airports; railroad traffic along the Northwestern Pacific right-of-way; noise from industrial activities such as lumber mills; and power plants in Blue Lake, Fairhaven, and Scotia (Humboldt County 2017). Noise levels along County roads that provide access to the more sparsely populated areas are generally low because these roads do not carry high volumes of traffic.

EXISTING NOISE-SENSITIVE LAND USES

Noise-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels, and because this is where people sleep. Parks, schools, historic sites, cemeteries, and recreation areas are also generally considered sensitive to increases in exterior noise levels. Places of worship, and other similar places where low interior noise levels are of great importance, are also considered noise-sensitive. Within Humboldt County, all of the aforementioned types of noise-sensitive land uses are present.

3.10.4 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The environmental analysis in this Draft EIR is general in nature and does not evaluate noise impacts of specific commercial cannabis construction and operation sites. Instead, the analysis focuses on the worst-case noise-related impact that could occur from construction and operation of new commercial cannabis operations and modifications to existing cannabis operations that would meet the requirements of the proposed ordinance. Thus, attention is given to the limitations and restrictions imposed by the proposed ordinance regarding the types, location, and intensity of noise-generating activity. This analysis includes the consideration of the use of generators.

Impacts were determined based on methods and reference noise levels from the Federal Transit Administration's Guide on Transit Noise and Vibration Impact Assessment (FTA 2006:12-6) and the Federal Highway Administration's (FHWA's) Roadway Construction Noise Model User's Guide (FHWA 2006). Reference levels are noise levels for specific equipment or activity types that are well documented and use of them is common practice in the field of acoustics.

Due to the countywide scope of this Draft EIR and because the exact locations of new commercial cannabis operations sites are not known at time, modeling of roadway-specific noise levels to assess potential long-term (operation-related) noise impacts from potential project-generated increases in traffic would not yield meaningful results and is not considered feasible. To determine impacts, likely scenarios that could potentially increase traffic generated by new commercial cannabis and processing facilities under the proposed ordinance were evaluated. The traffic noise analysis focusses on whether vehicle trips associated with the operation of grow sites in the county could potentially result in a noticeable increase in roadside noise levels (i.e., 3 dB or greater).

THRESHOLDS OF SIGNIFICANCE

Based on Appendix G of the State CEQA Guidelines, the proposed ordinance would result in a potentially significant noise impact if it would:

- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- expose people residing or working in the project area to excessive noise levels;
- expose persons to or generate excessive ground vibration or noise levels;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; and/or
- for a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

ISSUES NOT DISCUSSED FURTHER

Implementation of the proposed ordinance would not result in the development of new residential land uses or other types of noise-sensitive receptors. Additionally, the proposed ordinance would not result in the development of new residential land uses near private air strips or public commercial airports in Humboldt County. Thus, airport noise impacts are not discussed further in this Draft EIR.

No major sources of vibration would be potentially constructed as a result of the proposed ordinance and construction of any future commercial cannabis operations would not be expected to include vibration-intensive activities such as blasting or pile driving. In addition, adoption of the proposed ordinance would not result in the location of new vibration-sensitive receptors to existing sources of vibration. Thus, the project would not result in excessive vibration or vibration levels such that any receptors would be adversely affected and vibration-related impacts are not discussed further in this Draft EIR.

IMPACT ANALYSIS

Impact 3.10-1: Short-term, construction-related noise.

Construction of new commercial cannabis operations in the County that may occur under the proposed ordinance would involve the use of heavy off-road equipment that would increase noise levels at nearby land uses. All construction-generated noise would be temporary; however, nearby noise-sensitive receptors could be exposed to excessive noise levels during construction. Therefore, this impact would be **potentially significant**.

Adoption of the proposed ordinance is expected to result in the development of 1,012 new commercial cannabis cultivation sites and 108 new commercial cannabis non-cultivation operations (e.g., testing, processing, manufacturing, and retail nurseries). The operational characteristics of existing commercial cannabis operations are assumed to continue for cannabis operations in the County. Typical facilities that would be constructed on new cannabis cultivation sites could include ancillary nurseries between 200 and 400 square feet in size, roadway improvements, hoop houses, equipment and material storage structures, and indoor cultivation structures between 5,000 and 22,000 square feet in size. New commercial cannabis non-cultivation uses would involve the use of existing buildings or the construction of new buildings in areas zoned for agricultural, commercial, and industrial uses.

The initial development of new commercial cannabis cultivation sites and their ancillary facilities may require earthwork and use of heavy equipment, which has the potential to result in a temporary increase in noise levels in the vicinity of each new site. Generally, the intensity of construction activity for new commercial cannabis cultivation sites would be similar to that of agricultural development, residential renovation, or building addition project. Establishment of the new cultivation sites may involve the use of off-road construction equipment for grubbing and removal of existing vegetation, breaking ground, initial plowing, terracing, and/or grading to establish a gravel pad or foundation, and lifting supplies and building materials. It is assumed that new commercial cannabis non-cultivation sites may also require earth-moving construction activities (tree removal, vegetation clearing, grading) at a similar scale and intensity to that of new cannabis cultivation sites.

It is anticipated that one piece of heavy off-road equipment would be used at a time (e.g., loader, grader, scraper, dozer, or something with a comparable engine size and power rating). A single unit of these equipment types generates a reference noise level of 85 dB L_{max} at a distance of 50 feet (FHWA 2006:3). Applying a usage factor (percentage of time during a construction noise operation that a piece of construction equipment is operating at full power) of 0.4 based on Federal Highway Administration guidance (FHWA 2006) would result in a predicted noise level of 81 dB L_{eq} at a distance of 50 feet.

At a distance of 30 feet, which is how far inside the property line the proposed ordinance would require the cultivation site to be located, the noise level produced by the construction equipment would be approximately 87 dB. The proposed ordinance would also require that each cultivation site be set back at least 300 feet from residences on neighboring properties, and 600 feet from school bus stops, schools, churches or other place of religious worship, public parks, or tribal cultural resources; receptors considered sensitive to increases in exterior noise levels. The noise level generated by the construction equipment would attenuate to approximately 61 dB at 300 feet and 53 dB at 600 feet, through distance alone. Additional noise reduction would be provided by any intervening topography, dense stands of trees, or manmade structures located

between the cultivation site and off-site receptors. However, the conservative approach of not factoring in any additional noise attenuation that these intervening factors may provide was taken.

It is anticipated that construction activity would last approximately four weeks at each cultivation site, and the use of heavy off-road equipment at a single new cultivation site would occur for approximately two weeks. The Humboldt County Code does not contain any noise standards or noise-exemption time periods related to construction activity. Therefore, the County of Humboldt land use/noise compatibility interior standards are used for the purposes of the construction noise analysis. The hours during which construction equipment would operate is unknown, thus, it is conservatively assumed that construction could occur throughout the daytime and nighttime hours (even though nighttime construction is atypical in the construction industry).

Assuming the average exterior-to-interior noise level reduction of 15 dB provided by wood frame buildings (Humboldt County 1988: 109), the maximum interior L_{dn} as a result of construction activities in nearby residences (at 300 feet) would approach 52 dB, thus, exceeding the Humboldt County land use/noise compatibility interior standard of 45 dB L_{dn} for residential land uses.

Assuming the average exterior-to-interior noise level reduction of 15 dB provided by wood frame buildings (Humboldt County 1988: 109), the maximum L_{dn} as a result of construction activities in the interior of nearby schools, churches, or other place of religious worship (at 600 feet) would be approximately 44 dB, below the Humboldt County land use/noise compatibility interior standard of 45 dB L_{dn} for these land uses.

The construction would be temporary in nature, and the 600-foot setback requirement for schools, churches, or other place of religious worship in the proposed ordinance would prevent these sensitive land uses from being exposed to excessive noise levels. However, nearby residential land uses would be subject to a 300-foot setback in the proposed ordinance, and thus, could be exposed to excessive noise levels during construction. This impact would be **potentially significant**.

Mitigation Measure 3.10-1: Implement construction-noise reduction measures.

The County shall include the following construction noise requirement for new commercial cannabis operations and modifications to existing commercial cannabis operations in the ordinance:

- All outdoor construction activity and use of heavy equipment outdoors shall take place between 7:00 a.m. and 6:00 p.m., Monday through Friday, and between 9:00 a.m. and 6:00 p.m. on Saturday and Sunday.

Significance after Mitigation

Implementation of Mitigation Measures 3.10-1 would provide substantial reductions in levels of nighttime construction noise exposure at residential receptors by ensuring construction would not occur during the more noise-sensitive nighttime hours. Assuming no construction during nighttime hours (6:00 p.m. to 7:00 a.m.) and the average exterior-to-interior noise level reduction of 15 dB provided by wood frame buildings (Humboldt County 1988: 109), the maximum L_{dn} in the interior of nearby residential properties at 300 feet would be approximately 43 dB, below the County of Humboldt land use/noise compatibility interior standard of 45 dB L_{dn} for these land uses. Thus, this impact would be reduced to a **less-than-significant** level.

Impact 3.10-2: Long-term non-transportation operational noise.

Commercial cannabis operations in the County that may occur under the proposed ordinance could generate increased noise levels as a result of the use of specialized, mechanized equipment, as determined necessary for individual sites. However, the use of mechanized equipment would be temporary and periodic in nature and adjacent land uses would not be exposed to noise levels that exceed noise standards in the Humboldt County General Plan land use/noise compatibility standards. Additionally, the setback requirements in the proposed ordinance would prevent sensitive uses from being exposed to excessive noise levels during each harvest. Therefore, this impact would be **less than significant**.

Noise levels associated with the operation of a cannabis cultivation sites (i.e., off-road utility vehicles, generators, and trimming tools) would be highest during the harvest phases. The number of harvests would vary with the method of cultivation used. Discrete harvests are assumed to occur over a four-week period, and would require up to 15 workers during that time. The largest harvest period is the fall harvest when outdoor, mixed-light, and indoor are harvesting in the same season. Additionally, outdoor harvesting activity would occur during the daytime for outdoor and mixed-light cultivation sites.

The use of large tractors on cultivation sites is not anticipated, but an off-road utility vehicle (e.g., Gator™) may be used to move equipment or move harvested cannabis from the planting area to the on-site buildings for trimming and other processing. For the more remote and off-the-grid cultivation sites, and mixed-light operations that require longer periods of higher intensity lighting and increasing energy demand, generators are likely to be required. However, the permit application would include information demonstrating compliance with the noise standards, including: a site plan detailing the location of the generator, property lines, and nearby forested areas, existing ambient noise levels at the property line using current noise measurements (excluding generators) during typical periods of use, details on the design of any structure(s) or equipment used to attenuate noise, as well as details on the location and characteristics of any landscaping, natural features, or other measures that serve to attenuate generator noise levels at nearby property lines or habitat.

The loudest power equipment used during harvest would be motorized trimmers, if determined necessary at a particular cultivation site, for trimming cannabis plants. It is noted that generally trimming activity is conducted by hand. A mechanized trimmer generates a reference noise level of 81 dB L_{eq} at a distance of 3 feet (Berger, Neitzel, and Kladden 2015:34). This noise level is similar to the noise level generated by landscape maintenance equipment typically used at residential land uses. At a distance of 30 feet, which is how far inside the property line the proposed ordinance would require the grow site to be located, the noise level produced by trimming activity would be approximately 55 dB L_{eq}.

Assuming that trimming activity would only occur between the hours 7:00 a.m. and 6:00 p.m., operational exterior L_{dn} noise levels would be approximately 52 dB. Thus, trimming activity would result in exterior L_{dn} noise levels within the "*clearly acceptable"* range of the land use/noise compatibility standards of the Humboldt County General Plan for all land uses except for Auditoriums, Concert Halls, Music Shells for which the trimming activity noise levels would fall in the "*normally acceptable"* range.

The proposed ordinance would also require that each cultivation site be set back at least 300 feet from residences on neighboring properties, and 600 feet from school bus stops, schools, churches or other place of religious worship, public parks, or tribal cultural resources. At these distances, the exterior L_{dn} noise levels generated by the trimmer would attenuate, through distance alone, to approximately 26 dB at 300 feet and 18 dB at 600 feet; noise levels well below the Humboldt County General Plan land use/noise compatibility standards for every land use. Additional noise reduction would be provided by any intervening topography, dense stands of trees, or manmade structures located between the cultivation sites and off-site receptors.

Thus, harvesting activities at a distance of 30 feet from nearby property lines would not exceed the land use/noise compatibility standards of the Humboldt County General Plan. Additionally, the proposed ordinance would also require that each cultivation site be set back at distances from sensitive receptors that would result in attenuation of the noise level generated by the trimmer to levels well below the County General Plan land use/noise compatibility standards through distance alone.

Because harvesting activity would be temporary and periodic in nature, because adjacent land uses would not be exposed to noise levels that exceed noise standards in the County's General Plan land use/noise compatibility standards, and because the setback requirements in the proposed ordinance would prevent sensitive land uses from being exposed to excessive noise levels, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.10-3: Long-term traffic noise levels.

Commercial cannabis operations in the County that may occur under the proposed ordinance could result in increased traffic volumes on associated roadways and highways in the county, particularly during fall harvest season when the need for workers is highest. However, increased traffic volumes would not result in a noticeable increase in traffic noise (i.e., 3 dB or greater). Therefore, this impact would be **less than significant**.

Outside of the harvest season it is assumed the work at commercial cannabis operations (cultivation and non-cultivation sites) would be performed by up to four employees. During harvest season, however, additional workers would be needed at each cultivation site as noted in Chapter 2, "Project Description." As explained in Section 3.12, "Transportation and Circulation," it is conservatively assumed that each seasonal employee of new commercial cannabis cultivation operations in less remote areas would generate up to two trips per day (one round trip) during the harvest period, while it is assumed that employees of commercial cannabis operations in more remote areas would generate 0.25 trips per day during the harvest period as on-site housing would likely be provided. Additionally, it is assumed that new commercial cannabis cultivation sites would generate an additional two daily trips per site associated with the delivery of materials. This amounts to up to 32 trips per day per commercial cannabis operation in the more densely developed areas, and six trips per day per commercial cannabis operation in the less densely developed and more remote areas during the harvest period. It is conservatively assumed that the anticipated new commercial cannabis operations (i.e., 1,120 commercial cannabis operations) would be generating worker trips during the same time. Thus, these additional trips could result in an increase in traffic noise levels along affected roadways in the county.

Generally, a doubling of a noise source is required to result in an increase of 3 decibels, which is perceived as barely noticeable by humans (Caltrans 2013b:2-11). Thus, regarding traffic noise specifically, a noticeable increase in traffic noise could occur with a doubling in the volume of traffic on a roadway. Commercial cannabis operations would be dispersed throughout the county and no single commercial cannabis operation would result in a doubling of traffic volumes on local roadways. New commercial cannabis non-cultivation operations are anticipated to be clustered in the more densely developed areas where existing traffic volumes are relatively high are unlikely to generate enough trips to result in a doubling of traffic volumes along roadways that would be used to access these clusters.

Commercial cannabis operations clustered in the less developed areas of the county and simultaneously engaged in harvest operations could result in a doubling of the volume of traffic along the less-traveled roads that provide access to these remote areas. However, the more remote commercial cannabis operations in the county would typically provide on-site housing for seasonal employees working during the harvest period. Thus, operational traffic associated with new commercial cannabis operations located in the less developed areas of the county would only result in limited daily trips (three round trips per day) associated with worker trips and the delivery of materials and is not likely to result in a doubling of traffic volumes along these less-traveled roads.

For these reasons, it would not be anticipated that roadways that provide access to commercial cannabis operations would experience a doubling of traffic volumes and generate noticeable increases in traffic noise (i.e., 3 dB or greater) in the county or expose noise-sensitive receptors to excessive traffic noise levels. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.11 PUBLIC SERVICES

This section discusses public service resources in Humboldt County; describes the applicable federal, state, and local regulations and policies related to public services; describes the existing conditions of public services within the area; and analyzes the potential near- and long-term impacts from implementation of the proposed ordinance on public services.

Comments received in response to the notice of preparation (NOP) expressed concern about impacts associated with safety, enforcement of the proposed ordinance regulations, and financial impacts to law enforcement resources.

3.11.1 Regulatory Setting

FEDERAL

No federal laws, regulations, or programs were identified related to public services and the proposed ordinance. Several federal agencies have jurisdiction over law enforcement and fire protection on federal lands in California, related to unpermitted cultivation operations. The U.S. Forest Service (USFS) responds to fires in National Forests as well as to fires on other lands in support of other federal, state, and local agencies (USFS 2017). Because cannabis use and cultivation remains illegal under federal law, several federal agencies investigate and prosecute cannabis use, cultivation, and distribution on federally managed lands. Federal agencies involved in law enforcement in California include the USFS, whose Law Enforcement and Investigations (LEandI) division conducts law enforcement operations on federal lands, including eradication of unpermitted cannabis cultivation on National Forest lands. Both the Bureau of Land Management (BLM) and the National Park Service (NPS) law enforcement programs target cannabis cultivation on federally managed lands.

In addition to law enforcement on federal lands, there are federal agencies that investigate and prosecute cannabis business activities generally. The Federal Bureau of Investigation (FBI), as the nation's foremost law enforcement agency, also works in California to investigate federal crimes and crimes that occur across state lines, including drug trafficking. The U.S. Drug Enforcement Administration (DEA) enforces federal controlled substances laws and regulations, including enforcement activities related to cannabis.

STATE

California Health and Safety Code

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code. This includes regulations for building standards (as also set forth in the California Building Code), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with California Code of Regulations (CCR), Title 8 Sections 1270 "Fire Prevention" and 6773 "Fire Protection and Fire Equipment," the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance and use of all firefighting and emergency medical equipment.

California Code of Regulations

The California Building Standards Code, Title 24 of the California Code of Regulations, serves as the basis for the design and construction of buildings in California. The California Building Code (Title 24, Part 2) covers all aspects of building design and required safety features for all 1 types of buildings, including fire protection systems, fire and smoke protection features, means of egress, and structural design and materials. Title 24, Part 3 is the Electrical Code, which contains standards for electrical systems, including safety features such as overcurrent protection, surge arresters, and proper wiring methods.

California Fire Code

The California Fire Code is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The California Fire Code establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings. The California Fire Code also contains requirements related to emergency planning and preparedness, fire service features, building services and systems, fire resistance–rated construction, fire protection systems, and construction requirements for existing buildings, as well as specialized standards for specific types of facilities and materials. Structures used for indoor cultivation of cannabis and cannabis-supportive uses (e.g., manufacturing, distribution, processing, microbusinesses, and retail nurseries) would be subject to applicable sections of the California Fire Code.

Emergency Response/Evacuation Plans

The State of California passed legislation authorizing the Office of Emergency Services (OES) to prepare a Standard Emergency Management System (SEMS) program, which sets forth measures by which a jurisdiction should handle emergency disasters. Non-compliance with SEMS could result in the State withholding disaster relief from the non-complying jurisdiction in the event of an emergency disaster. The preservation of life, property and the environment is an inherent responsibility of local, state, and federal government. The *County of Humboldt Emergency Operations Plan* (EOP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and human-caused disasters in or affecting Humboldt County. The EOP is designed to establish the framework for implementation of the California SEMS and the National Incident Management System (NIMS) for Humboldt County.

LOCAL

Humboldt County Master Fire Protection Plan

In 2013, the Humboldt County Board of Supervisors approved the update to the Humboldt County Community Wildfire Protection Plan (CWPP), and certified that the updated plan meets all the standards listed under the Healthy Forests Restoration Act (HFRA). is intended to serve as the guiding document for reducing the risk of wildfire to Humboldt County communities, and to serve the following purposes:

- prioritize wildfire mitigation projects to inspire future action and increase competitive advantage for funding;
- educate residents regarding their level of risk to wildfire, how to reduce structural ignitability and other fire hazards in the Home Ignition Zone, and what to expect from fire protection service;
- encourage Humboldt County residents to take responsibility for reducing wildfire risk to their homes and properties;
- build capacity of local fire organizations—both fire departments and Fire Safe Councils (FSCs);
- coordinate the activities of the local, state, tribal, and federal entities charged with fire protection and management responsibilities;

- facilitate the incorporation of planning for fire-safe/Firewise® communities into the County land-use planning process; and
- identify funding sources to support organizations that provide fire prevention and protection services.

North Coast Emergency Medical Services Agency

North Coast Emergency Medical Services Agency, which is a Joint Powers Authority governed by a Board consisting of one supervisor from each of the three-member counties, directs the emergency management services (EMS) system on behalf of Humboldt County. The EMS system consists of the advanced life support and transport provided by the ambulance companies listed below, first responder services provided by the fire departments and other agencies within the County and base hospitals that provide medical control and emergency department receiving facilities. Humboldt County Code Title V, Health and Safety, Division 5, Emergency Medical Services System, establishes the standards for ambulance permits and service rates, both of which are approved by the Humboldt County Board of Supervisors.

Humboldt County Emergency Operations Plan

The *Humboldt County Emergency Operations Plan* (EOP) is designed to establish the framework for implementation of the California Standardized Emergency Management System and the National Incident Management System for Humboldt County, which is located within the California Office of Emergency Services (Cal OES) Mutual Aid Region II. The EOP is intended to facilitate multiagency and multijurisdictional coordination, particularly between Humboldt County and local governments, including special districts and state agencies, in emergency operations.

Humboldt County General Plan

Chapters 2, 3, and 4, "Land Use and Development," "Hazards and Resources," and "Public Services and Facilities," of the *Humboldt County General Plan* contain policies intended to reduce impacts associated with public services, such as fire and police protection. The following policies may be applicable to the proposed regulations.

Hazards and Resources

Sections 4710 and 4720 of the Humboldt County General Plan contain the following relevant goals and policies related to fire protection (Humboldt County, 1984):

> Goal 1: To assure adequate fire protection for new development.
>
> Policy 1: Proposed development shall be adequately serviced by water supplies for fire protection or shall have a letter from an appropriate fire protection agency indicating that adequate fire protection can be provided.
>
> Policy 2: Encourage clustered development to provide for more localized and effective fire protection measures.

The Humboldt County General Plan does not contain any relevant goals or policies related to emergency medical services

3.11.2 Environmental Setting

FIRE PROTECTION

Local fire departments provide a range of services, including emergency medical services (approximately 80 percent of calls for service include emergency medical interventions), response to traffic collisions and auto extrication, technical rescue (rope, swift water, collapse, and confined space rescue), hazardous materials, and public assistance responses.

There are 39 fire stations providing fire protection to unincorporated communities and cities in Humboldt County including: one County Service Area (CSA); seven Community Service Districts (CSDs); 18 Fire Protection Districts (FPDs), one Resort Improvement District (RID), one city fire department, one Joint Powers Authority that is comprised of a city and an FPD, and 12 fire companies in unincorporated towns not associated with local government agencies, including the Hoopa and Yurok Volunteer Fire Departments (see Exhibit 3.11-1). The City of Trinidad has its own fire department and there are state, federal, and tribal fire departments that provide seasonal wildland fire protection that also work in cooperation with local fire departments.

The County's larger population centers of Eureka and Arcata/McKinleyville have fire departments with paid staff and multiple stations. Fire districts in Blue Lake, Shelter Cove (RID No. 1) and Fortuna have recently added paid Chiefs to better handle administrative and incident management responsibilities as well to address the planning and response needs of their communities. Other communities typically have one station staffed only by volunteers. The smallest communities have the most limited resources, often relying on community contributions and previously used equipment to provide service.

The CAL FIRE Humboldt–Del Norte Unit also provides fire dispatch services year-round under contract to Humboldt County and the Humboldt County Fire Dispatch Co-op.

Approximately 1,900 square miles of the County are served by local fire departments; nearly 40 percent of that area is located within the jurisdictional boundaries of a local agency. Local agencies serve, on average, response areas that are eight times as large as their jurisdictional boundaries. Local agencies serve approximately 637 square miles outside their district boundaries, and volunteer fire companies serve approximately 560 square miles.

Public Resources Code Sections 4125 to 4137 establish that CAL FIRE has the primary financial responsibility of preventing and suppressing fires within State Responsibility Areas (SRAs). CAL FIRE also has responsibility for enforcement of Fire Safe Standards as required by Public Resources Code 4290 relating to road standards for fire equipment access; standards for signs identifying streets, roads, and buildings; minimum private water supply reserves for emergency fire use; fuel breaks and greenbelts. County Code Title III, Division 11 - Fire Safe Regulations, establishes local alternative standards as authorized by Section 4290 of the Public Resources Code relating to the future design and construction of structures, subdivisions and developments in SRAs.

EMERGENCY SERVICES

Fire departments and ambulance companies are dispatched to medical calls simultaneously. North Coast Emergency Medical Services Agency is a Joint Powers Authority governed by a Board consisting of one supervisor from each north coast county: Del Norte, Humboldt, and Lake County. The agency directs the emergency management services (EMS) system on behalf of Humboldt County. The EMS system consists of the advanced life support and transport provided by various ambulance companies, first responder services provided by the fire departments and other agencies within the County and base hospitals that provide medical control and emergency department receiving facilities. Ambulance service within Humboldt County is provided by the Arcata/Mad River Ambulance, Hoopa Ambulance, City Ambulance of Eureka, and the Southern Trinity Area Rescue (STAR) (Humboldt County 2017a).

Community Emergency Response Teams (CERT) are active in Eureka, Arcata, Eel River Valley/Fortuna, Blue Lake, Hoopa, Shelter Cove, Whitethorn, and at Humboldt State University. CERT programs are independently managed by various agencies and entities. Basic CERT training includes fire prevention and suppression, light search and rescue, disaster medical operations, and ICS/team organization. CERT members are registered Disaster Service Workers and can assist their communities in an emergency, augmenting limited local resources. California Volunteers currently provides limited support, primarily in the form of training materials and equipment for new members, and teams otherwise cover their own expenses. The Humboldt CERT Coalition has been established to combine training efforts and maximize limited local resources (Humboldt County 2015).

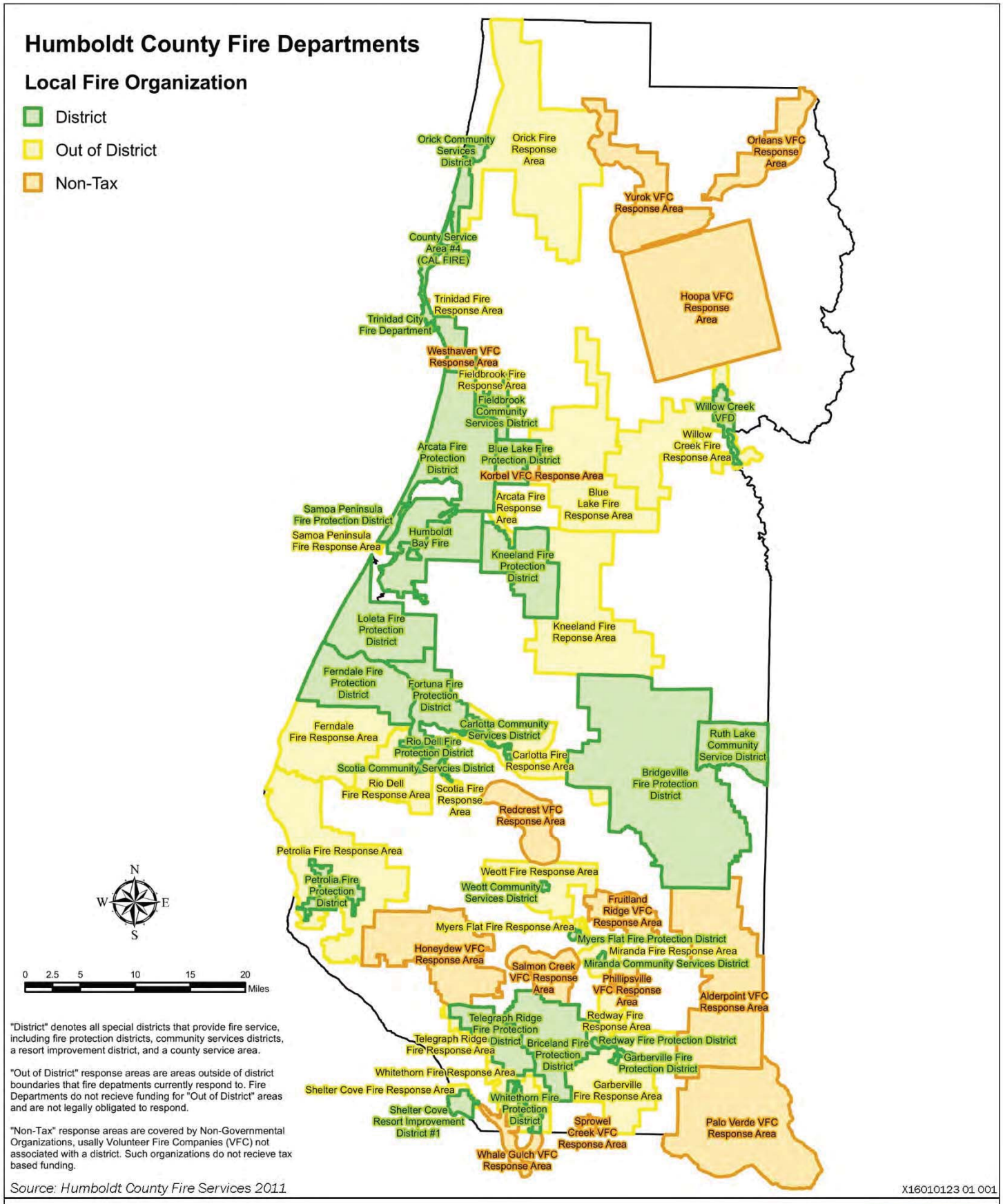

Exhibit 3.11-1 **Fire Protection Service Providers**

POLICE PROTECTION

Law enforcement in Humboldt County is provided by the California Highway Patrol (CHP), California State Park Rangers, the Humboldt County Sheriff's Office, City Police, and Bureau of Indian Affairs Police. In addition, Code Enforcement assists the sheriff's department in carrying out police protection duties (see Exhibit 3.11-2).

Humboldt County Sheriff's Office

The Humboldt County Sheriff's Office provides public safety services to the citizens and visitors of Humboldt County. The Sheriff's Department also includes correctional facilities, County Coroner's Office, and animal control. Sheriff's Office substations are in Garberville, McKinleyville, and within the Trinity River Division (Humboldt County 2017b). The Sheriff's Office has provided estimates of response times for service calls originating in communities within the County as part of the Community Services and Infrastructure Technical Report process. Response times for service calls for over half of the unincorporated communities is 10 minutes or less, and those for some portions of the County can reach 50 minutes because of the longer travel distances, varied topography, and available resources.

California Highway Patrol

The California Highway Patrol provides uniform traffic law enforcement throughout the state. The primary purpose of the CHP is to assure safe, convenient, and efficient transportation of people and goods on the highway system. There are three CHP offices located in Humboldt County, including Arcata, Redway, and Weaverville (State of California 2017).

California State Park Peace Officers

California State Park Peace Officers, or Rangers, carry out law enforcement and visitor service functions in State Parks. State Park officers have full peace officer powers pursuant to Penal Code Section 830.2, and perform a full range of peace officer duties and responsibilities. Duties include but: patrol, issuing citations, writing reports, physical arrests, conducting investigations, and providing emergency medical aid (CSP 2017). California State Parks in Humboldt County include Grizzly Creek Redwoods State Park, Humboldt Lagoons State Park, Patrick's Point State Park, Humboldt Redwoods State Park, among others.

City Police

The City of Blue Lake and Trinidad contract with the Humboldt County Sheriff's Office for police services and to provide police coverage within their communities. While the remaining cities within Humboldt County provide police protection services within their respective jurisdictional boundaries, through mutual aid agreements, they are available to assist the Humboldt County Sheriff's Office, providing a variety of public safety services countywide.

Bureau of Indian Affairs Police

The Bureau of Indian Affairs Police (BIA Police) is a branch of law enforcement under the U.S. Bureau of Indian Affairs. The U.S. BIA works to serve Indian tribes and reservations that do not have their own form of police enforcement or organizations. BIA police services are provided through the Office of Justice Services Division of Law Enforcement, which grants the police officers power to enforce federal law relating to crimes committed within or involving a Native American community. If consent is given by Native American tribes, BIA officers may enforce tribal law as well (OJS 2017).

Code Enforcement

Code enforcement responsibilities are split throughout the County. Each County department has its own code enforcement process to attempt to administratively resolve code violations. If not successful, the departments refer the cases to the Code Enforcement Unit (CEU) within the County Counsel's office. The CEU pursues administrative hearings for civil abatement, civil penalties, or court action for enforcement.

Exhibit 3.11-2 **Law Enforcement Facilities**

3.11.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The analysis of potential impacts to public services resources resulting from implementation of the proposed ordinance is based on the data review described in Section 3.11.1, "Environmental Setting."

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact related to public services if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
  - fire protection,
  - police protection,
  - schools,
  - parks, and
  - other public facilities.

ISSUES NOT DISCUSSED FURTHER

Impacts associated with implementation of the proposed ordinance would establish a permitting process for commercial cannabis operations in the unincorporated area of the County. As identified in Chapter 2, "Project Description," cannabis operations provide minimal full-time (two to four employees per facility) and would not induce substantial population growth that would trigger the need for new or expanded park and school facilities. Thus, no impacts to these resources would occur.

IMPACT ANALYSIS

Impact 3.11-1: Result in substantial adverse physical impacts associated with the need for new or physically altered fire protection facilities.

Commercial cannabis operations and production that would result with implementation of the proposed ordinance could increase the demand for fire protection services, but because of the nature of the activities would not trigger the need for new or altered fire protection facilities. Compliance with existing building, electrical, and fire code regulations as well as roadway access performance standards set forth in the proposed ordinance would provide a sufficient level of fire prevention and access such that fire protection services and response times would not be substantially affected. Thus, fire protection service impacts and facility needs would be **less than significant**.

The illegal, unpermitted cultivation of cannabis is currently occurring throughout the County and has created fire hazards because of failure to comply with state and local regulations related to building, electrical, and fire regulations (e.g., CCR Title 14; CCR Title 24, Part 2 and 3). This condition adversely affects public services, particularly fire protection, given that cultivation often occurs in remote and wooded areas of the county. Indoor cannabis cultivation typically involves the use of high intensity grow lights, as well as various other pieces of equipment (e.g., water pumps, humidity control, temperature control), which can create a large electrical load. If the load exceeds the system capacity (e.g., as may occur in a building with outdated

or inadequate wiring), it could result in an electrical fire (California Department of Food and Agriculture 2017:4.11-11). Additionally, outdoor cultivation could involve the storage and use of flammable materials and power equipment that would also generate fire risk.

Commercial cannabis operations under the proposed ordinance would be required to meet applicable building and electrical codes. As discussed in Section 3.7, "Hazards and Hazardous Materials," permitted commercial cannabis operations would be subject to the California Fire Code. Title 14 of the California Code of Regulations (CCR) sets forth development standards for emergency access, fuel modification, setbacks, signage, and water supply. Additionally, Humboldt County applies standards to proposed development within the State Responsibility Area (SRA) to reduce the risk of fire. These standards are a locally adopted alternative version of the state's SRA Fire Safe Regulations (Humboldt County Code Title III, Division 11) as authorized by Section 4290 of the Public Resources Code, and have been approved by CAL FIRE as meeting or exceeding state regulations.

There is no information or evidence to suggest that the proposed ordinance would increase fire protection needs as compared to baseline conditions. A reduction in unpermitted cannabis cultivation sites and compliance with fire and electric codes may lead to improved provision of fire protection, because the locations of commercial cannabis facility sites would be known and subject to compliance inspections. In addition, there is no evidence to suggest that implementation of the proposed ordinance would increase demand such that new or additional facilities, the construction of which could cause significant environmental effects, would be required. Such requirements would need to be addressed by fire protection agencies on a case-by-case basis, and the agency undertaking the development of any new or expanded fire protection facilities would be required to comply with CEQA to address potential environmental impacts of new fire station and facilities. This impact would be **less-than-significant.**

Mitigation Measures

No mitigation is required.

Impact 3.11-2: Result in substantial adverse physical impacts associated with the need for new or physically altered law enforcement facilities.

Commercial cannabis production and operation under the proposed ordinance would not require increased law enforcement services that would result in the need for new or altered facilities. Potential impacts related to law enforcement services would be **less than significant**.

Unpermitted cultivation of cannabis is currently occurring throughout Humboldt County. Like fire protection services, this condition has adversely affected law enforcement services, given that cultivation often occurs in remote, difficult-to-access areas of the county. Where cannabis has been legalized for recreational use in Colorado, dispensaries have been subject to criminal activities, such as robbery and burglary attempts (California Department of Food and Agriculture 2017). While these events may be driven by many case- and site-specific factors, cannabis continues to be a valuable commodity and therefore a target for potential crime.

The proposed ordinance requires that commercial cannabis operations submit and implement a security plan that identifies specific security measures. Such measures may include security cameras, watch dogs, perimeter fencing, gated access, and on-site resident caretakers. Implementation of the project would also require that applicants for cannabis cultivation licenses comply with all state and local regulations and ordinances. Permitted commercial cannabis operations would be inspected annually. Violation of the requirements and performance standards of the proposed ordinance, including failure to obtain and maintain in good standing with a required clearance certificate or permit, would be considered a public nuisance and unlawful and subject to injunction, abatement, or any other administrative, civil, or criminal remedy available to the County under the applicable state and county laws.

The proposed ordinance would allow the permitting of "microbusinesses." Microbusinesses are commercial cannabis operations that allow for combined cultivation, manufacturing, wholesale distribution, sales, and on-site consumption uses on a single site. Performance standards under the proposed ordinance would require provision of site plan and operations plan that would demonstrate compliance with limitations and restrictions regarding on-site in compliance with Health and Safety Code Section 11362. The Adult Use of Marijuana Act identifies that the Department of the California Highway Patrol will establish and adopt protocols to determine whether a driver is operating a vehicle while impaired for the use of cannabis. As under existing conditions, the California Highway Patrol would be responsible for enforcement of moving vehicle violations in the County related to impaired driving.

While some crime associated with licensed cannabis cultivation activities is likely to continue, there is no evidence to suggest that the proposed ordinance would increase law enforcement needs as compared to baseline conditions. It is reasonable to assume that demand for law enforcement services may decrease because many cultivation operations would become permitted, cease to be illicit, and would engage in coordination and cooperation with law enforcement authorities. In addition, there is no evidence to suggest that implementation of the proposed ordinance would increase demand for law enforcement to such a degree that new or additional facilities, the construction of which could cause significant environmental effects, would be required. Such requirements would need to be addressed by law enforcement agencies on a case-by-case basis, and the agency undertaking the development of any new or expanded facilities would be required to comply with CEQA to address potentially significant impacts. The revenues from Humboldt County Commercial Cannabis Cultivation excise tax may in part be used to provide additional law enforcement resources to address enforcement against unpermitted cannabis operations, but no specific plans or staffing level have been developed. Whether there would be an impact from increased services is speculative at this time. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

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3.12 TRANSPORTATION AND CIRCULATION

This section describes the applicable federal, state, and local regulations and policies related to transportation and circulation; discusses the existing roadway network and transportation facilities in the county; describes existing transportation and circulation conditions within the county; and analyzes the potential impacts from project activities on transportation and circulation.

Several comment letters pertaining to transportation and circulation were received in response to the notice of preparation (NOP) (see Table 1-1 and Appendix A). Many of the comments expressed concern about potential impacts associated with increased traffic on County roadways, truck traffic, adequacy of existing roadways to accommodate increases in traffic, and safety.

3.12.1 Regulatory Setting

FEDERAL

There are no federal laws or regulations addressing transportation and circulation that are relevant to the project.

STATE

California Department of Transportation Concept Reports

The California Department of Transportation (Caltrans) is responsible for the planning, design, construction, operation, and maintenance of all state-owned roadways, including those in Humboldt County (County). US Route (US) 101, and State Routes (SR) 36, 96, 169, 200, 211, 254, 255, 283 and 299 are all located in the County, and are within Caltrans' jurisdiction.

Transportation Concept Reports (TCRs) have been completed by Caltrans for the state highway system serving the County. TCRs are Caltrans long range planning documents completed for each state highway route that describe the conceptual improvement options for each given transportation route or corridor. The TCRs identify existing route conditions and future needs. Each TCR includes a route summary, segment summaries, existing and forecasted travel data, route maps, and a list of planned, programmed, and needed projects for each highway over the next 20 years. TCR's identify how a highway will be developed and managed so that it delivers a targeted level of service (Concept LOS) that is feasible to attain over a twenty-year planning horizon. Concept LOS represents the minimum acceptable service conditions over the next 20 years. TCRs (previously named Route Concept Reports) for the State highways in the County and their respective Concept LOS are listed below.

- US 101 Route Concept Report (Caltrans 2002)
  - Concept LOS C on 4-lane rural segments
  - Concept LOS D on all segments in urban areas and along 2-lane rural segments
- SR 36 Route Concept Report (Caltrans 1999)
  - No Concept LOS
- SR 96 Transportation Concept Report (Caltrans 2017a)
  - Concept LOS C
- SR 169 Transportation Concept Report (Caltrans 2010a)
  - No Concept LOS

- SR 200 Abbreviated Transportation Concept Report (Caltrans 2015a)
  - No Concept LOS
- SR 211 Transportation Concept Report (Caltrans 2014)
  - No Concept LOS
- SR 254 Route Concept Report (Caltrans 2001a)
  - No Concept LOS
- SR 255 Route Concept Report (Caltrans 2001b)
  - No Concept LOS on segment from Arcata urban limits to US 101 junction
  - Concept LOS E on all other segments
- SR 283 Transportation Concept Report (Caltrans 2017b)
  - No Concept LOS
- SR 299 Transportation Concept Report (Caltrans 2010b)
  - Concept LOS C

California Department of Transportation Statewide Transportation Improvement Program

The California Statewide Transportation Improvement Program (STIP) is a multiyear, statewide, intermodal program of transportation projects that is consistent with the statewide transportation plan and planning processes, and metropolitan plans. The STIP is prepared by Caltrans in cooperation with the Metropolitan Planning Organizations and Regional Transportation Planning Agencies. The STIP contains all capital and non-capital transportation projects or identified phases of transportation projects for funding under the Federal Transit Act and Title 23 of the U.S. Code.

California Department of Transportation Interregional Transportation Improvement Program

Caltrans' five-year Interregional Transportation Improvement Program (ITIP) is prepared pursuant to Government Code 14526, Streets and Highways Code Section 164, and the California Transportation Commission's STIP Guidelines. Regional agencies work with Caltrans to identify projects that will address improvements to the interregional transportation system and improve the movement of people, vehicles, and goods between regions.

REGIONAL

Humboldt Regional Transportation Plan 2014 Update

The Humboldt County Association of Governments (HCAOG), the designated Regional Transportation Planning Agency for Humboldt County, is required by California law to adopt and submit an approved Regional Transportation Plan (RTP) to the California Transportation Commission every five years. The 2014 RTP guides transportation investments in the County over the next 20 years. The RTP includes policies and guidelines for use of federal, state, and local funding. Development of updates to the RTP is a cooperative effort between the HCAOG, Caltrans, and other stakeholders, including but not limited to Native American tribes, local transit authorities, local social service providers, and the general public.

The 2014 RTP demonstrates close ties to the Regional Transportation Improvement Program (RTIP), ITIP, STIP, the Overall Work Program, the Federal Transportation Improvement Program (FTIP), the California Transportation Plan and Interregional Blueprint, and the California Strategic Highway Safety Plan (HCAOG 2014).

The 2014 RTP provides a course for future transportation investment in the region, with the goal of building and maintaining a multi-modal, safe and efficient, balanced transportation system. The plan outlines projects for public transportation, rail and bus service, highways, county roads, local streets, bicycling and

pedestrian systems, aviation, goods movement, trails, tribal transportation, and emergency access to provide an integrated, multimodal transportation system.

2016 Regional Transportation Improvement Program

The RTIP is a 5-year program of highway, local road, transit and active transportation projects that a region plans to fund with State and Federal revenue programmed by the California Transportation Commission in the STIP. The RTIP is a program designed to implement the region's overall strategy for providing mobility and improving the transportation system as a whole. The RTIP incrementally implements the 2014 RTP, which is the long-range transportation plan for the County. Additionally, it covers multiple fiscal years and is amended frequently to reflect near term priorities and expenditures.

LOCAL

Humboldt County General Plan

The *Humboldt County General Plan* (Humboldt County 1988) contains the following policies regarding transportation and circulation that may be applicable to the project:

4231 Roads

2: Humboldt County supports improvements and maintenance of public access roads to natural resource areas designated for timber production, agriculture and mining.

3: Significant increases in traffic volumes and turning movements on and off a major expressway/freeway at high volume at grade intersections should be discouraged.

8: Encourage the development of a road system that supports an orderly pattern of land use through:

A. Using minor collector roads to provide access to higher density residential areas, local commercial facilities, neighborhood parks and schools.

B. Locating lower density residential areas with frontage onto arterial or major collector roads away from through-traffic unless sufficient mitigation measures are used.

C. Locating retail, service and industrial facilities, community centers, major recreational facilities, employment centers, and other intensive land uses near major collector, or arterial roads.

D. Improving roads to accommodate land uses served by an inappropriate road classification.

4237 Planning Process

1. Transportation decisions in urban and rural areas should be based on a comprehensive planning approach that considers at a minimum existing land uses and future land development as proposed in adopted County plans and plans of other governmental agencies.

2. Decisions to change or expand the land use of a particular area should include an analysis of the impacts to existing and/or proposed transportation facilities and services so as to minimize or avoid serious operational or economic consequences.

5. The Circulation corridor requirements shall be consistent with expected traffic volumes.

6. County roads identified by the Public Facilities Plan Maps require improvements and roadway dedications as conditions of development as specified by Minimum Corridor Standards (see the standards 4240).

7. New development shall only be approved which will not significantly create or aggravate safety, capacity or parking problems on County roads.

4240 Standards

1. The Rural Principal Arterial system consists of a connected rural network of continuous routes which have trip length and travel density characteristics indicative of substantial statewide or interstate travel.

2. The Rural Minor Arterial road system, in conjunction with the rural principal arterial system, links cities and towns above 5,000 in population and other major traffic generators, and forms an integrated network providing interstate and intercounty service.

3. Rural Connectors provide connections between the higher order system and have low-volume/long trip length characteristics.

4. The Rural Collector routes generally serve travel or primarily regional importance rather than statewide importance and constitute those routes on which (regardless of traffic volume) predominant travel distances are shorter than on arterial routes. The collector road system is subclassified into two categories:

   A. Major Collectors are spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road.

   B. Minor Collectors are spaced at intervals, consistent with population density, to collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road.

5. The Rural Local Road system serves primarily to provide access to adjacent land and accommodate travel over relatively short distances as compared to higher systems.

6. Urban Principal Arterials in conjunction with Rural Principal Arterials, provide the highest level of conventional street service to virtually all area traffic generators.

Humboldt County General Plan Update

Although yet to be formally adopted, the *Humboldt County General Plan Update* (Humboldt County 2017a) contains the following policies regarding transportation and circulation that are not included in current General Plan, but are important to the analysis for this project:

Policies

Circulation and Land Use Policies

- **Policy C-P4: Mitigation Measures.** Development with potentially significant circulation impacts as determined by CEQA review shall be conditioned to proportionally mitigate such impacts through payment of impact fees, construction of on- and off-site improvements and dedication of rights-of-way or a combination of impact fees, improvements and dedications.

- **Policy C-P5: Level of Service Criteria.** The County shall strive to maintain LOS C operation on all roadway segments and intersections, except for US 101, where LOS D shall be acceptable. LOS improvements for automobiles should not adversely affect LOS and/or quality of service for other modes of transportation, if possible.

Standards

- **Standard C-S3: Traffic Thresholds of Significance.** Apply objective measures, such as roadway capacity and LOS from the Transportation Research Board Highway Capacity Manual or its equivalent, to make determinations on the significance of traffic impacts for CEQA purposes.

Humboldt County Code

The *Humboldt County Code* contains the following policy regarding transportation and circulation that may be applicable to the project:

Title III, Division 2, Subdivision Regulations

This division of the County Code regulates the geometric design of roadways associated with the expected extent of use (roadway categories 1 through 6). This includes specifics on total roadway width, number of travel lanes, shoulder size, design speed, and whether on-street parking is allowed.

Section 3112-1. Road and Driveway Access

Road and street networks, whether public or private, unless exempted under Section 3111-3(b), shall provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency consistent with Sections 3112-2 through 3112-13.

3.12.2 Environmental Setting

ROADWAY NETWORK

Existing Roadway Network

The circulation network within the County is made up of a network of state highways, county roadways, city maintained roadways, and private maintained roadways. The roadway network in the County includes 1,400 miles of County maintained roads and city streets, 378 miles of state highways (including US 101), and numerous roadways on federal lands. The County–maintained roadway system is primarily made up of two-lane roads that traverse varying degrees of flat, rolling, and mountainous terrain. The two major highways in Humboldt County are US 101 (north-south) and SR 299 (east-west) which carry the highest volumes of passenger cars and commercial trucks. Overall, these roadways provide adequate facilities and LOS (HCAOG 2014).

Roadway condition and maintenance is an issue for rural areas within the County, while roadway capacity is generally less of an issue for rural areas because of the lower population densities. However, some roadways in urbanized portions of the unincorporated area (such as Eureka and McKinleyville) are subject to existing and projected areas of congestion (Humboldt County 2017b).

State Routes

US 101 is the principal arterial serving interregional and interstate traffic in Humboldt County. This roadway varies between one and two lanes in each direction for the majority of its span through Humboldt County with some three-lane passing sections. US 101 serves as the main street for the City of Eureka and for the community of Orick, while other portions operate as a freeway. US 101 is also the principal commute route to Eureka and Arcata from the north and south.

SR 36 is a two- and one-lane highway extending from US 101, south of Fortuna to Trinity County and eventually connects with I-5 in Red Bluff.

SR 96 is a two-lane highway that extends north/south along the eastern edge of the County from Willow Creek to Orleans and eventually connects with I-5 in Siskiyou County.

SR 169 is a one-lane highway that extends northwest from S.R. 96 at Weitchpec along the Klamath River to Wautec (Johnsons).

SR 200 is a two-lane highway that connects US 101 south of McKinleyville to SR 299 east of Arcata and provides a bypass for trucks that do not meet the height restrictions for the Mad River Bridge.

SR 211 is a two-lane highway that extends from US 101 to the City of Ferndale, crossing the Eel River over Fernbridge.

SR 253 is a two-lane highway that runs parallel to US 101 from approximately five miles north of Redway to approximately three miles south of Stafford. This route provides a bypass to U. 101 and provides access to several unincorporated communities and state parks.

SR 255 is a two-lane highway, with a four-lane segment in Arcata, which extends from Arcata to Eureka through Manila and serves as an alternate to US 101.

SR 283 is two-lane highway crossing the Eagle Prairie Bridge that connects Rio Dell and the unincorporated community of Scotia.

SR 299 is the County's main east-west corridor connecting the Humboldt Bay to Willow Creek and Trinity County, and eventually extending to Redding and Interstate 5. SR 299 is a four-lane freeway between Arcata and Blue Lake and becomes a two-lane highway with alternating passing lanes between Blue Lake and the County line. SR 299 serves as the main street through Willow Creek.

County Roads

The County maintains an extensive roadway system within the unincorporated area, of which the principal connection is via a rural road system of State highways and County roads. County roads provide access to urban and rural communities and serve as main streets and local streets within unincorporated communities. Regionally significant roadways, as detailed in the 2014 RTP, are listed in Table 3.12-1.

Table 3.12-1 Regionally Significant Roadways

Jurisdiction	Paved Road Miles[1]	Roadways
Arcata	68.5	11th Street, Bayside Road/Old Arcata Road, Foster Avenue/Sunset Avenue, Giuntoli Lane, Janes Road/Spear Avenue, K Street/Alliance Road, L K Wood Boulevard, West End Road, US 101, SR 255, SR 299
Blue Lake	8.4	Greenwood Avenue, Hatchery Road, Railroad Avenue, SR 299
Eureka	114.2	6th, 7th, and 14th Streets, Buhne Street, Campton Road, Fairway Drive, H Street, Harris Street, Harrison Avenue, Henderson Street (I to Broadway), I Street (Harris to Waterfront Drive), Myrtle Avenue, S Street, V Street, Wabash, West Avenue, Waterfront Drive, US 101, SR 255
Ferndale	7.4	Arlington Avenue, Bluff Street, Centerville Road, Fifth Avenue, Main Street, Ocean Avenue, Van Ness Avenue
Fortuna	45.2	Main Street, Rohnerville Road, US 101
Rio Dell	14.2	Belleview Avenue, Blue Slide Road, Monument Road, Wildwood Avenue, US 101
Trinidad	3.3	Edwards Street, Main Street, Patrick's Point Drive, Scenic Drive, Stagecoach Road, Trinity Street, Westhaven Drive, US 101
Humboldt County	932.0	Alderpoint Road, Bald Hills Road, Bair Road, Blue Lake Boulevard/Glendale Drive, Blue Slide/Grizzly Bluff Road, Briceland Thorne Road, Campton Road, Central Avenue (McKinleyville), Elk River Road, Fieldbrook Road, Freshwater/Kneeland Road, Humboldt Hill Road, Maple Creek Road, Mattole Road, Old Arcata Road/Myrtle Avenue, Redwood Drive (Garberville), Rohnerville Road, Shelter Cove Road, Sprowel Creek Road, Wilder Ridge Road, New Navy Base Road, Walnut Drive, Herrick Road, Murray Road, US 101, SR's 36, 96, 169, 255, and 299
Hoopa Valley Reservation	15.3	SR 96

1. Humboldt County Association of Governments 2014

Existing Roadway Traffic Volumes

Caltrans published data for 2015 provides average annual daily traffic for all State highways within the County. Table 3.12-2 provides a summary of the daily, bi-directional volumes and LOS achieved on State highway facilities for existing conditions. It should be noted that these traffic volumes include cannabis operations that were in existence in 2015.

Table 3.12-2 Existing LOS

Highway	Segment	Roadway Classification	Roadway Type (Urban/Rural)	Maximum Daily (Two-Way) Service Volumes to Achieve LOS C[1]	Existing (2015)	
					Daily (Two-Way) Volume[2]	LOS C Achieved?
SR 36	Junction US 101 to Hydesville (east limits)	Two-Lane Undivided	Rural	12,700	4,300	Yes
SR 36	Hydesville (east limits) to Bridgeville (west limits)	Two-Lane Undivided	Rural	12,700	4,000	Yes
SR 36	Bridgeville (west limits) to Cobb (east limits)	Two-Lane Undivided	Rural	12,700	1,450	Yes
SR 36	Cobb (east limits) to Trinity County Line	Two-Lane Undivided	Rural	12,700	1,100	Yes
SR 96	Junction SR 299 to Willow Creek (north limits)	Two-Lane Undivided	Rural	12,700	2,850	Yes
SR 96	Willow Creek (north limits) to Junction SR 169	Two-Lane Undivided	Rural	12,700	3,700	Yes
SR 96	Junction SR 169 to Siskiyou County Line	Two-Lane Undivided	Rural	12,700	900	Yes
SR 169	Wauteck Village to Junction SR 96	Two-Lane Undivided	Rural	12,700	370	Yes
SR 200	Junction US 101 to Junction SR 299	Two-Lane Undivided	Rural	12,700	2,600	Yes
SR 211	Ferndale (Ocean Avenue) to Sage Road	Two-Lane Undivided	Rural	12,700	6,400	Yes
SR 211	Sage Road to Junction US 101	Two-Lane Undivided	Rural	12,700	5,800	Yes
SR 254	Junction US 101 to Miranda Bridge Road	Two-Lane Undivided	Rural	12,700	900	Yes
SR 254	Miranda Bridge Road to Burlington State Park	Two-Lane Undivided	Rural	12,700	1,750	Yes
SR 254	Burlington State Park to Jordan Road	Two-Lane Undivided	Rural	12,700	650	Yes
SR 255	Junction US 101 (Eureka) to Mad River Slough Bridge	Two-Lane Undivided	Urban	13,500	9,800	Yes
SR 255	Mad River Slough Bridge to K Street (Arcata)	Two-Lane Undivided	Rural	12,700	8,700	Yes
SR 255	K Street (Arcata) to Junction US 101	Four-lane Divided	Urban	26,700	15,600	Yes
SR 283	Junction US 101 to North End of Eel River Bridge	Two-Lane Undivided	Rural	12,700	2,150	Yes
SR 299	Junction US 101 (Arcata) to Junction SR 200 (west)	Freeway - 4 lanes	Rural	49,200	13,600	Yes
SR 299	Junction SR 200 (west) to Blue Lake Boulevard	Freeway - 4 lanes	Rural	49,200	13,800	Yes
SR 299	Blue Lake Road to Bair Road	Two-Lane Undivided	Rural	12,700	3,900	Yes
SR 299	Bair Road to Trinity County Line	Two-Lane Undivided	Rural	12,700	4,800	Yes
US 101	Mendocino County Line to Benbow Drive	Two-Lane Undivided	Rural	12,700	4,800	Yes
US 101	Benbow Drive to Junction SR 254 (southwest)	Freeway - 4 lanes	Rural	49,200	6,700	Yes
US 101	SR 254 (southwest) to Junction SR 36 (east)	Freeway - 4 lanes	Rural	49,200	12,900	Yes
US 101	SR 36 (east) to Herrick Avenue	Freeway - 4 lanes	Rural	49,200	17,800	Yes
US 101	Herrick Avenue to Fifth Street	Freeway - 4 lanes	Urban	58,200	41,000	Yes
US 101	Fifth Street to Junction SR 255 (Eureka)	Couplet - 3-lanes each way	Urban	46,200	29,400	Yes

Table 3.12-2 Existing LOS

Highway	Segment	Roadway Classification	Roadway Type (Urban/Rural)	Maximum Daily (Two-Way) Service Volumes to Achieve LOS C[1]	Existing (2015)	
					Daily (Two-Way) Volume[2]	LOS C Achieved?
US 101	Junction SR 255 (Eureka) to Junction SR 255 (Arcata)	Freeway - 4 lanes	Rural	49,200	29,400	Yes
US 101	Junction SR 255 (Arcata) to Junction SR 200	Freeway - 4 lanes	Urban	58,200	44,000	Yes
US 101	Junction SR 200 to Airport Road (McKinleyville)	Freeway - 4 lanes	Rural	49,200	19,500	Yes
US 101	Airport Road (McKinleyville) to Trinidad Road	Freeway - 4 lanes	Rural	49,200	11,600	Yes
US 101	Trinidad Road to Big Lagoon Park Road	Freeway - 4 lanes	Rural	49,200	5,200	Yes
US 101	Big Lagoon Park Road to Newton B Drury Scenic Parkway	Freeway - 4 lanes	Rural	49,200	3,800	Yes
US 101	Newton B Drury Scenic Parkway to Del Norte County Line	Two-Lane Undivided	Rural	12,700	3,100	Yes

Notes:

[1] Adopted from the Humboldt County 2017b (TJKM Recommended Measures of Effectiveness – Roadway Capacity).

[2] Caltrans 2015b

See Table 3.12-3 and 3.12-4 on the definition of LOS.

Planned Transportation Improvements

The adopted RTP, a cooperative effort between the HCAOG, the County of Humboldt, the incorporated cities within the County, Caltrans, and residents of Humboldt, will guide transportation investments in Humboldt County over the next 20 years (2014 – 2034). Additionally, the RTP is consistent with the RTIP and the ITIP, and includes involvement and outreach to the general public as well as the Native Tribal Governments within the County (HCAOG 2014). This document identifies a range of improvements to address existing and future transportation deficiencies including: intersection improvements; improvements that better balance roadway use between motorized vehicles, transit, bicycles, and pedestrians; and safety improvements.

EXISTING BIKE AND PEDESTRIAN FACILITIES

The majority of dedicated bicycle facilities and pedestrian facilities are in the urban areas of the County and many of the bike lanes and routes in the region do not meet current State standards. Most pedestrian facilities were constructed prior to the American with Disabilities Act (ADA) and are therefore not compliant. Compliance issues include inadequate sidewalk width, excessive cross-slope, inadequate curb ramps at intersections, and obstacles in the sidewalk. Such obstructions and impediments can force pedestrians on foot or who use wheelchairs onto road shoulders, and into parking and bike lanes (Humboldt County 2017b).

Rural areas and small communities do not often have pedestrian facilities that are separated from the roadway. Pedestrians and bicyclists frequently utilize roads in Humboldt County that lack sidewalks and/or bicycle lanes. As a result, sharing of roadways by pedestrians, car and truck drivers, bicyclists, and even equestrians, is common in many rural areas. While equine use does not constitute a significant portion of daily commuter travel in Humboldt County, equestrian trails can be a significant recreational resource. A number of community and public land trail systems provide transportation and recreation opportunities; however, most of the facilities dedicated exclusively for non-motorized use are provided only in urban areas of the County (Humboldt County 2017b).

EXISTING TRANSIT SERVICE

The Humboldt Transit Authority was established in 1975 through a joint powers agreement between the cities of Rio Dell, Fortuna, Eureka, Arcata and Trinidad and the County of Humboldt to provide public transportation services along the US 101 corridor throughout the County. HTA operates and maintains the Redwood Transit System (RTS) and the Eureka Transit Service (ETS). In addition, HTA provides maintenance service to the Arcata & Mad River Transit System (A&MRTS) through a contract (Humboldt County 2017b).

Redwood Transit System consists of commuter service along the US 101 corridor from Scotia to Trinidad. Regular commute service is available to McKinleyville, as well as regional service to the California Redwood Coast – Humboldt County Airport. Service to southern Humboldt, now connecting Garberville, Redway, Phillipsville, Miranda, Myers Flat, and Weott with the Humboldt Bay area is provided. In addition to the mainline route serving US 101, a separate route provides service between Willow Creek and various locations in Arcata and McKinleyville.

Eureka Transit Service consists of four fixed-routes within the city of Eureka, as well as the unincorporated communities of Bayview, Cutten, and Myrtletown.

Arcata & Mad River Transit System provides fixed-route service within the city of Arcata.

Blue Lake Rancheria Transit System provides hourly service between Blue Lake and Arcata via SR 299, and includes service to the unincorporated community of Glendale.

Klamath-Trinity Non-Emergency Transportation (K/T Net) provides fixed and flex route service between Willow Creek and Hoopa, Monday through Friday. K-T NeT provides two fixed route services between Willow Creek and areas north along Highways 96 and 169, including Hoopa Valley, Weitchpec, and Pecwan/Wautec and Orleans. K-T NeT schedules the Hoopa-Willow Creek service to connect with the Willow Creek Transit System bus (for trips to the Humboldt Bay Area), and with Trinity Transit (for trips further east to Redding).

Greyhound provides intercity bus service to Humboldt County with connections along the US 101 corridor to various cities. Greyhound currently provides twice-daily services with stops at Arcata, Eureka, Rio Dell and Garberville.

Amtrak Thruway Motorcoach consists of buses to connect Amtrak train stations to areas not served by Amtrak railroads. The Amtrak Thruway bus route runs from McKinleyville to the Martinez Train Station, where passengers can board a connecting train to Emeryville and then a shuttle bus to San Francisco. Amtrak buses run seven days a week.

3.12.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The evaluation of potential impacts related to transportation is based on a review of existing transportation facilities and conditions, anticipated future facilities, and transportation-related plans and policies pertaining to project described above. Due to the countywide scope of the implementation of the proposed ordinance and because the exact locations of all future commercial cannabis operations are not known at this time, the analysis does not evaluate specific intersections or local roadways, but addresses general expectations of traffic generated along the state highways and the associated environmental effects of the project. Further, per Chapter 2.0, “Project Description,” analysis of impacts to local public and private roadways would be required as part of the permit process for each individual application, and would be reviewed by the County prior to issuance of a permit for any commercial cannabis operation covered by this ordinance.

To determine impacts, likely scenarios that could potentially generate traffic by individual future commercial cannabis operations under the proposed ordinance were evaluated. Traffic operations for the state highways,

which serve as the arterials within the county carrying a high percentage of the total traffic and connecting communities and traffic destination centers, were evaluated by considering daily capacity and LOS.

Level of Service Thresholds

LOS is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Letters designate each LOS from A to F, with LOS A representing the best operating conditions and LOS F the worst. Tables 3.12-3 and 3.12-4 summarize the LOS descriptions for different roadway types.

Table 3.12-3 Two-Lane Conventional Highways

LOS	Demand/Capacity Ratio	Traffic Description
A	<0.34	Free flow, light
B	<0.45	Free flow to stable flow, moderate
C	0.46-0.65	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	0.66-0.85	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
E	0.86-1.00	Extremely unstable flow, maneuverability and psychological comfort extremely poor
F	>100	Forced delay measured in average flow travel speed (MPH). Signalized segments experience delays >60.0 seconds/vehicle.

Source: Transportation Research Board 2010

Table 3.12-4 Two and Four Lane Freeways/Expressways Level of Service Description

LOS	Demand/Capacity Ratio	Traffic Description
A	<0.34	Free flow
B	0.35-0.52	Free to stable flow, light to moderate volumes
C	0.53-0.69	Stable flow, moderate volumes, freedom to maneuver noticeably restricted
D	0.70-0.92	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
E	0.93-1.00	Extremely unstable flow, maneuverability and psychological comfort extremely poor
F0	101-1.25	Forced flow, heavy congestion, long queues from behind breakdown points, stop and go
F1	1.26-1.35	Very heavy congestion, very long queues
F2	1.36-1.45	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods
F3	>1.46	Gridlock

Source: Transportation Research Board 2010

Analysis of the Humboldt County roadway segments for this project was conducted using volume thresholds consistent with those developed for the *2017 Humboldt County General Plan Revised Draft EIR*. Table 3.12-5 below presents these volume thresholds.

Table 3.12-5 Traffic Volume Thresholds

Roadway Type	Maximum Daily (Two-Way) Service Volumes to Achieve LOS C	
	Recommendation for Urban Areas	Recommendation for Rural Areas
Two-Lane Undivided	13,500	12,700
Four-Lane Divided	26,700	41,800
Six-Lane Divided	40,200	62,700
Couplet – Two Lanes each way	30,900	N/A
Couplet – Three Lanes each way	46,200	N/A
Freeway – Four Lanes	58,200	49,200
Freeway – Six Lanes	87,300	73,800

Source: Humboldt County 2017b (TJKM Recommended Measures of Effectiveness – Roadway Capacity)

The traffic volume thresholds were developed to account for the unique nature of the circulation network serving Humboldt County which is characterized by a dispersed population spread across numerous rural parcels, small unincorporated communities, and incorporated cities, and connected by a network of State highways and county roads.

Assumptions and Analysis Techniques

Existing Commercial Cannabis Operations

The proposed ordinance would address existing cannabis operations that intend to comply with County standards and/or propose to retire existing cultivation sites, remediate existing cultivation site, or relocate to new properties. These operations are existing and part of the baseline traffic conditions of the County. Thus, no new transportation operational impacts would occur from permitting of existing commercial cannabis operations.

New Commercial Cannabis Operations

The County has received a total of 941 applications for new commercial cannabis operations that would consist of approximately 283.35 acres. Of the 941 applications, 432 would be new commercial cannabis operation sites.[1] For purposes of evaluating the traffic impacts from additional new commercial cannabis operations in response to the establishment of the proposed ordinance, it was assumed that there would a total of 1,120 new commercial cannabis operation sites (that includes the 432 sites currently in the application process) in the County over the next three years. This assumption is conservative as the California Department of Food and Agriculture anticipates no increases in overall production from implementation of Medical Cannabis Regulation and Safety Act (MCRSA) and Adult Use of Marijuana Act (AUMA) by the year 2018 (California Department of Food and Agriculture 2017: 3-22 and 3-23).

The mix of these new commercial cannabis operations would be similar to the application types received (see Table 2-1 and 2-2) and would involve 1,012 new commercial cannabis cultivation sites and 108 new commercial cannabis non-cultivation sites (e.g., testing, manufacturing, distribution, retail nurseries, and microbusinesses) over the next three years. For the purposes of this analysis it is assumed that the implementation of the proposed ordinance would generate new vehicular trips at each assumed newly permitted commercial cannabis operation.

It is assumed that new commercial cannabis operations (cultivation sites and non-cultivation sites) would require up to 15 temporary employees during harvest periods (see Chapter 2, "Project Description," for assumptions associated with new commercial cannabis operation). Although employees may carpool to these

[1] Several of the applications received by the County consist of multiple cannabis operations (license types) that involve one site.

sites, it is estimated that each seasonal employee of newly permitted commercial cannabis operations within approximately 15 miles of existing communities and lodging located along Highway 101, SR 36, and SR 299 would generate 2 trips per day (one round trip) during the harvest period. Conversely, it is assumed that seasonal employees of newly permitted commercial cannabis operations farther than approximately 15 miles from existing communities and lodging located along Highway 101, SR 36, and SR 299 would be housed on-site during the harvest periods, and thus, each employee would generate 0.25 trips per day for these sites during the harvest period. This distance (15 miles) was chosen based on geographic information system (GIS) mapping and analysis showing that new commercial cannabis operations this far from an existing community would require excessive daily commute times (approximately 1 hour). The remote commercial cannabis operations fitting this criteria where identified through GIS mapping. Additionally, it is assumed that new commercial cannabis cultivation sites would generate an additional two daily trips per site associated with the delivery of materials. The assumptions used for the analysis here-in is very conservative due to the fact that additional cultivation sites could potentially provide on-site housing for its workers during the harvest period, thus, reducing the number of daily trips generated for these cultivation sites.

The number of harvests would vary depending on the cultivation methods, and individual harvests are assumed to occur over a four-week period. The largest harvest period is the fall harvest when outdoor, mixed-light, and indoor sites are harvesting in the same season. For the purposes of this analysis, the conservative approach of assuming that harvests at all newly permitted commercial cannabis operations would occur simultaneously is used. Thus, the new commercial cannabis could generate up to 31,897 daily trips during the fall harvest period county-wide using the conservative assumptions identified above.

Traffic forecasts were distributed and assigned to the existing network of State highways in the County based on the assumed origin, destination, and route of the employee trips. The distribution of trips along the transportation network was determined based on the anticipated location of new cultivation sites within the County, which was determined on locational information from cannabis permit applications received by the County.

Trip assignment was determined based on the assumptions that all trips would originate within Humboldt County, and employees would be traveling to and from the new commercial cannabis operations from the nearest surrounding population centers where lodging is available. The analysis focuses on the ten state highways (SR 36, 96, 169, 200, 211, 254, 255, 283, 299, US 101) serving Humboldt County during the peak of the fall cannabis harvest season and uses daily, two-way roadway segment volumes to determine LOS in the existing and existing-plus-project scenarios for the state highways within Humboldt County. These highways serve as the backbone of the county roadway network, carrying the majority of County through traffic, and trips connecting communities and destination centers. The recommended Measures of Effectiveness (MOE) for LOS on Humboldt County roads, in rural and urban areas, as described in Appendix H of the Humboldt County General Plan Revised Draft EIR (Humboldt County 2017b), are used as the basis of the roadway capacity LOS analysis.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a potentially significant impact on transportation and circulation if it would:

- conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit;
- conflict with an applicable congestion management program, including, but not limited to, LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways;

- result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- substantially increase hazards due to a design feature (e. g., sharp curves or dangerous intersections) or incompatible uses (e. g., farm equipment);
- result in inadequate emergency access; or
- conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

In consideration of congestion policies, the traffic volume increases would result in a significant impact to State Highways and other roadways if the following would occur.

The additional daily trips generated by the project would significantly increase congestion and cause a state highway currently operating at an acceptable LOS, to degrade to below LOS C.

ISSUES NOT DISCUSSED FURTHER

Airports within Humboldt County include the California Redwood Coast - Humboldt County Airport, Garberville Airport, Dinsmore Airport, Kneeland Airport, Murray Field Airport, Samoa Field Airport, and Rohnerville Airport, a number of which are within 2 miles of potential new cannabis cultivation sites. However, the project would not result in a change in air traffic patterns or contribute to an increase in demand for air travel. As a result, this issue is not evaluated further.

The project would not include actions that would limit or adversely affect rail traffic, infrastructure, or activities in Humboldt County. Thus, rail transportation facilities are not evaluated further. Similarly, transit, bike, and pedestrian facilities and activities would not be affected by the project. Due to the rural character of much of the transportation network and the anticipated dispersion of the individual cultivation sites throughout the County, the project would not generate demand for transit, bike, or pedestrian facilities. Therefore, the project would not create any conflicts with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Thus, transit, bike, and pedestrian facilities are not evaluated further.

Agencies with the responsibility for roadway design and operation, including Caltrans, Humboldt County, and the incorporated cities within Humboldt County, all have adopted and enforce roadway design standards. These standards address a variety of roadway elements, including safety and hazards. The use and enforcement of these design standards prevents the development of transportation infrastructure that would substantially increase hazards because of a design feature. Additionally, existing and new commercial cannabis operations would be required to obtain access to a roadway system that meets, is equivalent, or exceeds the County's Category 4 road standard. The Category 4 road standard provides 18 to 20-foot wide travel lanes, 2-foot wide bladed shoulders (as required by the County), 25 to 40-mile per hour design speed, and sight distance requirements for safe passage. The County has determined that the Category 4 road standard is adequate to accommodate commercial cannabis operation traffic volumes and vehicle types (e.g., passenger vehicles, small trucks, large service trucks). Commercial cannabis operations would be required to demonstrate consistency with these standards during the application process, and may require the construction of new roadways or improvement of existing roadways. The physical environmental impacts of potential roadway improvements required to meet the Category 4 road standard are programmatically addressed in this EIR.

IMPACT ANALYSIS

Impact 3.12-1: Construction-related increase in traffic.

Commercial cannabis operations in the County that may occur under the proposed ordinance would involve construction activities. These construction activities would result in an increase in vehicular trips associated with construction workers traveling to and from construction sites. However, the increase in trips associated with construction at commercial cannabis operations would be minimal, dispersed throughout the larger roadway network serving the County, and staggered over an extended period of time. Thus, this impact is **less than significant**.

Adoption of the proposed ordinance is expected to result in the development of approximately 1,120 new commercial cannabis operations as well as modifications to existing cannabis cultivation operations to comply with the ordinance. Typical facilities that are anticipated to be needed on new or existing cultivation sites include hoop houses, roadway improvements, equipment and material storage structures, and indoor cultivation structures between 5,000 and 22,000 square feet in size.

Generally, the intensity of construction activity would be on scale with a residential renovation or building addition project requiring approximately two to four construction workers and would not last more than four weeks at each grow site. No substantive truck haul trips would be generated by the construction. Following adoption of the proposed ordinance, permitted construction activities would commence. It is unknown when construction activities associated with the individual commercial cannabis operations would occur, and how the construction at individual sites would overlap. However, it is assumed that the construction of new cultivation sites would occur over several years as individual permits are issued.

The construction of new commercial cannabis operations would add employee vehicle trips to the local roadway system. However, construction would be spread over several years, new commercial cannabis operations would be located primarily in rural areas, and trips generated by construction would be dispersed throughout the County. Therefore, the low number of trips generated by each commercial cannabis operation during the construction phase would be distributed throughout the County roadway network, which has low existing traffic volumes on the local roadways, and would not substantially affect the effectiveness/performance of the existing circulation system. Additionally, construction at each site would only generate vehicle trips to a particular location or on a particular roadway for a limited period of time. Moreover, the amount of construction traffic generated by each commercial cannabis operation is anticipated to be less than the traffic that would be generated by harvest activity at these same sites, and as shown in Impact 3.12-2 below, traffic generate by harvest activities would result in a less than significant impact. Thus, the increase in traffic associated with construction activities at commercial cannabis operations would result in an impact that is **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.12-2: Long-term increase in traffic.

New commercial cannabis operations in the County that may occur under the proposed ordinance would result in the addition of vehicle trips to existing traffic levels on the state highway system within Humboldt County. This increase would be greatest during the fall harvest, but would not result in the LOS degrading below LOS C along any of the State highway segments analyzed. Therefore, LOS would not exceed existing LOS standards. This impact is considered **less than significant**.

Given the programmatic nature of the EIR and the large study area which encompasses Humboldt County, traffic operations for Caltrans roadways (state highways) were evaluated by considering roadway segment operations rather than peak-hour intersection operations.

Implementation of the proposed ordinance could result in 1,120 new commercial cannabis operation sites. These operations could add approximately 31,897 daily trips to the state highway network in the County during the height of the fall harvest season. The existing and existing-plus-project daily, two-way roadway segment volumes and LOS for the state highways within Humboldt County are shown in Table 3.12-6. As shown, even with the highly conservative assumptions made to develop the potential trip generation of the new commercial cannabis operations, implementation of the proposed ordinance would not degrade the LOS to unacceptable levels (below LOS C) on any of the State highway segments within Humboldt County.

Table 3.12-6 Existing LOS with and without New Commercial Cannabis Operations

Highway	Segment	Roadway Classification	Roadway Type (Urban/Rural)	Maximum Daily (Two-Way) Service Volumes to Achieve LOS C[1]	Existing (2015)		Existing-Plus-Project	
					Daily (Two-Way) Volume[2]	LOS C Achieved?	Daily (Two-Way) Volume	LOS C Achieved
SR 36	Junction US 101 to Hydesville (east limits)	Two-Lane Undivided	Rural	12,700	4,300	Yes	11,160	Yes
SR 36	Hydesville (east limits) to Bridgeville (west limits)	Two-Lane Undivided	Rural	12,700	4,000	Yes	10,860	Yes
SR 36	Bridgeville (west limits) to Cobb (east limits)	Two-Lane Undivided	Rural	12,700	1,450	Yes	8,310	Yes
SR 36	Cobb (east limits) to Trinity County Line	Two-Lane Undivided	Rural	12,700	1,100	Yes	7,960	Yes
SR 96	Junction SR 299 to Willow Creek (north limits)	Two-Lane Undivided	Rural	12,700	2,850	Yes	5,914	Yes
SR 96	Willow Creek (north limits) to Junction SR 169	Two-Lane Undivided	Rural	12,700	3,700	Yes	6,764	Yes
SR 96	Junction SR 169 to Siskiyou County Line	Two-Lane Undivided	Rural	12,700	900	Yes	900	Yes
SR 169	Wauteck Village to Junction SR 96	Two-Lane Undivided	Rural	12,700	370	Yes	370	Yes
SR 200	Junction US 101 to Junction SR 299	Two-Lane Undivided	Rural	12,700	2,600	Yes	2,600	Yes
SR 211	Ferndale (Ocean Avenue) to Sage Road	Two-Lane Undivided	Rural	12,700	6,400	Yes	6,592	Yes
SR 211	Sage Road to Junction US 101	Two-Lane Undivided	Rural	12,700	5,800	Yes	5,992	Yes
SR 254	Junction US 101 to Miranda Bridge Road	Two-Lane Undivided	Rural	12,700	900	Yes	900	Yes
SR 254	Miranda Bridge Road to Burlington State Park	Two-Lane Undivided	Rural	12,700	1,750	Yes	1,750	Yes
SR 254	Burlington State Park to Jordan Road	Two-Lane Undivided	Rural	12,700	650	Yes	650	Yes
SR 255	Junction US 101 (Eureka) to Mad River Slough Bridge	Two-Lane Undivided	Urban	13,500	9,800	Yes	9,800	Yes
SR 255	Mad River Slough Bridge to K Street (Arcata)	Two-Lane Undivided	Rural	12,700	8,700	Yes	8,700	Yes
SR 255	K Street (Arcata) to Junction US 101	Four-lane Divided	Urban	26,700	15,600	Yes	15,600	Yes
SR 283	Junction US 101 to North End of Eel River Bridge	Two-Lane Undivided	Rural	12,700	2,150	Yes	2,150	Yes
SR 299	Junction US 101 (Arcata) to Junction SR 200 (west)	Freeway - 4 lanes	Rural	49,200	13,600	Yes	17,800	Yes

Table 3.12-6 Existing LOS with and without New Commercial Cannabis Operations

Highway	Segment	Roadway Classification	Roadway Type (Urban/Rural)	Maximum Daily (Two-Way) Service Volumes to Achieve LOS C[1]	Existing (2015)		Existing-Plus-Project	
					Daily (Two-Way) Volume[2]	LOS C Achieved?	Daily (Two-Way) Volume	LOS C Achieved
SR 299	Junction SR 200 (west) to Blue Lake Boulevard	Freeway - 4 lanes	Rural	49,200	13,800	Yes	16,028	Yes
SR 299	Blue Lake Road to Bair Road	Two-Lane Undivided	Rural	12,700	3,900	Yes	6,964	Yes
SR 299	Bair Road to Trinity County Line	Two-Lane Undivided	Rural	12,700	4,800	Yes	7,864	Yes
US 101	Mendocino County Line to Benbow Drive	Two-Lane Undivided	Rural	12,700	4,800	Yes	4,800	Yes
US 101	Benbow Drive to Junction SR 254 (southwest)	Freeway - 4 lanes	Rural	49,200	6,700	Yes	20,039	Yes
US 101	SR 254 (southwest) to Junction SR 36 (east)	Freeway - 4 lanes	Rural	49,200	12,900	Yes	26,239	Yes
US 101	SR 36 (east) to Herrick Avenue	Freeway - 4 lanes	Rural	49,200	17,800	Yes	25,675	Yes
US 101	Herrick Avenue to Fifth Street	Freeway - 4 lanes	Urban	58,200	41,000	Yes	42,015	Yes
US 101	Fifth Street to Junction SR 255 (Eureka)	Couplet - 3-lanes each way	Urban	46,200	29,400	Yes	30,415	Yes
US 101	Junction SR 255 (Eureka) to Junction SR 255 (Arcata)	Freeway - 4 lanes	Rural	49,200	29,400	Yes	30,415	Yes
US 101	Junction SR 255 (Arcata) to Junction SR 200	Freeway - 4 lanes	Urban	58,200	44,000	Yes	45,972	Yes
US 101	Junction SR 200 to Airport Road (McKinleyville)	Freeway - 4 lanes	Rural	49,200	19,500	Yes	21,832	Yes
US 101	Airport Road (McKinleyville) to Trinidad Road	Freeway - 4 lanes	Rural	49,200	11,600	Yes	14,648	Yes
US 101	Trinidad Road to Big Lagoon Park Road	Freeway - 4 lanes	Rural	49,200	5,200	Yes	5,916	Yes
US 101	Big Lagoon Park Road to Newton B Drury Scenic Parkway	Freeway - 4 lanes	Rural	49,200	3,800	Yes	3,800	Yes
US 101	Newton B Drury Scenic Parkway to Del Norte County Line	Two-Lane Undivided	Rural	12,700	3,100	Yes	3,100	Yes

Notes:

[1] Adopted from the Humboldt County 2017b (TJKM Recommended Measures of Effectiveness – Roadway Capacity).

[2] Caltrans 2015b

The addition of daily, two-way project-generated trips would not result in an impact to traffic operations on the state highway segments within the County during the height of the fall harvest season. Additionally, existing and new commercial cannabis operations would be required to obtain access to a roadway system meeting the County's Category 4 road standard. The County has determined that the Category 4 road standard is adequate to accommodate commercial cannabis operation traffic volumes and vehicle types (e.g., passenger vehicles, small trucks, large service trucks). Commercial cannabis operations would be required to demonstrate consistency with these standards during the application process, and may require the construction of new roadways or improvement of existing roadways.

In addition, where access to a site is provided by roads not meeting the Category 4 standard, the commercial cannabis operation would be subject to a Special Permit and preparation of a report prepared by a licensed engineer evaluating whether the design, condition, and performance of all necessary road segments are currently capable of supporting increases in traffic volume created by the site, in addition to the existing traffic using the road(s). The report would detail all substandard conditions and prescribe measures that would be taken to achieve compliance with the relevant road standards and objectives, or the same practical effect. A cost estimate and schedule would be required to be provided. The report would be required to also include a recommendation, or formula for cost sharing among all parcels served by the road system. Thus, the proposed ordinance would not contribute to increased congestion, and therefore would not conflict with an applicable plan, policy, or ordinance establishing measures of effectiveness for the performance of the circulation system. This impact is considered **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.9-3: Potential for inadequate emergency access.

Commercial cannabis operations in the County that may occur under the proposed ordinance would be required to be in compliance of Chapter 10 – Fire Safe Regulations of the Humboldt County Code and performance standards for access to roadway system that meets the County's Category 4 road standard. Thus, the project would result in a **less-than-significant** impact on emergency access.

Emergency access to commercial cannabis operations would be provided primarily via existing public and private roadways, and access driveways that would be required to meet the County's Category 4 road standard (or access design that has the same practical effect) and the County's access standards. As required by Chapter 10 – Fire Safe Regulations of the Humboldt County Code, road and street networks, unless exempted under Section 3111-3(b) of the County Code, shall provide safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during wildfire emergency consistent with Sections 3112-2 through 3112-13 of the County Code.

Additionally, proposed ordinance performance standards would ensure that private roads systems which contain segments that do not meet the prescribed standards for capacity and emergency access, would construct specific road system improvements that would achieve compliance, to the greatest extent practicable, or as determined sufficient by the County.

Therefore, the project would result in a **less-than-significant** impact on emergency access.

Mitigation Measures

No mitigation is required.

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3.13 UTILITIES AND SERVICE SYSTEMS

This chapter provides an overview of wastewater, water, electricity, and solid waste services in Humboldt County, and a discussion of how the proposed ordinance would affect these services. Comments received in response to the notice of preparation (NOP) pertained to adequate water supply, sewer service, solid waste generation. These issues are discussed below.

Stormwater and groundwater water resources is addressed in Section 3.8, "Hydrology and Water Quality." Section 3.14, "Energy," contains information related to electricity and natural gas in Humboldt County.

3.13.1 Regulatory Setting

FEDERAL

There are no federal plans or programs that address utilities and service systems and that would apply to the project.

STATE

Water

The following State regulations are applicable to the project as they relate to water supply.

- **California Water Code:** The California Water Code outlines the general state authority and responsibilities over water in California.

- **State of California Water Rights Process:** The State Water Resources Control Board (SWRCB) administers a water rights system for the diversion of surface waters. The granting of a water right permit provides permission to withdraw water from a river or stream for a "reasonable" and "beneficial" use. Before issuing the permit, SWRCB must take into account all prior rights and the availability of water in the basin, as well as the flows needed to preserve instream uses such as recreation and fish and wildlife habitat.

  Water right permits are administered using a seniority system based on the date of applying for the water right—commonly referred to as "first in time, first in right." Water right holders, including riparian water right holders, must report their diversions to SWRCB through a statement of diversion and use. Senate Bill 837, approved by Governor Jerry Brown on June 27, 2016, requires that persons filing a statement of diversion and use include information regarding the amount of water used, if any, for cannabis cultivation, and pay a fee associated with water used for cannabis cultivation.

- **Urban Water Management Planning Act:** The Urban Water Management Planning Act requires water suppliers to document water supplies in an urban water management plan (UWMP) available during normal, single dry, and multiple dry water years during a 20-year projection period, and to document the existing and projected future water demand during a 20-year projection period.

- **Senate Bill 610:** Senate Bill (SB) 610 (now State CEQA Guidelines Section 15155) amended the Water Code requirements within the CEQA process and broadened the types of information required in a UWMP. SB 610 requires the preparation of water supply assessments (WSA) for large developments (i.e., more than 500 dwelling units or nonresidential equivalent) proposed under the jurisdiction of a County or City lead agency. California Water Code Part 2.10 - Water Code Part 2.10 clarifies the roles and responsibilities, under CEQA, of the lead agency and the water supplier (i.e., the public water system) with respect to describing current and future supplies compared to current and future demand. It also

defines the projects for which a WSA must be prepared as well as the responsibilities of the lead agency related to the WSA.

Wastewater

- **Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems**: On June 19, 2012, the State Water Resources Control Board (State Water Board) adopted Resolution No. 2012-0032, adopting the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy). This Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements and sets the level of performance and protection expected from OWTS. In accordance with Water Code section 13290 et seq., the OWTS Policy sets standards for onsite wastewater treatment systems (OWTS) that are constructed or replaced, that are subject to a major repair, that pool or discharge waste to the surface of the ground, and that have affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking water or other uses, or cause a health or other public nuisance condition. The OWTS Policy also includes minimum operating requirements for OWTS that may include siting, construction, and performance requirements; requirements for OWTS near certain waters listed as impaired under Section 303(d) of the Clean Water Act; requirements authorizing local agency implementation of the requirements; corrective action requirements; minimum monitoring requirements; exemption criteria; requirements for determining when an existing OWTS is subject to major repair, and a conditional waiver of waste discharge requirements.

- **Waste Discharge Requirements:** The Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27. The following districts are subject to WDRs for wastewater treatment facilities in Humboldt County (see discussion below for available capacity):

  - Garberville Sanitary District,
  - Miranda community services district (CSD),
  - Redway CSD,
  - Weott CSD,
  - Loleta CSD,
  - McKinleyville CSD,
  - Shelter Cove resort improvement district (RID), and
  - Manila CSD.

Solid Waste

- **California Integrated Waste Management Act**: The California Waste Management Act of 1989 requires State, County, and local governments to substantially decrease the volume of waste disposed at landfills by the year 2000 and beyond. The act requires each County to submit an Integrated Waste Management Plan to the California Integrated Waste Management Board that includes an adopted Source Reduction and Recycling Element from each of its cities as well as a County-prepared Source Reeducation and Recycling Element for the unincorporated area. The element identifies existing and future quantities and types of solid waste, an inventory of existing disposal sites, a determination of the plan's economic feasibility, enforcement programs, and implementation schedule.

LOCAL

Humboldt Local Agency Formation Commission

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 authorizes a city or district to provide new or extended services by contract or agreement outside its jurisdictional boundaries if the city or district requests and receives approval from the Commission. The Commission may authorize a city or community services district (CSD) to provide new or extended services outside its jurisdictional boundaries but within its sphere of Influence in anticipation of later change of organization, or outside its sphere of influence to respond to an existing or impending threat to the public health or safety of the residents of the affected territory, under specific circumstances. Except for the specific situations exempted by Government Code Section 56133, a city or district will not provide new or extended services to any party or property outside its jurisdictional boundaries unless it has obtained written approval from the Humboldt Local Agency Formation Commission (LAFCo) consistent with all the policies and procedures.

Humboldt County General Plan

Water

Sections 3360 and 3361 of the Humboldt County General Plan contain the following relevant policies related to water:

- **Policy 1:** Ensure that land use decisions are consistent with the long term value of water resources in Humboldt County.
- **Policy 2:** Regulate development that would pollute watershed areas.
- **Policy 3:** Ensure that the intensity and timing of new development will be consistent with the capacity of water supplies.
- **Policy 6:** Projects must provide evidence of water availability prior to recordation of map.
- **Policy 7:** Maximize the use of water conservation techniques appropriate for new and existing development.

Sections 4510 and 4511 of the Humboldt County General Plan contain the following relevant policies related to water facilities:

- **Policy 3:** Ensure that the intensity and timing of new development will be consistent with the capacity of water supplies.
- **Policy 4:** Maximize the use of water conservation techniques appropriate for new and existing development.

Sections 4530 and 4531 of the Humboldt County General Plan contain the following relevant policies related to sewer facilities:

- **Policy 3:** Projects requiring public wastewater disposal shall receive public sewer commitments from the appropriate district or agency prior to receiving tentative approval.
- **Policy 4:** Areas planned for additional development which are dependent on individual septic tank leach field disposal systems shall have minimum lot sizes based on the following factors:

  A. soil suitability,
  B. slope,

C. water source (on site-well or serviced), and
D. proximity to sensitive habitats.

- **Policy 5:** Septic systems shall not be permitted where the slope exceeds 30% or within 50 feet of an unstable land form.

- **Policy 6:** Sewage disposal systems placed on an existing lot must meet all of the requirements of the Humboldt-Del Norte Department of Public Health and the North Coast Regional Water Quality Control Board.

Solid Waste Disposal

Sections 4610 and 4611 of the Humboldt County General Plan contain the following relevant policies related to solid waste:

- **Policy 1:** Reduce litter and other illegal solid waste disposal.

- **Policy 4:** Minimize the environmental impact of solid waste handling and disposal by mitigation measures such as using bear proof containers and fencing.

- **Policy 7:** Encourage waste reduction through source reduction, reuse and repair, recycling and recovery, and marketing programs.

Humboldt County Code

45.2.3.14 The cottage industry shall not significantly increase demand for, or require significant amounts of additional services including water, sewer, septic, or wastewater treatment.

Title IV, Division 3 (Wells) provides standards associated with obtain a well permit from the County. Section 631-4 requires that all well permit applications identify any wells within 200 feet. Section 631-10 establishes standards for the design of well facilities consistent with California Department of Water Resources Bulletin 74-81.

Title VI, Chapters 1-5 (Sewage Disposal), most recently revised in January 1984, contains design criteria for individual sewage disposal systems. These design criteria include general installation requirements; pipe size, type, grade, support, protection, and cleanouts; septic tank requirements; distribution boxes specifications; and subsurface disposal fields requirements. Section 611-4 of the Sewage Disposal code requires that every building or place that is within 300 feet of an approved public sewer shall be connected to the public sewer by the owner or agent. Applications for connections to construct, reconstruct, repair, maintain, abandon, operate, or excavation sewage disposal systems must provide information for approval related to: the level of the ground water table during and at the end of a rainy season; intended use or uses of the property, the source or purveyor of domestic water; and soil characteristics.

3.13.2 Environmental Setting

Environmental setting information was primarily derived from the Humboldt County General Plan Update EIR (Humboldt County 2017). Information related to surface water diversions was compiled from gage data recorded by the United State Geological Survey (USGS).

WASTEWATER

Wastewater (sewer) service is available in the more densely populated communities, but is not universally available within the County. Wastewater systems are operated by six incorporated cities (development within the City of Trinidad uses onsite septic systems), seven community service districts (CSDs), one sanitary district, one resort improvement district, and one private company. In addition, three community

services districts operate wastewater collection systems that have contracts with nearby wastewater treatment plant operators. Exhibit 3.13-1 shows the location of CSDs in Humboldt County. Table 3.13-1 provides a summary of the connections, capacity, flows, and WDR attainment for wastewater service providers in Humboldt County. The following consist of a summary description of wastewater collection and treatment services in Humboldt County (Humboldt County 2017):

- **Garberville Sanitary District** provides collection, conveyance services, and treatment at its central treatment facility (wastewater treatment plant [WWTP]). The District's WWTP was upgraded in 2011 that consisted of oxidation ponds. Wetland treatment ponds, on-site chlorination system, and improvements to its percolation ponds for treated effluent discharge.

- **Miranda CSD** provides collection, conveyance services, and treatment at its central treatment facility. The wastewater collection system consists of gravity sewer pipelines that collect wastewater from individual septic tanks and conveyed to the WWTP. Treated effluent is discharged via percolation ponds to the Eel River. Discharges to the Eel River are prohibited from May 15 through September 30.

- **Redway CSD** provides collection, conveyance services, and treatment at its WWTP. The WWTP is within its dry weather capacity, but is at full capacity for its wet weather capacity. Issues associated with the WWTP include the capacity of its sludge dewatering process, pipeline capacity during wet weather flows, and the ability for the plant to meet anticipated future nitrate water quality limits. Redway CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update. The Redway CSD 2014 Water and Wastewater Systems Capacity Analysis identifies options to improve the treatment and capacity of the WWTP including pre-anoxic basin and internal mixed liquor recycle pumping provisions, new oxidation ditch to support or replace the existing oxidation ditch. No funding source for these options have been identified.

- **Weott CSD** provides collection, conveyance services, and treatment. The Weott CSD's wastewater collection system incorporates gravity mains and one lift station that direct wastewater to a community septic tank where preliminary treatment occurs. From here, raw wastewater flows through a recirculation tank and pea gravel filter, a chlorine contact basin, and dechlorination facilities. Disposal facilities consist of both a community leachfield and direct discharge to the South Fork Eel River, although the direct discharge disposal is not currently used.

- **Loleta CSD** provides collection, conveyance services, and treatment, which currently relies on percolation ponds for the disposal of treated effluent. Loleta CSD has been working on plans in 2016 to improve wastewater conveyance that would involve the rehabilitation of approximately 4,000 feet of sewer main, lateral connections, and a man hole to reduce peak wastewater flows and improve treatment efficiency in response to a cease and desist order from the North Coast Regional Water Quality Control Board. The CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update.

- **Palmer Creek CSD** collects wastewater from service connections within its District and conveys it to a metered interconnection point with the City of Fortuna wastewater system for treatment and disposal, pursuant to a contract for service. The City's WWTP was last upgraded in 2006. Palmer Creek CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update.

- **Scotia CSD** provides collection, conveyance services, and treatment at its WWTP. The WWTP is located within the 100-year floodplain of the Eel River and has experienced treatment capacity issues with multiple unit processes at the plant. Treatment and discharge improvements have been required by the Humboldt Local Agency Formation Commission as part of the CSD's acquisition of the WWTP. Treated effluent is discharged via percolation ponds to the Eel River. Discharges to the Eel River are prohibited from May 15 through September 30. Scotia CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update.

- **Shelter Cove RID** provides collection, conveyance services, and treatment at its WWTP. The RID is operating under an Administrative Civil Liability Order because of not meeting its treatment requirements. Wastewater conveyance improvements in response to this Order were identified in 2008 and are being made.
- **Fieldbrook Glendale CSD** provides services for both the Fieldbrook and Glendale areas. The Glendale area receives wastewater service from the Fieldbrook. The District has a contract to pump raw wastewater to the City of Arcata for treatment and disposal. The City of Arcata has informed the CSD that it will not accept increases in wastewater conveyance for treatment Fieldbrook Glendale CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update.
- **McKinleyville CSD** provides collection, conveyance services, and treatment at its WWTP. The WWTP consists of primary oxidation ponds, secondary oxidation ponds, and finishing treatment marshes. Treated effluent is discharged to the Mad River when river flow rates are 200 cubic feet per second or greater. The CSD utilizes percolation ponds during Mad River low flow conditions. McKinleyville CSD has the potential to exceed wastewater treatment capacity under future conditions under the proposed General Plan Update. The CSD's 2012 20 Year Wastewater Facilities Plan identifies improvements to the WWTP that would involve the construction of an in-basin extended aeration system, new headworks facility, aeration basins, maintenance building, two new secondary clarifiers, and a biosolids storage basin.
- **Humboldt CSD** operates a wastewater collection system that interconnects with the City of Eureka collection system and the City's Elk River WWTP. The City of Eureka is currently evaluating treatment plant processes to determine improvements that would increase WWTP capacity.
- **Manila CSD** provides collection, conveyance services, and treatment at its WWTP. The community relies on a Septic Tank Effluent Pump (STEP) system that pumps liquid effluent from septic tanks into a force main to the treatment facility. The treatment system consists of three surface wetlands, two surface aerated facultative ponds, and four percolation ponds (rapid infiltration basins) for disposal.

Table 3.13-1 Connections, Capacity, Flows, and WDR Attainment for Wastewater Service Providers in Humboldt County

Provider	Connections		(MGD) Permitted Capacity		Flows (MGD)	
	Existing	Available	Dry Weather	Wet Weather	Existing Dry Weather	Peak Wet Weather
Garberville SD	353	180	0.162	0.235	0.059	0.55
Miranda CSD	110	59	0.046	not applicable[1]	0.03	0.1
Redway CSD	735	0	0.186	0.58	0.104	0.578
Weott CSD	134	151	0.03	not applicable[1]	0.014	0.03
Loleta CSD	260	0	0.1	not applicable[1]	0.06	0.6
Palmer Creek CSD	154	0			.002	0.03
Scotia CSD	295	0	--	not applicable[1]	0.178	1.4
Shelter Cove RID	430	273	0.17	not applicable[1]	0.1	0.5
Fieldbrook Glendale CSD	166	80-100	--	not applicable[1]	0.037	0.075
McKinleyville CSD	5,267	781	1.61	3.3	0.9	2.0
Humboldt CSD	6,285	2,689	--	not applicable[1]	0.97	Estimated at 6 – 9
Manila CSD	449	495	0.14	not applicable[1]	0.066	0.21

Notes: CSD=Community Services District; MGD (million gallons per day); RID = resort improvement district; WDR=waste discharge requirement.

[1]Permit only establishes standards for maximum peak dry weather flows.

Source: Humboldt County 2017

The remainder of the County is served by individual septic systems. Outside of these areas, onsite wastewater systems are an appropriate means for sewage disposal. On-site wastewater systems are used by more than 50 percent of households in Humboldt County, and generally consist of septic tanks and disposal fields. (Humboldt County 2017).

Exhibit 3.13-1 **Community Service Districts**

WATER

Water supplies associated with allowable uses under the proposed ordinance would be provided by both municipal supplies as well as non-municipal supplies (surface water diversions and groundwater pumping). Municipal sources are generally associates with CSDs, shown in Exhibit 3.13-1. Water supply districts in the County, and their ability to service growth projected under the proposed General Plan Update, are listed as follows (Humboldt County 2017). Table 3.13-2 provides a summary of the connections, capacity, and usage for municipal water service providers in Humboldt County.

- **Benbow Water Company.** The Benbow Water Company obtains its water supply from the east branch of the of South Fork of the Eel Rover and is regulated by the California Public Utilities Commission. The water distribution system was recently improved with additional filter facilities.

- **Garberville SD.** The Garberville SD obtains its water supply primarily from the South Fork of the Eel River and partially groundwater. The SD is regulated by the California Public Utilities Commission. The SD recently made water system improvements consisting of intake pumps, new surface water treatment plan, and series of water distribution system improvements.

- **Miranda CSD.** The Miranda CSD's water supply consists of groundwater from two wells. The CSD has identified some water distribution facility deficiencies involving undersized water mains and inadequate storage capacity.

- **Phillipsville CSD.** The Phillipsville CSD's water source consists of groundwater and spring water. The CSD completed water distribution system improvements in 2012 that consisted of a new treatment plant, replacement of water distribution pipelines, and provision of a new water storage tank.

- **Weott CSD.** The Weott CSD obtains its water supply from the Eel River. The CSD has installed meters on all service connections, addressed leaks in the water distribution system, and improved filter operations to address historic water supply issues.

- **Loleta CSD.**The Loleta CSD's water source consists of groundwater. The CSD completed water system improvements that improved water quality that included a new well, transmission pipeline, and water treatment plant.

- **Scotia CSD.** The Scotia CSD obtains its water supply from the Eel River. In 2016, the CSD identified the future need for a new water treatment plant located above the 100-year floodplain.

- **Alderpoint CWD.** The Alderpoint CWD obtains its water supply from the Middle Fork of the Eel River. Recent water facility improvements (2014) include a new water filtration system and replacement of a water storage tank.

- **Willow Creek CSD.** The Willow Creek CSD obtains its water supply from groundwater from Willow Creek. Planned water facility improvements include the construction of a new water storage tank.

- **Hydesville CWD.** The Hydesville CWD utilizes groundwater for its water supply. The CSD plans to improve its water distribution system through expansion of its distribution pipelines, a new well facility, and a new water storage tank.

- **Orick CSD.** The Orick CSD utilizes groundwater for its water supply. The CSD currently has deficient water storage capacity (less than one day at maximum water demand).

- **RID No. 1 (Shelter Cove Area).** RID No. 1 obtains its water from springs associated with Rick Spring and Upper Telegraph Creek. The District has plans for the installation of five new well sites.

- **Riverside CSD.** The Riverside CSD utilizes groundwater for its water supply. The CSD currently does not have any fire hydrants and is not capable of supporting fire suppression.

- **Humboldt CSD.** The CSD obtains its water from the Humboldt Bay Municipal Water District (Mad River) and groundwater. The CSD does not have any current significant deficiencies in its water system, though water storage and fire flow improvements are anticipated for the future.

- **Briceland CSD.** The CSD utilities spring water as its water source. Due to issues relating to water supply, the treatment system, and storage capacity, no new connections to the Briceland CSD water system are available.

- **Big Lagoon CSD.** The Big Lagoon CSD utilizes groundwater for its water supply. The CSD has indicated that the District's water system may be at capacity now and that and an engineering study must be done before expanding services.

- **Redway CSD.** The CSD obtains its water from the South Fork of the Eel River. The CSD water treatment system is currently at capacity, and the water storage and distribution system have difficulty meeting the demands of existing connections.

- **Orleans CSD.** The CSD obtains its water supply from groundwater from infiltration from the Pearch Creek. Due to issues relating to the Orleans water treatment system, new growth cannot be provided with a water supply at this time.

- **Westhaven CSD.** The CSD utilizes spring water from Two Creek and groundwater for its water source. There are no available water connections in Westhaven because of inadequate water supply.

Table 3.13-2 Summary of Municipal Water Service Providers

Provider	Connections		Capacity			Usage	
	Existing	Estimated Available	(MGD)		(MG) Storage	(MGD) Peak Day	Gallon/Day/ Connection
			Supply	Treatment			
Benbow Water Company	134	50	0.327	0.2	0.22	0.382	3,381
Briceland CSD	26	0	0.01	Unknown but not limiting[1]	0.042	0.04	1,538
Garberville SD	420	25	0.461	0.33	0.27	0.31	787
Miranda CSD	143	77	0.338	Not required[3]	0.2	0.22	1,538
Phillipsville CSD	65	0	Unknown but sufficient[3]	0	0.075	0.085	1,308
Redway CSD	735	0	0.494	0.494	0.835	0.494	672
Weott CSD	144	Unknown	0.202	0.113	0.169	0.1	694
Loleta CSD	258	56	0.276	0.158	0.225	0.21	879
Palmer Creek CSD	128	59			0.2	0.084	656
Riverside CSD	98	60	0.074	Not required[3]	0.066	0.046	469
Scotia CSD (Town of Scotia LLC)	315	1,117	1.728	1.8	1.488	0.384	1,219
Alderpoint CWD	79	66	0.432	0.130	0.160	0.063	800
Orleans CSD	150	0	Unknown but sufficient[5]	0.495	0.1	0.513	3,443
Willow Creek CSD	976	609	3.76	2.953	1.08	1.8	1,861
Hydesville CWD	457	319	0.518	Not required[3]	0.6	0.28	622
Orick CSD	140	37	0.274	Not required[3]	0.2	0.216	1,543
Shelter Cove RID	470	520	0.36	0.462	2.1	0.331	727
Big Lagoon CSD	36	0	0.07	Not required[3]	0.023	0.012	343

Table 3.13-2 Summary of Municipal Water Service Providers

Provider	Connections		Capacity			Usage	
	Existing	Estimated Available	(MGD)		(MG) Storage	(MGD) Peak Day	Gallon/Day/ Connection
			Supply	Treatment			
Westhaven CSD	233	0	0.058	0.115	0.1	0.066	283
Fieldbrook Glendale CSD	584	Not limiting (HBMWD)[5]	Not limiting (HBMWD)[5]	Not required[3]	0.415	0.389	737
McKinleyville CSD	5,517	Not limiting (HBMWD)[5]	Not limiting (HBMWD)[5]	Not required[3]	5.25	3.41	618
Humboldt CSD	7,698	Not limiting (HBMWD)[5]	Not limiting (HBMWD)[5]	Not required[3]	4.785	3.6	468
Jacoby Creek CWD	569	—	Not limiting (HBMWD)[5]	Not required[3]	0.174	0.628	1,117
Manila CSD	347	Not limiting (HBMWD)[5]	Not limiting (HBMWD)[5]	Not required[3]	0.1	0.157	459
Samoa Pacific Group LLC	104	Not limiting (HBMWD)[5]	Not limiting (HBMWD)[5]	Not required[3]	—		

Notes: CSD=community services district; HBMWD=Humboldt Bay Municipal Water District; CWD=county water district; RID=resort improvement district

[1] The 2006 State Water Resources Control Board Division of Drinking Water Annual Inspection Report for the Briceland System determined that the filtration rate for the slow sand filters is unknown, but based on the dimensions of the filters, it is unlikely that Surface Water Treatment Rule design rates are ever exceeded.

[2] The 2004 State Water Resources Control Board Division of Drinking Water Annual Inspection Report states that the Phillipsville "spring is heavily influenced by the weather and, therefore, cannot supply the whole system during the dry season. During the times when the spring cannot supply the whole system, it supplies water to the upper most portion of the system (seven to nine dwellings), and the well supplies water to the rest of the system. The well is primarily used in the drier months. Reportedly, the well could meet the full demand of the system."

[3] For systems whose source is groundwater, only disinfection is required. Sources that include surface water are required to install treatment consistent with the Surface Water Treatment Rule. The Surface Water Treatment Rule is a federal regulation established by US EPA under the Safe Drinking Water Act that imposes specific monitoring and treatment requirements on all public drinking water systems that draw water from a surface water source. The rule requires surface water sources to be filtered and disinfected.

[4] The 2007 State Water Resources Control Board Division of Drinking Water Annual Inspection Report states that source capacity for the Orleans CSD is "adequate" and that there are "no reported problems with source capacity."

[5] According to the HBMWD's 2015 Urban Water Management Plan, serving all of its customers will require less than 20 percent of its 85,000-acre feet per year entitlement in 20 years.

Source: Humboldt County 2017

Outside of more urbanized areas, residents and businesses receive water through smaller water systems. Small water systems are typically established in areas where there are no municipal water systems and where the density of development necessitates common source and infrastructure. Such systems are regulated by the State Water Resources Control Board Division of Drinking Water.

A substantial percentage of homes in Humboldt County receive domestic water through individual onsite water systems supplied by stream and spring diversions or wells. The County Environmental Health Branch Land Use Program database identifies approximately 647 private wells in Humboldt County for domestic and agricultural use, noting that the Environmental Health Branch acknowledges that this database is incomplete and does not contain a substantial number of existing domestic wells. Nevertheless, the location of these private wells serves as an indicator of the current state of groundwater development in unserved areas of the County. Data regarding well capacity and production is not available (Humboldt County 2017).

Agricultural water supply in Humboldt County is primarily related to dairies, including irrigated pasture, but also includes production of irrigated specialty crops. Water supply sources for ranch and dairy operations include individual wells and springs for domestic use and stock watering supply, and surface water stock ponds. Available water supply sources for irrigation include rainfall-derived surface water and groundwater from various watersheds, and recycled water. Irrigated agriculture in Humboldt County occurs in the Lower Eel, Eureka Plain, Mad River, Redwood Creek, Lower Trinity, Lower Klamath, and South Fork Eel planning watersheds. There are no sources of detailed information regarding the number of agricultural wells or their location, capacity, or productivity (Humboldt County 2017).

SOLID WASTE DISPOSAL

Solid waste from Humboldt County is transported to one of three out-of-area landfills for disposal: the Anderson Landfill in Shasta County; Dry Creek Landfill in Medford, Oregon; and Potrero Hills Landfill in Suisun City. The Humboldt Waste Management Authority (HWMA) manages the transport of member agency solid waste from the Hawthorne Street Transfer Station (HSTS) and from contracted transfer stations. Effective November 1, 2016, all waste is transported under a contract with Solid Waste of Willits to the Potrero Hills Landfill. This contract for services expires June 1, 2024. Humboldt Sanitation manages the transport of self-hauled and non-HWMA member waste from the northern areas of the County. Solid waste is currently transported to Dry Creek Landfill for disposal. It is anticipated that Dry Creek Landfill could provide disposal capacity for its current service area for another 75 to 100 years (Humboldt County 2017).

Eel River Disposal manages the transport of self-hauled and non-HWMA member waste, as well as waste received at the Redway Transfer Station. Solid waste is transported for disposal to the Anderson Landfill for disposal by Eel River Disposal, and Alves Inc. also hauls residual waste from its operation to Anderson. This landfill is not expected to close until 2036.

Many residents living in incorporated or unincorporated areas of the County are served by licensed commercial waste haulers ("franchise haulers"). In the unincorporated County, there are nine specific franchise areas with services provided by one of five commercial haulers. The seven cities within the County are also served by five commercial waste haulers. The level of curbside collection service provided is dependent upon the individual franchise agreements entered into between the hauler and the local jurisdiction (i.e. curbside recycling, green waste collection or other services).

The Humboldt County Public Works Department manages County franchise agreements so approved commercial haulers may collect curbside materials, and transport and dispose material at designated transfer stations. Franchise areas in unincorporated Humboldt include:

- Fortuna/Ferndale,
- Holmes/Redcrest,
- Garberville/Redway,
- McKinleyville,
- Blue Lake/Fieldbrook,
- Weott/Meyers Flat,
- Greater Arcata Area, and
- Willow Creek Greater Eureka Area

Current commercial haulers include: Arcata Garbage (Arcata area), Eel River Disposal (mid- southern Humboldt) Humboldt Sanitation (northern Humboldt), Tom's Trash (Eastern Humboldt through Eel River Disposal assignment), and Recology Humboldt County (Humboldt County (Eureka area and mid-southern Humboldt).

County Transfer Stations and Processing Facilities

Humboldt Waste Management Authority (Eureka). HWMA owns and operates the large volume Hawthorne Street Transfer Station (HSTS). The Eureka Community Recycling Center exists at the same location.

HWMA is responsible for the transportation of approximately 80 percent of the County's municipal solid waste to out-of-area landfills. Franchise solid waste from the County, and from the incorporated cities of Arcata, Blue Lake, and Eureka is delivered to the HSTS. Franchise solid waste from Ferndale, Rio Dell and surrounding unincorporated Humboldt is delivered to Eel River Disposal's transfer station in Fortuna under a satellite agreement between HWMA and Eel River Disposal. This waste is loaded into HWMA's contracted transportation hauler trailer, and transported to the landfill. Residents from throughout the County may also self-haul their waste to any of the container sites and transfer stations.

HWMA also receives recyclables, universal and household hazardous waste at the HSTS site. In addition, HWMA works with local jurisdictions to hold mobile collection events throughout the County.

HWMA's Eureka Recycling Center is a state certified CA Redemption Value (CRV) Buy-Back facility, which manages, processes and markets mixed-stream and single-stream recyclables.

Humboldt Sanitation (McKinleyville). Humboldt Sanitation operates a medium volume transfer station in McKinleyville. In addition to franchise and self-hauled solid waste, the facility also receives mixed stream and single stream recyclables for marketing purposes. The McKinleyville facility is a state CRV Buy-Back facility.

Eel River Disposal (Fortuna). Eel River Disposal & Resource Recovery operates a medium volume transfer station in Fortuna. In addition to franchise and self-hauled solid waste, it also receives mixed stream recyclables which are sorted and processed for marketing purposes. The facility is a state certified CRV Buy-Back facility.

Samoa Waste Recovery Facility (SWRF) (Samoa). Eel River Disposal & Resource Recovery operates a medium volume transfer station in Samoa which receives solid waste primarily from self-haul customers. SWRF receives mixed stream recyclables which are sorted and processed for marketing purposes.

Eel River Transportation and Salvage (Fortuna). Eel River Transportation and Salvage operates a medium volume processing facility that accepts construction, demolition, and inert debris. The debris is self-hauled by the public and commercial haulers, or transported in vehicles owned by Eel River Disposal to the facility. Salvageable and recyclable material is separated for processing, and residual waste is hauled to the Eel River Disposal Fortuna Transfer Station.

Redway Transfer Station (Redway). The County owns and contracts with Eel River Disposal for the operation of the medium volume Redway Transfer Station. Solid waste and recyclables are received from franchise haulers or self-hauled to the facility, where material is loaded into transport trailers. The Redway facility provides state certified CRV Buy-Back services.

Kernen Construction (Arcata). Kernen Construction operates a medium volume transfer station. This facility accepts non-hazardous construction and demolition debris mostly from known contractors. The debris is sorted for salvageable material and residual waste is hauled to an out-of-area landfill (see below). Kernen Construction also operates a separate inert debris recycling center which receives source-separated material for recycling and sale.

Alves Incorporated (Arcata). Alves Inc. operates a small volume construction, demolition/inert debris processing operation and a separate inert debris recycling center which accepts source-separated material for recycling. Debris is received mostly from Alves job sites or known contractors, but a small amount is self-hauled by the public. Most of the salvaged material is processed onsite to produce recycled base rock for roads and driveways, but other materials such as steel and wood are salvaged and processed separately. Residual waste is hauled to an out-of-area landfill.

S and Z Construction (Fields Landing). This is a small volume construction, demolition/inert debris processing operation that accepts debris from its own job sites and from other contractors. Recyclables are sorted onsite and hauled elsewhere for processing, and the residual waste is hauled to the HSTS.

3.13.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

The analysis of potential impacts to utilities and service systems resulting from project implementation under the proposed ordinance is based on a review of available data provided in this section and information obtained from applications submitted for commercial medical cannabis permits. Data from submitted permits was used to determine trends related to the type of permit sought and the general location of the permit types. The reader is referred to Chapter 2.0, "Project Description, "for a description of reasonably foreseeable actions regarding the extent of new commercial cannabis operations in the County

that may occur under the proposed ordinance (i.e., 1,012 new commercial cannabis cultivation sites and 108 new commercial cannabis non-cultivation sites).

Please see Section 3.8, "Hydrology and Water Quality," for a discussion related to methods and assumptions to determine surface water flows and diversion impacts as well as an evaluation of groundwater resource impacts.

THRESHOLDS OF SIGNIFICANCE

Thresholds of significance are based on Appendix G of the State CEQA Guidelines. The project would result in a significant impact on utilities and service systems if it would:

- exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- have insufficient water supplies available to serve the project from existing entitlements and resources;
- result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- not comply with federal, state, and local statutes and regulations related to solid waste.

ISSUES NOT DISCUSSED FURTHER

Potential wastewater service impacts related to the use of septic systems is addressed in Section 3.6, "Geology and Soils." Impacts to surface water and groundwater resources are addressed in Section 3.8, "Hydrology and Water Quality."

IMPACT ANALYSIS

Impact 3.13-1: Exceed wastewater treatment requirements or wastewater treatment capacity and related infrastructure.

New commercial cannabis facilities that would be allowed under the proposed ordinance could result in increased wastewater service demand for public wastewater systems that may not have adequate capacity. Commercial cannabis operations involving manufacturing, retail nurseries, processing, and distribution that would result with implementation of the proposed ordinance would generate wastewater that could contain contaminants that cannot be adequately treated by existing public wastewater treatment systems. This impact would be **potentially significant**.

Wastewater Service Availability

New commercial cannabis cultivation and non-cultivation operations located within CSD boundaries or 300 feet from the CSD service boundary that provide wastewater conveyance and treatment services would be required to connect to the CSD system as provided for in Section 611-4(a) of the County Code. Cannabis requires high quantities of irrigation water. While water used for irrigation would be transpired by plants and evaporated into the atmosphere, excess water may be discharged to municipal wastewater systems. New commercial cannabis operations may occur within several of the CSDs within the County that would increase

the demand on public wastewater service systems that may exceed current treatment and conveyance infrastructure. The following wastewater service providers are anticipated to have capacity issues because of existing facility limitations and/or growth in wastewater flows from growth under the Humboldt County General Plan Update:

- Redway CSD,
- Loleta CSD,
- Palmer Creek CSD,
- Scotia CSD,
- Fieldbrook Glendale CSD, and
- McKinleyville CSD

The provision of adequate wastewater capacity is the responsibility of the CSDs that are not under the jurisdiction of the County. The CSDs are required to maintain and operate their wastewater facilities consistent with wastewater discharge permitting from the North Coast Regional Water Quality Control Board. Planning and funding for future improvements wastewater conveyance and treatment facilities and the associated environmental review would be conducted by CSDs. As previously described above, Redway CSD, Loleta CSD, and McKinleyville CSD have identified improvements to their wastewater facilities. Potential environmental impacts associated with wastewater facility improvements would vary based on the extent of the improvements and their location in relation to the natural environment. Significant environmental impacts may include changes in visual character, light and glare, direct or indirect impacts to agricultural resources, construction and operational air quality impacts, impacts to habitat, water quality and special status plant and animal species, disturbance of archaeological, historic, and tribal cultural resources, construction and operational water quality, and construction traffic. The nature and extent of these potential impacts from wastewater facility improvements by the CSDs is not known. Given the uncertainty of wastewater service in these CSDs, this impact is considered **potentially significant**.

Impacts to Wastewater Facilities

Processing activities generally refer to the preparation of concentrates, such as oils, butter, or black or brown sticky substances that have high levels of tetrahydrocannabinol and other cannabinoids (commonly referred to as THC and CBDs, respectively). Procuring the active ingredients from the cannabis plants can be achieved through a variety of methods, most typically through agitation (spinning or shaking), temperature (extreme cold), or combustion. Combustion requires a solvent, such as butane or carbon dioxide/ethanol. Materials remaining upon completion of concentrate procurement include plant materials and spent solvents. Disposal of leftover plant materials into wastewater discharge connected to municipal wastewater treatment plants can cause sanity sewer overflow events and otherwise compromise the functioning of systems; disposal or chemicals and other byproducts of cannabis processing can interfere with sewage treatment operations and can result in explosive atmospheres in wastewater pipelines. In addition, cultivation of cannabis includes the use of chemicals such as pesticides, herbicides, and fertilizers may contain organic or volatile organic chemicals, heavy metals, and nutrients. Irrigation and other water uses (e.g., cleaning) may cause chemicals and associated constituents to be transported into the sewer systems because of overuse or from excess irrigation water. Given the possible impacts to wastewater conveyance and treatment facilities, this impact is considered **potentially significant**.

Mitigation Measure 3.13.-1a: Prepare a treatment program for all new indoor cultivation and non-cultivation activities.

Applicants for new commercial indoor cultivation and non-cultivation cannabis operations shall prepare a materials management program that will address each permit type sought within a site. The program shall include:

- a detailed description of activities and processes occurring on site, including:
  - equipment type and number;
  - detailed standard operating procures for processes;
  - chemical requirements and reactions;

- cleaning procedures for equipment; and
- disposal methods for all materials (e.g., plant materials, solvents, empty containers), and

- type and quantity of items produced.
  - material Safety Data Sheets for all chemical substances occurring on site;
  - manifests for each chemical describing quantities purchased, date used, and quantities disposed;
  - facility site plan with storage map, showing where hazardous materials will be stored;
  - an inventory of all emergency equipment with the location and description of items, including:
    - personal protective equipment;
    - fire extinguishing systems;
    - spill control equipment and decontamination equipment, and
    - communication and alarm systems.
  - an employee training plan that includes:
    - emergency response procedures and incident reporting, and
    - chemical handling procedures.

The materials management program shall be submitted to Humboldt County Division of Environmental Health and public agencies or private enterprises accepting waste materials, including CSDs and waste transfer stations. Commercial cannabis permits shall not be granted without approval of the materials management program relevant agencies.

Mitigation Measure 3.13-1b: Verification of adequate wastewater service and necessary improvements for public wastewater systems.

Applicants shall determine whether sufficient wastewater treatment capacity exists for a proposed project. These determinations must ensure that the proposed development can be served by its existing or planned treatment capacity and wastewater conveyance through approval of the relevant service provider. If adequate capacity does not exist, applicants shall coordinate with the relevant service provider to ensure that adequate improvements are made accommodate the increased demand, and if not, infrastructure improvements for the appropriate public service or utility shall be identified. The relevant public service provider or utility shall be responsible for undertaking project-level review as necessary to provide CEQA clearance and implementation of adopted mitigation measures for new facilities.

Significance after Mitigation

Mitigation Measures 3.13-1a and 3.13-1b would ensure that commercial cannabis operations verify that adequate wastewater service exists for the site and that anticipated wastewater effluent quality from non-cultivation operations would not impact current wastewater treatment facilities of service providers and provide pretreatment of wastewater discharges if required. This impact would be reduced to a **less-than-significant** level.

Impact 3.13-2: Provision of sufficient water supplies and infrastructure needs.

New commercial cannabis facilities that would be allowed under the proposed ordinance would result in increased water demand from public water systems that could exceed supply and related infrastructure. This impact would be **significant**.

New commercial cannabis cultivation and non-cultivation operations located within CSD boundaries or other service entities may obtain public water service (if available). While some CSDs have available water supplies that could accommodate these operations, the following CSDs currently have limited or no water connections available (see Table 3.13-2):

- Briceland CSD,
- Big Lagoon CSD,
- Redway CSD,
- Orleans CSD, and
- Westhaven CSD.

The provision of adequate water supply and distribution facilities is the responsibility of the CSDs that are not under the jurisdiction of the County. Potential environmental impacts associated with obtaining additional water supply and facility improvements would vary based on the extent of the improvements and their location in relation to the natural environment. Significant environmental impacts may include changes in visual character, light and glare, direct or indirect impacts to agricultural resources, construction and operational air quality impacts, impacts to habitat, water quality and special status plant and animal species, disturbance of archaeological, historic, and tribal cultural resources, construction and operational water quality, and construction traffic. The nature and extent of these potential impacts from water supply improvements by the CSDs is not known. Given the uncertainty of adequate water service from these CSDs, this impact is considered **potentially significant**.

Mitigation Measure 3.13-2: Verification of adequate water supply and service for municipal water service.

The County shall include the following additional water supply verification requirements in the ordinance for all new commercial cannabis operations that plan to obtain municipal water service:

- Applicants for new commercial cannabis operations that plan to obtain water from CSD or other entities will obtain, and provide to the County, written verification from the water service provider that adequate water supply is available to serve the site. If adequate capacity does not exist, applicants shall coordinate with the relevant service provider to ensure that adequate improvements are made to accommodate the increased demand, and if not, infrastructure improvements for the appropriate public service or utility shall be identified. The relevant public service provider or utility shall be responsible for undertaking project-level review as necessary to provide CEQA clearance for new facilities.

Significance after Mitigation

Implementation Mitigation Measure 3.13-2 would require verification of adequate water supply for new commercial cannabis operations proposing to utilize a municipal water system maintained by a CSD or other entity and identification of any improvements required to provide water service. While the above mitigation measure would assist in addressing public water supply impacts, the County cannot ensure that the public water service providers will be able to obtain additional water supplies or facilities to accommodate potential future commercial cannabis operations. Possible environmental impacts from constructing and operating new or expanded water facilities by the public water service providers are identified above. The nature and extent of these potential environmental impacts are not known. Because of these uncertainties, this impact is **significant and unavoidable**.

Impact 3.13-3: Potential to be served by a landfill with insufficient capacity or violate existing statutes related to solid waste.

Future commercial cannabis facilities that would be allowed under the proposed ordinance would generate solid waste from various materials and containers used during cultivation (e.g., soils, fertilizers, pesticides, pots), as well as household trash from workers, discarded irrigation tubing, discarded soil, and other equipment. Cannabis processing activities may result in increased levels of hazardous waste or plant materials requiring disposal. While individual sites may contribute only small amounts of hazardous and non-hazardous wastes, periods of cultivation, such as harvest, may result in the contribution of many sites such that acceptance rates are exceeded. Thus, this impact would be **potentially significant**.

Cannabis cultivation operations may generate solid waste from various materials and containers used during cultivation (e.g., soils, fertilizers, pesticides, pots), as well as household trash from workers, discarded irrigation tubing, and other equipment. Activities related to manufacturing, processing, and distribution would create solid wastes typical of other workplace activities (e.g., food containers, paper products). Solid waste would be collected by franchise waste companies or hauled by individual businesses to transfer stations and processing facilities. As discussed above, under Section 3.13.1, Environmental Setting, solid waste is hauled to landfills contracted to accept waste for the foreseeable future (e.g., Potrero Landfill is

contracted through 2024, and the Dry Creek Landfill has capacity available for up to 100 years). All cultivation and operation plans must prepare a solid waste management plan that describes how solid waste would be disposed as part of clearance and permit requirements.

In response to comments on the NOP, the Humboldt County Division of Environmental Health noted that the Redway Transfer Station has experienced a substantial increase in received materials over the past five years. As noted above, solid waste generated from cannabis cultivation activities is associated with items such as containers, discarded equipment, and household trash, which would not be consistently generated throughout the year from cultivation sites. That is: containers would generally be used during nursey phases of cultivation, and re-used to the extent possible to reduce costs; old equipment would be discarded as needed; and household trash generation would likely be at its greatest levels during harvest periods (i.e., approximately 6 weeks). Implementation of the proposed ordinance may increase the number of cultivation sites that would dispose of solid waste at Redway Transfer Station, and other transfer stations in the County.

As discussed above under Impact 3.13-1, commercial cannabis processes include the use of hazardous materials and large quantities of plant materials. While individual sites may contribute only small amounts of hazardous and non-hazardous wastes, periods of cultivation, such as harvest, may result in the contribution of many sites such that acceptance rates are exceeded. Thus, this impact would be potentially significant.

Mitigation Measure 3.13-3: Implement Mitigation Measure 3.13-1a: Prepare a treatment program for all new indoor cultivation and non-cultivation activities.

Significance after Mitigation

Implementation of Mitigation Measure 3.13-1a will require individual applicants to determine and plan for handling and disposal methods for all materials (e.g., plant materials, solvents, empty containers) used during commercial cannabis operations. Waste disposal plans will be submitted to the Humboldt County Division of Environmental Health and other appropriate public agencies or private enterprises, including transfer stations, for approval before issuance of permits. Because implementation of this mitigation measure would ensure that capacity for waste is available and that materials are disposed of properly, impacts would be reduced to a **less-than-significant** level.

3.14 ENERGY

This section was prepared pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15126 and Appendix C of the State CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects. The analysis considers whether implementation of the proposed ordinance would result in inefficient, wasteful, and unnecessary consumption of energy.

Energy related to the construction and operation of commercial cultivation operations and non-cultivation facilities would include energy directly consumed for lighting, space heating and cooling, and electric-powered facilities. Indirect energy consumption would be associated with the generation of electricity at power plants for those operations that connect to the regional grid. Transportation-related energy consumption includes the use of fuels to power cars and trucks transporting goods and workers to the operations. Energy would also be consumed by equipment and vehicles used during project construction and routine maintenance activities.

3.14.1 Regulatory Setting

Federal and State agencies regulate energy consumption through various policies, standards, and programs. At the local level, individual cities and counties establish policies in their general plans and climate action plans, if applicable, related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the U.S. Environmental Protection Agency's [EPA] EnergyStar™ program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Code of Regulations sets forth energy standards for buildings. Further, the state provides rebates/tax credits for installation of renewable energy systems, and offers the Flex Your Power program promotes conservation in multiple areas.

FEDERAL

Energy Policy and Conservation Act, and CAFE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the U.S. Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the EPA calculates a CAFE value for each manufacturer based on the city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, DOT is authorized to assess penalties for noncompliance. Under the Energy Independence and Security Act of 2007 (described below), the CAFE standards were revised for the first time in 30 years.

Energy Policy Act (1992 and 2005) and Energy Independence and Security Act of 2007

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally-fueled fleets in metropolitan areas. The Energy Policy Act of 2005 provides

renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce U.S. dependence on oil. The Energy Independence and Security Act of 2007 increased the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels; and reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon by 2020—an increase in fuel economy standards of 40 percent. By addressing renewable fuels and CAFE standards, the Energy Independence and Security Act of 2007 will build on progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

State of California Energy Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 1997 California Energy Plan. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs; and encouragement of urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Assembly Bill 2076: Reducing Dependence on Petroleum

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), CEC and the California Air Resources Board (CARB) prepared and adopted a joint agency report in 2003, *Reducing California's Petroleum Dependence.* Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. Further, in response to the CEC's 2003 and 2005 *Integrated Energy Policy Report*s, Governor Davis directed CEC to take the lead in developing a long-term plan to increase alternative fuel use.

Senate Bill 1078: California Renewables Portfolio Standard Program

Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002) establishes a renewable portfolio standard (RPS) for electricity supply. The RPS required that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 20 percent of their supply from renewable sources by 2013. In addition, electricity providers subject to the RPS must increase their renewable share by at least 1 percent each year. The outcome of this legislation will affect regional transportation powered by electricity. As of 2016, the State has reported that 27.6 percent of electricity is sourced from certified renewable sources (California Public Utilities Commission [CPUC] 2017).

SB X1-2 of 2011 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. The State has already met the 2016 target is currently on track to meet the 2020 target.

Senate Bill 350: Clean Energy and Pollution Reduction Act of 2015

The Clean Energy and Pollution Reduction Act of 2015 (SB 350) requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. This act also requires doubling of the energy efficiency savings in electricity and natural gas for retail customers through energy efficiency and conservation by December 31, 2030.

Assembly Bill 1007: State Alternative Fuels Plan

AB 1007 (Chapter 371, Statues of 2005) required CEC to prepare a State plan to increase the use of alternative fuels in California. CEC prepared the State Alternative Fuels Plan (SAF Plan) in partnership with CARB and in consultation with other state, federal, and local agencies. The SAF Plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes the costs to California and maximizes the economic benefits of in-state production. The SAF Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuel use, reduce greenhouse gas (GHG) emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Executive Order S-06-06

Executive Order (EO) S-06-06, signed on April 25, 2006, establishes targets for the use and production of biofuels and biopower, and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40 percent by 2020, and 75 percent by 2050. The EO also calls for the state to meet a target for use of biomass electricity. The 2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the State can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updates the 2011 plan and provides a more detailed action plan to achieve the following goals:

- increase environmentally- and economically-sustainable energy production from organic waste;
- encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications;
- create jobs and stimulate economic development, especially in rural regions of the state; and
- reduce fire danger, improve air and water quality, and reduce waste.

As of 2015, 3.2 percent of the total electricity system power in California was derived from biomass.

California Green Building Standards

California Code of Regulations, Title 24, Part 6, is California's Energy Efficiency Standards for Residential and Non-Residential Buildings. Title 24 was established by CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption, and provide energy efficiency standards for residential and non-residential buildings. In 2013, CEC updated Title 24 standards with more stringent requirements, effective July 1, 2014. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The CEC *Impact Analysis for California's 2013 Building Energy Efficiency Standards* estimates that the 2013 standards are 23.3 percent more efficient than the previous 2008 standards for residential construction and 21.8 percent more efficient for non-residential construction. In 2016, CEC updated Title 24 standards again, effective January 1, 2017. While the impact analysis of these standards has not yet been released, CEC estimates that the 2016 standards are 28 percent more efficient than 2013 standards for residential construction and are 5 percent more efficient for non-residential construction. The building

efficiency standards are enforced through the local plan check and building permit process. Local government agencies may adopt and enforce additional energy standards for new buildings as reasonably necessary because of local climatologic, geologic, or topographic conditions, provided that these standards exceed those provided in Title 24.

Assembly Bill 32, Climate Change Scoping Plan and Update

In December 2008, CARB adopted its Climate Change Scoping Plan, which contains the main strategies California will implement to achieve reduction of approximately 118 million metric tons (MMT) of carbon dioxide-equivalent (CO_2e) emissions, or approximately 21.7 percent from the State's projected 2020 emission level of 545 MMT of CO_2e (a reduction of 47 MMT CO_2e, or almost 10 percent, from 2008 emissions). Greenhouse gas (GHG) emissions in the State are directly linked to energy consumption and therefore efforts to reduce statewide GHG emissions also relate to increases in energy efficiency.

In May 2014, CARB released and has since adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching AB 32 goals and evaluate progress that has been made between 2000 and 2012 (CARB 2014:4 and 5). According to the update, California is on track to meet the near-term 2020 GHG limit. On January 20, 2017, CARB released its proposed 2017 Climate Change Scoping Plan Update, which lays out the framework for achieving the 2030 reductions as established in more recent legislation (discussed below). The proposed 2017 Scoping Plan Update identifies the GHG reductions needed by each emissions sector to achieve a statewide emissions level that is 40 percent below 1990 levels before 2030.

Local actions to achieve the statewide emission target are identified in the 2017 Scoping Plan Update. Measures identified include those to generate renewable energy, improve building energy efficiency and water efficiency, and improve AFV infrastructure. Further, many of the measures identified in the proposed 2017 Climate Change Scoping Plan Update will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient. At the time of writing this environmental document, CARB has not yet approved its proposed 2017 Scoping Plan Update. More details about the statewide GHG reduction goals and Scoping Plan measures are provided in the regulatory setting of Section 3.3, "Air Quality and Greenhouse Gas Emissions."

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include Section 38566, which contains language to authorize CARB to achieve a Statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the State's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050. Achievement of these goals will have the co-benefit of reducing California's dependency of fossil fuels and making land use development and transportation systems more energy efficient.

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program which combines the control of GHG emissions and criteria air pollutants, as well as requirements for greater numbers of zero-emission vehicles, into a single package of standards for vehicle model years 2017 through 2025. The new rules strengthen the GHG standard for 2017 models and beyond. This will be achieved through existing technologies, the use of stronger and lighter materials, and more efficient drivetrains and engines. The program's zero-emission vehicle regulation requires battery, fuel cell, and/or plug-in hybrid electric vehicles (EVs) to account for up to 15 percent of California's new vehicle sales by 2025. The program also includes a clean fuels outlet regulation designed to support the commercialization of zero-emission hydrogen fuel cell vehicles planned by vehicle manufacturers by 2015 by requiring increased numbers of hydrogen fueling stations throughout the State. The number of stations will grow as vehicle manufacturers sell more fuel cell vehicles. By 2025, when the rules will be fully implemented, the Statewide fleet of new cars and light trucks will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions than the Statewide fleet in 2016 (CARB 2016).

LOCAL

Humboldt County Code

Section 45.2.3.5 of the County Code identifies that there shall be no structural, electrical, or plumbing alterations necessary for the Cottage Industry which are not customarily found in dwellings or residential accessory structures.

Humboldt County General Plan

The Humboldt County General Plan (Humboldt County 1988) includes policies in Land Use and Housing Elements applicable to the energy efficiency of new development, reducing community-wide energy consumption, and reducing fossil fuel consumption in Humboldt County:

Land Use Policies

- **Policy 2230.5.** Ensure that industrial or commercial development which requires provision for public water, sewage disposal, roads and other needed utilities and services is placed in a suitable urbanized area.
- **Policy 2230.11.** Maximize local energy opportunities from the renewable resources found in the County.

Housing Policies

- **Policy 2430.5.1.** The County shall support the use of innovative methods that make more efficient use of land and building materials.
- **Policy 2430.5.4.** The County shall encourage the use of low-cost, energy efficient, low- consumptive housing designs, materials and construction methods that reduce costs.
- **Policy 2430.6.5.** The County shall consider house solar orientation and energy effective landscaping during the review process.
- **Policy 2430.6.6**. The County shall support active experimentation with water-conserving waste disposal systems, energy systems, dwelling designs, and uses of recycled materials for building.
- **Policy 2430.6.7.** The County encourages future development based on energy efficient travel patterns and the location of existing services.
- **Policy 2430.6.8.** The County, recognizing the need of tenants for energy efficient housing, shall encourage the weatherization of rental units.

3.14.2 Environmental Setting

PHYSICAL SETTING

Energy Facilities and Services in the County

Electric and natural gas services in Humboldt County are provided by Pacific Gas & Electric (PG&E). The PG&E electrical grid in Humboldt County covers about 3,000 square miles and is connected to the bulk PG&E transmission system by four circuits, each ranging from 31 to 115 miles in length. Electricity is primarily transmitted through two 115kV circuits. The total electrical transmission capacity into Humboldt County through the existing lines is 60 to 70 megawatts, less than half of the County's current peak demand. There is one major natural gas supply line in Humboldt County, and PG&E is capable of transporting enough natural gas to meet current needs (Humboldt County 2017).

Energy Types and Sources

California relies on a regional power system comprised of a diverse mix of natural gas, petroleum, renewable, hydroelectric, and nuclear generation resources. One third of energy commodities consumed in California is natural gas. In 2014, approximately 35 percent of all natural gas consumed in the State was used to generate electricity. Residential land uses represented approximately 17 percent of California's natural gas consumption with the balance consumed by the industrial, resource extraction, and commercial sectors (U.S. Energy Information Administration [EIA] 2014).

Power plants in California meet approximately 68 percent of the in-state electricity demand; hydroelectric power from the Pacific Northwest provides another 12 percent; and power plants in the southwestern U.S. provide another 20 percent (EIA 2014). The contribution of in-state and out-of-state power plants depends upon, among other factors, the precipitation that occurred in the previous year and the corresponding amount of hydroelectric power that is available. PG&E is the primary electricity supplier in Humboldt County. As of 2015, PG&E was powered by 29.5 percent renewables, including biomass, geothermal, small hydroelectric, solar, and wind (CPUC 2017).

Alternative Fuels

A variety of alternative fuels are used to reduce demand for petroleum-based fuel. The use of these fuels is encouraged through various statewide regulations and plans (e.g., Low Carbon Fuel Standard, Assembly Bill 32 Scoping Plan). Conventional gasoline and diesel may be replaced (depending on the capability of the vehicle) with many transportation fuels (e.g., biodiesel, hydrogen, electricity, and others).

California has a growing number of alternative fuel vehicles through the joint efforts of the CEC, CARB, local air districts, federal government, transit agencies, utilities, and other public and private entities. As of August 2017, Humboldt County contained over 28 alternative fueling stations (Alternative Fuels Data Center 2017).

COMMERCIAL ENERGY USE

Commercial buildings represent just under one-fifth of U.S. energy consumption with office space, retail, and educational facilities representing about half of commercial sector energy consumption. In aggregate, commercial buildings consumed 46 percent of building energy consumption and approximately 19 percent of U.S. energy consumption. In comparison, the residential sector consumed approximately 22 percent of U.S. energy consumption (U.S. Department of Energy 2012).

ENERGY USE FOR TRANSPORTATION

On-road vehicles use about 90 percent of the petroleum consumed in California. The California Department of Transportation (Caltrans) projected 90 million gallons of gasoline and diesel were consumed in Humboldt County in 2015, an increase of approximately 10 million gallons of fuel from 2010 levels (Caltrans 2008).

3.14.3 Environmental Impacts and Mitigation Measures

METHODS AND ASSUMPTIONS

Levels of construction- and operation-related energy consumption by implementation of the proposed ordinance are measured in megawatt-hours of electricity, therms of natural gas, gallons of gasoline, and gallons of diesel fuel. Energy consumption estimates were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1 computer program. Where specific information was not known, CalEEMod default values based on the project's location and reasonable assumptions were used. Refer to Appendix C for a detailed summary of energy calculations and assumptions.

THRESHOLDS OF SIGNIFICANCE

Based on Appendix C (energy) of the State CEQA Guidelines, an energy impact is considered significant if implementation of the proposed ordinance would:

- result in wasteful, inefficient, and unnecessary consumption of energy, during cultivation site and non-cultivation site construction or operation, as evidenced by a failure to decrease overall per capita energy consumption or decrease reliance on fossil fuels such as coal, natural gas, and oil;
- fail to incorporate feasible renewable energy or energy efficiency measures into building design, equipment use, transportation, or other project features, or otherwise fail to increase reliance on renewable energy sources; or
- exceed the available capacities of energy supplies that require the construction of facilities.

IMPACT ANALYSIS

Impact 3.14-1: Wasteful, inefficient, and unnecessary consumption of energy.

The proposed ordinance would increase electricity and natural gas consumption at future sites relative to existing conditions for temporary construction activities as well as long-term operational activities. The energy needs for construction of commercial cannabis cultivation sites and non-cultivation sites would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy. Further, the proposed ordinance would require all new cultivation and non-cultivation sites to derive its energy from up to 100 percent renewable energy sources. Existing outdoor or mixed-light cultivation operations that are not on the grid would be required to obtain at least 80 percent of their energy demand from renewable sources. Therefore, the project would not result in wasteful, inefficient, and unnecessary consumption of energy. Thus, the impact would be **less than significant.**

Appendix C of the State CEQA Guidelines requires the consideration of the energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision (b)(3)). Neither the law nor the State CEQA Guidelines establish criteria that define wasteful, inefficient, or unnecessary use. Compliance with California Code of Regulations Title 24 Energy Efficiency Standards would result in energy-efficient buildings. However, compliance with building codes does not address all potential energy impacts during cultivation and non-cultivation site construction and operation. For example, energy would be required to transport people and goods to and from each cultivation and non-cultivation site. Energy use is discussed by project component below.

Construction-Related Energy

Energy would be required to construct each cultivation and non-cultivation site, operate and maintain construction equipment, and produce and transport construction materials. The one-time energy expenditure required to construct the physical buildings and infrastructure associated with the project would be nonrecoverable. Most energy consumption would result from operation of construction equipment and vehicle trips associated with commutes by construction workers and haul trucks supplying materials. Table 3.14-1 summarizes the levels of energy consumption for construction by each license type of new cultivation and non-cultivation sites based on new commercial cannabis facility assumptions identified in Chapter 2, "Project Description." The energy needs for project construction would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy.

Table 3.14-1 Construction Energy Consumption

License	Diesel Consumption[1] (Gallons)	Gasoline Consumption[2] (Gallons)
1-Outdoor	590	31
2-Outdoor	1,180	62
3-Outdoor	2,359	124
1B-Mixed-Light	590	31
2B-Mixed-Light	1,180	62
3B-Mixed-Light	1,769	93
1A-Indoor	1,814	134
2A-Indoor	3,388	208
3A-Indoor	5,472	310
Non-Cultivation Operations	964	103

[1] Diesel consumption by off-road equipment.

[2] Gasoline consumption by worker trips.

Source: Calculations by Ascent Environmental in 2017

Operational Building Energy

Operation of the cultivation sites would require the use of various processing equipment depending on the size and characteristics. Equipment requiring electricity consumption at cultivation sites could include but is not limited to growing lights, ventilation and climate control systems, and water pumps. Cultivation sites would also include amenities for employees that would require electricity, such as on-site housing. Operation of the non-cultivation sites would require equipment to process the cannabis into value added products (baked goods, oils, etc.), conduct testing on cannabis products and operate wholesale nursery and propagation centers.

As described in Chapter 2.0, "Project Description," energy demand for all new cultivation operations and non-cultivation facilities would be required to be 100 percent renewable, which can be achieved through on-site renewable systems, purchase of carbon offsets, or continued enrollment in available utility or community clean energy programs. Where grid power is not available, outdoor or mixed-light cultivation operations that are not on the grid would be required to obtain at least 80 percent of their energy demand from renewable sources.

Based on energy modeling results for the project for potential new commercial cannabis operations, the proposed ordinance could increase electricity and natural gas consumption in the region relative to existing conditions. Table 3.14-2 summarizes the potential levels of energy consumption for the first year of operation during the buildout year of 2020.

New buildings constructed under the proposed ordinance would meet the California Code of Regulations Title 24 standards for energy efficiency that are in effect at the time of construction that would continue to require improved building energy efficiency. Cultivation and non-cultivation operations would be subject to 2016 Title 24 requirements that would require the applicants to build energy-efficient buildings, which use less electricity, and therefore, reduce fossil fuel consumption. The 2016 Title 24 standards are anticipated to reduce nonresidential electricity and natural gas consumption by 5 percent over the 2013 Title 24 standards. Considering that new structures would comply with energy efficiency standards of Title 24 and many sites would obtain 100 percent of their energy needs from renewable sources, project-generated building energy would not be wasteful and inefficient.

Table 3.14-2 Operational Energy Consumption

License	Electricity Consumption (kWh/year)	Natural Gas Consumption (Btu/year)
1-Outdoor	2,180	N/A
2-Outdoor	4,360	N/A
3-Outdoor	7,848	N/A
1B-Mixed-Light	2,180	N/A
2B-Mixed-Light	4,360	N/A
3B-Mixed-Light	6,104	N/A
1A-Indoor	26,796	N/A
2A-Indoor	53,592	N/A
3A-Indoor	110,472	N/A
Non-Cultivation Operations	47,824	35,300

Notes: kWh/year = kilowatt-hours per year; Btu/year = British thermal units per year.

Source: Calculations by Ascent Environmental in 2017

Operational Transportation Energy

Transportation energy use for the operation of cultivation and non-cultivation sites is largely attributed to employee commute trips to the new site locations. Fuel use estimates for these associated commute trips were calculated from the combination of vehicle fuel consumption rates and fuel mix by vehicle class from CARB's EMFAC2014 model. Employee commute trip rates were assumed to be taken by light-duty passenger vehicles and light duty trucks. See Appendix C for full calculations associated with operational transportation energy use. Table 3.14-3 summarizes the gasoline and diesel consumption estimated for an individual cultivation and non-cultivation operation in 2020.

Adoption of the proposed ordinance could result in an increase in vehicle miles traveled (VMT) and associated fuel use from worker and on-site resident commute trips. New trips would be dispersed throughout the entire county and distribution of each trip would depend on actual cultivation site location. In some cases where residents live on-site, VMT may be minimal and in other cases may be higher. Further, during harvest season, VMT associated with additional workers would likely increase. Nonetheless, incremental increases in VMT would be a factor of individual site location and operational-specific parameters, including harvest quantity, number of workers/residents, and number/type of daily trips required. Transportation energy consumption is anticipated to decrease because of federal regulations such as the CAFE standards, which require vehicles to obtain higher fuel efficiency. Cleaner vehicles that rely on alternative fuels are increasing throughout Humboldt County and California, and through the State's Advanced Clean Car Program, more zero emission and electric vehicles are anticipated to be adopted.

Table 3.14-3 Gasoline and Diesel Consumption in 2020

License	Diesel Consumption (Gallons)	Gasoline Consumption (Gallons)
Cultivation Operation	<1	22
Non-Cultivation Operation	<1	20

Source: Calculations by Ascent Environmental in 2017

Summary

According to Appendix C of the State CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall per capita energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources.

As discussed above, energy would be required during the construction and operation of facilities under the proposed ordinance. Construction-related energy would be used during construction activities and would not represent a long-term increase in energy demand. Construction cost is directly linked to the time and materials consumed to complete the work. Thus, construction would progress in an efficient manner such that costs and associated fuel and energy needs are reduced.

Operational-related energy demand would result from building energy use from both cultivation and non-cultivation operations use as well as increases in vehicular traffic from employee commute trips. The cultivation operations and non-cultivation facilities would comply with the most current energy-efficient standard (i.e., Title 24). Further, the cultivation and non-cultivation operations would be required to use renewable energy sources for electricity needs. Existing sites that apply for a permit under the proposed ordinance would be required to obtain 80 percent of energy demand from renewable sources. These design features and state regulations, combined, would reduce overall project energy use.

Transportation-related energy demand would be required by fuel consumption for worker commute and distribution of goods. Through federal and state policy, it is anticipated that vehicles in Humboldt County would increasingly rely on alternative fuels and increase fuel efficiency, thus reducing fuel demand.

The project's energy consumption from construction, building operation, or transportation would not be considered wasteful, inefficient, or unnecessary. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact 3.14-2: Demand for energy services and facilities.

Adequate infrastructure and capacity for energy services and facilities exist within portions of the County for future commercial cannabis activities resulting from the ordinance. The proposed ordinance requires all sites conducting cultivation or supportive activities to be supplied from on-grid power from either 100 percent renewable sources, on-grid power with purchase of carbon offset from an accredited source, or on-site zero net energy provided by a renewable source. Existing outdoor and mixed-light cannabis cultivation operations not on the grid that apply for a permit under the proposed ordinance would be required to obtain at least 80 percent of their energy demand from renewable sources. These requirements within the ordinance would reduce new energy demand beyond the existing capacity of energy services or facilities in the County. Thus, this impact would be **less than significant**.

The existing electrical and natural gas infrastructure provided and operated by PG&E is in close proximity to the urban and developed areas of Humboldt County. Due to the development patterns of cannabis cultivation and supportive uses across the County and the ordinance requirements, it is anticipated that most sites applying for permits under the proposed ordinance would provide their own energy supply. Due to the requirement of renewable energy on-site, it is anticipated that sites would procure solar power through individual arrays. The cannabis operations that are able to use the existing energy grid in the County would be supplied by PG&E, which is anticipated to maintain sufficient capacity to provide power to through the lifetime of cultivation and non-cultivation sites (Humboldt County 2017). Further, state legislation such as SB 350 requires energy utilities to increase energy efficiency and manage peak demand using various strategies such as energy efficiency financing and tiered service rates. This is anticipated to reduce demand statewide through increased energy efficiency. Due to the anticipated development pattern of operations under the proposed ordinance and the amount of renewable energy that would be generated at individual sites, the impact to energy services and facilities would be **less than significant**.

Mitigation Measures

No mitigation is required.

4 CUMULATIVE IMPACTS

4.1 CEQA REQUIREMENTS

Section 15130(a) of the State CEQA Guidelines requires a discussion of the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Cumulatively considerable, as defined in CEQA Guidelines Section 15065(a)(3), means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." The State CEQA Guidelines Section 15355 defines a cumulative impact as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

4.2 GEOGRAPHIC SCOPE OF THE CUMULATIVE ANALYSIS AND RELATED PLANS

CEQA Guidelines Section 15130 identifies two methods for establishing the cumulative environment in which a project is considered: the use of a list of past, present, and probable future projects, or the use of adopted projections from a general plan, other regional planning document, or a certified EIR for such a planning document. This cumulative analysis uses the "projections" approach to the cumulative analysis, relying on the summary of projections contained in the Board of Supervisors Draft Humboldt County General Plan and the *Humboldt County General Plan Update Revised Draft Environmental Impact Report* (2017a), both of which used data from the California Department of Finance and the California Department of Transportation.

Table 4-1 shows population projections in Humboldt County for 2015 through 2040, as well as the average annual growth rate for each time period. As shown in the table, the County's population is projected to increase from 135,116 in 2016 to 138,307 in 2040 (the horizon year for the General Plan Update that is currently in preparation). Future growth rates are projected to be lower than the historical growth rates shown in Table 4-1.

Table 4-1 Population and Growth Rate Projections for Humboldt County

Year	Population (projected after 2010)	Change	Average Annual Growth Rate
2000	126,839		
2005	131,410	4,571	0.71
2010	134,623	3,213	0.48
2016	135,116	493	0.06
2020	139,033	3,917	0.72
2025	140,713	1,680	0.24
2030	140,608	-105	-0.01
2035	139,780	-828	-0.12
2040	138,307	-1,473	-0.21
		Overall Growth Rate 2000—2040	**0.22**

Source: Humboldt County 2017a (Table 2.1-5)

4.2.1 Existing Land Use Conditions of the County

Existing land use conditions that are related to cumulative setting conditions include the following.

- Development of the unincorporated area of the County and the incorporated cities has resulted in conversion of natural habitat to urban uses and decreased surface water flows to support urban water supply demands.
- Historic and on-going agricultural activities that have converted habitat and required diversion of surface water and groundwater supplies for irrigation.
- Historic timber production has resulted in the modification of forest resources and degraded water quality and fisheries conditions in County watersheds.
- Existing cannabis cultivation and related activities have adversely affected natural habitats, biological resources, and water resources in the County (described further below).

4.2.2 Existing Cannabis Cultivation Operations in Humboldt County

A study of 2012 satellite imagery conducted by Butsic and Brenner (2016) revealed the presence of 4,428 outdoor cultivation sites within 60 of the 112 subwatersheds visible in Humboldt County. In 2015, during a presentation before the Humboldt County Board Supervisors, Mr. Butsic (2016) confirmed that the 60 watersheds selected and surveyed were chosen randomly and that it was, therefore, reasonable to extrapolate almost double that number could exist within Humboldt County in 2012. Anecdotal information received from observations by local regulatory and enforcement agencies suggests a pattern of rampant growth in the industry during the past decade, with some estimates of as many as 10,000 to 15,000 cultivation operations currently in existence. As identified in Table 2-2, the County has received cannabis applications in response to the 2016 CMMLUO that cover approximately 1,252 acres of existing and proposed new operations (8 to 13 percent of the total estimated cultivation operations in the County).

Historic and on-going cannabis cultivation practices have resulted in damage to streams and wildlife. More recently, illegal cannabis cultivation operations within public and private lands have led to illegal water diversions, unpermitted removal of sensitive vegetation, and direct mortality to protected species from exposure to rodenticides and insecticides (Gabriel et al. 2012 and 2013). In addition, these practices (e.g., clearing trees, grading, and road construction) have been conducted in a manner that causes large amounts of sediment to flow into streams during rains. The cannabis cultivators have also discharged pesticides, fertilizers, fuels, trash, and human waste around the sites, that then discharges into waters of the state. Furthermore, diversion of flow during the dry season have caused complete elimination of stream flows in some areas of the County. Water quality related constituents of concern associated with cannabis cultivation discharges include nitrogen, pathogens (represented by coliform bacteria), phosphorus, salinity, and turbidity. Water quality can be affected by excessive use of fertilizer, soil amendments, or other sources.

Cultivation operations that do not participate in the proposed ordinance would continue to be considered illegal upon adoption of the ordinance. Enforcement activities would be taken by the County in coordination with other agencies that could result in bringing some cultivation operations into compliance with County and state standards and the closure and remediation of other operations. The removal of illegal cultivation sites is on-going, and consideration of general locations where this would occur and number of future illegal sites is unknown and cannot be known at this time. While it is acknowledged that illegal cannabis operations would continue to occur in the County after adoption and implementation of the ordinance, details on the full extent of the environmental effects of existing cannabis operations are considered speculative and are not assessed in this evaluation of cumulative impacts.

4.2.3 Geographic Context

The geographic area that could be affected by implementation of the proposed ordinance varies depending on the type of environmental resource being considered. When the effects of the project are considered in combination with those other past, present, and probable future projects to identify cumulative impacts, the other projects that are considered may also vary depending on the type of environmental effects being assessed. Table 4-2 presents the general geographic areas associated with the different resources addressed in this analysis.

Table 4-2 Geographic Scope of Cumulative Impacts and Method of Evaluation

Environmental Resource	Geographic Area
Aesthetics	County
Agriculture and Forest Resources	County
Air Quality and Greenhouse Gas Emissions	Regional (North Coast Air Basin) Local (immediate project vicinity—pollutant emissions that are highly localized) Global (greenhouse gas emissions)
Biological Resources	County and Regional
Cultural Resources	County and Regional
Geology and Soils	County
Hazards and Hazardous Materials	County
Hydrology and Water Quality	County
Land Use and Planning	County
Noise	County
Public Services	County
Transportation and Circulation	County
Utilities and Service Systems	County
Energy	County and State

Source: Compiled by Ascent Environmental in 2017

4.3 CUMULATIVE IMPACT ANALYSIS

For purposes of this EIR, the proposed ordinance would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing the ordinance is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of the proposed ordinance makes a considerable contribution to the cumulative impact. The standards used herein to determine a considerable contribution are either that the effect of the proposed ordinance is substantial or exceeds an established threshold of significance.

The analysis below relies upon information provided in the Humboldt County General Plan Update Revised Draft EIR (Humboldt County 2017a).

4.3.1 Aesthetics

The cumulative context for aesthetic resources is Humboldt County and its cities. Under the proposed Humboldt County General Plan Update, there would be an increase in residential, commercial, and industrial buildings. County growth under the proposed General Plan Update and planned growth in the cities would continue to alter scenic resources and permanently affect the visual character of the overall County. In addition, light pollution is an existing issue in the County, and would increase upon future development of the County and its cities. Humboldt County General Plan Update Revised Draft EIR identified that impacts to scenic vistas and resources, visual character of the County, and nighttime lighting and glare impacts would be significant and unavoidable under project and cumulative conditions. Thus, there is a significant cumulative impact in regard to aesthetics.

New commercial cannabis cultivation operations would include structures and features that are similar to other agricultural activities. These include water storage ponds, accessory structures (e.g., barns and nurseries), caretaker housing, fencing, and roads. These structure and feature types are common in views along scenic vistas and state highways and are components of the rural and agricultural landscape of the County. Implementation of the ordinance would also involve the presence of commercial cannabis supporting land uses, which includes processing, distribution, microbusinesses, nurseries, and testing facilities (see Section 3.1, "Aesthetics"). The ordinance would require that these uses be placed in areas zoned for commercial, agricultural, or industrial uses and would complement such existing uses by using similar building styles, and in some cases, use of existing buildings.

In addition to the requirements outlined in the proposed ordinance, existing regulations set forth in the County Code would also protect and maintain scenic resources and vistas within Humboldt County. These regulations address lighting and visibility of equipment for operations that have the potential to affect both residential and nonresidential zones and prevent development permitted in lands adjacent to coastal wetlands and coastal scenic areas from degrading the natural resource value of a given area. Future commercial cannabis operations would blend with the existing character of the County as viewed from scenic vistas and state highways and would not visually conflict with the rural/agricultural landscape character. Thus, the project's contribution to cumulative impacts on scenic vistas, scenic resources, and visual character of the County **would not be cumulatively considerable**.

Commercial cannabis operations permitted under the proposed ordinance could involve the use of lighting that would add to the existing and future nighttime lighting and glare conditions in the County. The proposed ordinance performance standards would offset lighting and glare impacts by not allowing for light to escape from mixed-light cultivation and nursery structures during nighttime lighting sessions. Security lighting would be required to be shielded and angled in such a way as to prevent light from spilling outside of the boundaries of the site. Thus, the project's contribution to cumulative impacts on light and glare **would not be cumulatively considerable**.

4.3.2 Agriculture and Forest Resources

CUMULATIVE AGRICULTURAL RESOURCE IMPACTS

The cumulative context for agricultural resources is the land within Humboldt County. Relative to other areas in California, Humboldt County's agricultural production and farmland and prime soils resources are small. The county produced approximately $197 million of the state's $47 billion of annual farm goods in 2015, 0.5 percent of State production. Prime soils and non-prime soils that support farming in the county covered 6,400 acres and 192,000 acres, respectively (see Section 3.2, "Agriculture and Forest Resources"). The Humboldt County General Plan Update Revised Draft EIR recognizes the conversion of farmland to nonagricultural uses from County growth and growth in the cities as a significant and unavoidable impact under project and cumulative conditions. This is a significant cumulative impact.

As described in Section 3.2, "Agriculture and Forest Resources," implementation of the proposed ordinance would not result in loss of agricultural lands or conflicts with agricultural zoning or Williamson Act contracts. Cannabis is defined by the proposed ordinance and by state (Health and Safety Code Section 11362.777[a] and Business and Professions Code Section 26067[a]) as an agricultural product and, therefore, cultivation activities on prime soils would not result in conversion of prime soils to a nonagricultural use. Additionally, the County has determined that cannabis cultivation is a compatible use on lands subject to Williamson Act contracts. Thus, the project's contribution to cumulative agricultural resource impacts **would not be cumulatively considerable**.

CUMULATIVE FOREST RESOURCE IMPACTS

The cumulative context for forest resources is the land within Humboldt County. As of 2014, approximately 80 percent of the county contained forest lands and lands zoned for timber production represented approximately 50 percent of the county (Humboldt County 2017b). The conversion of forest land and lands designated as Timberland Production Zones (TPZs) and the decline in the timber industry in Humboldt County is a concern for the local economy and residents. The conversion of forest land and TPZ lands to non-forest uses from fragmentation of parcels, smaller parcels, and increasing amounts of residential development on these types of lands is anticipated to continue to occur from planned development and contribute to existing challenges for economically viable timber production in the county. Past cannabis cultivation has also contributed to the continued conversion of forest land and TPZ lands. The Humboldt County General Plan Update Revised Draft EIR recognizes the conversion of TPZ lands as a significant and unavoidable impact even with implementation of proposed General Plan Update policy provisions. Although a substantial amount of forest land and TPZ lands currently remain in the county, the continued conversion of forest land and TPZ lands to non-forest uses is a significant cumulative impact.

As described in Section 3.2, "Agriculture and Forest Resources," implementation of the proposed ordinance would not result in a significant impact on loss of forest lands or conflicts with lands zoned for forest land or TPZ because new commercial cannabis cultivation operations would not be allowed in those areas and no new conversion of General Plan designated Timberland or lands zoned as TPZ would be permitted. For existing cultivation sites, timberland conversion may only occur in association with on-site remediation and reconfiguration activities, including replanting, subject to the proposed ordinance performance standards for site reconfiguration. Supporting operations, including nurseries, manufacturing, and distribution facilities, would not be permitted in areas zoned for forest land or TPZ. Thus, the project's impacts to forestry resources **would not be cumulatively considerable**.

4.3.3 Air Quality and Greenhouse Gas Emissions

The cumulative setting for air quality is the North Coast Air Basin (NCAB). The NCAB includes Humboldt County, Mendocino County, and Northern Sonoma County. The North Coast Air Quality Management District (NCAQMD) regulates air pollutant point sources in the NCAB. The ambient concentrations of air pollutant emissions are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Humboldt County is in attainment of all the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) for criteria air pollutants, except the 24-hour CAAQS for respirable particulate matter (PM_{10}). Monitoring results have shown that the principal pollutant in the NCAB, including Humboldt County, is PM_{10}. Primary sources of PM_{10} in the NCAB are on-road and off-road vehicles (engine exhaust and fugitive dust generated by travel on paved and unpaved roads), open burning of vegetation (both residential and commercial), residential wood stoves, and stationary industrial sources (factories). The Humboldt County General Plan Update Revised Draft EIR identifies significant project and cumulative air quality impacts related to PM_{10} emissions. Thus, existing, and anticipated future PM_{10} conditions in the County and NCAB is a significant cumulative impact.

Implementation of the proposed ordinance would result in peak emissions of PM_{10} during the harvest season from road dust, which would contribute to an existing or projected air quality violation. As discussed in Section 3.3, "Air Quality and Greenhouse Gases," feasible mitigation measures are not available to offset project PM_{10} emissions from unpaved roadway use. Thus, the proposed ordinance's contribution to this significant cumulative impact would be cumulatively considerable. Mitigation is not available to reduce the proposed ordinance's contribution to a less-than-considerable level for the reasons discussed for the project-level analysis. Thus, this cumulative impact would remain **cumulatively considerable** and **significant and unavoidable**.

To the extent that potential land uses within the cumulative context may occur, the level of odor producing uses in adjacent communities is anticipated to be minimal. Odor impacts are typically not additive, in any event, as areas impacted by isolated local odor sources typically do not overlap with other areas affected by other isolated local odor sources. Sources of odors related to the proposed ordinance may include diesel exhaust from construction equipment, odor emitted from cannabis plants during final stages of cultivation, and the burning of excess plant materials.

Generally, odors from construction equipment would occur on an intermittent basis and would not be expected to occur on multiple parcels in a given area at once. In addition, diesel fumes tend to dissipate rapidly with increasing distance from a source. Implementation of Mitigation Measure 3.3-4 prohibits the burning of cannabis and other vegetative material. However, mitigation measures are not available to reduce impacts related to objectionable odors from outdoor cannabis plants during cultivation. While the proposed ordinance requires a minimum setback of 30 feet from property lines 600 feet from schools, parks, and other facilities, and 300 feet from residences, it does not preclude the potential for off-site residential receptors to be exposed to odors emitted by mature cannabis plants that they find objectionable. Implementation of the proposed ordinance would result in an increase to the number of commercial cannabis outdoor and mixed-light cultivation operations throughout the County that are a significant source of cannabis odor, thereby increasing the potential cultivation-related odor sources throughout the County. Thus, the proposed ordinance's contribution to cumulative odor impacts **would be cumulatively considerable** and **significant and unavoidable**.

GHG emissions and their contribution to global climate change are inherently cumulative, and are discussed in Section 3.3, "Air Quality and Greenhouse Gases."

4.3.4 Biological Resources

The cumulative setting for biological resources includes Humboldt County and adjacent migration and movement corridors, including rivers and streams and the Pacific flyway for migratory birds. Additionally, the cumulative context includes the Pacific Ocean to account for migration of anadromous fish (e.g., steelhead, Chinook salmon, coho salmon). While Humboldt County is one of the most rural counties in the state, past development in the region, including timber harvest (beginning in the mid-19th century), has resulted in substantial loss and degradation of native habitat, including old growth Sitka spruce, Douglas fir redwood forest, and the degradation of aquatic habitat and water quality of County watersheds.

The proposed Humboldt County General Plan Update outlines future urban development within the County, and projects a 0.22 average annual population growth rate through the year 2040. The proposed General Plan Update emphasizes infill development and discourages the encroachment of urban uses into undeveloped areas. The proposed General Plan Update also includes measures, such as stream management areas that would limit impacts to special-status plant and wildlife species, and sensitive habitats. Overall, because of continuing development and other land use activities (e.g., agriculture), there are significant cumulative effects on special-status wildlife, special status plants, natural communities, waters of the United States, and migratory corridors within Humboldt County from continued land use activities in the unincorporated area as well as growth in the cities.

Implementation of the proposed ordinance would result in impacts related to the disturbance or loss of special-status wildlife species and habitat (see Section 3.4, "Biological Resources"). This would contribute to significant cumulative impacts, because they would include ground disturbance, vegetation removal, and overall conversion of wildlife habitat in Humboldt County where adverse effects on special status wildlife species and habitat are significant. Mitigation Measures 3.4-1a through 3.4-1j and 3.8-5 would address impacts because actions including preconstruction surveys, establishment of protective buffers, limits on surface water diversion, and avoidance of individual animals would reduce the potential impacts of injury, mortality or other disturbance on individual animals and habitat. These mitigation measures would offset the project's contribution to cumulative special-status wildlife species and habitat impacts. Thus, after implementation of these mitigation measures, the project's contribution to significant cumulative impacts to sensitive natural communities **would not be cumulatively considerable**.

Actions under the proposed ordinance would also include ground disturbance, vegetation removal, and conversion of wetland habitat, which could result in the direct loss of special status plants or their habitat. This would contribute to significant cumulative impacts in Humboldt County. Implementation of Mitigation Measures 3.4-3a and 3.4-3b would offset the project's contribution to this impact because they would require applicants to identify and avoid special-status plants or provide compensation for the loss of special-status plants. Thus, after implementation of Mitigation Measures 3.4-3a and 3.4-3b, the project's contribution to significant cumulative impacts to special-status plants **would not be cumulatively considerable**.

Actions under the proposed ordinance could adversely affect riparian habitat, old growth habitat, and other sensitive natural communities if they are present on the commercial cannabis operation sites. A majority of this habitat area is in land areas (public lands and areas designated for timber uses) where new commercial cannabis operations would be prohibited under the proposed ordinance. The proposed ordinance also includes a retirement, remediation, and relocation program, which encourages relocation of existing cultivation sites within certain lands zones (e.g., commercial timberland, timber production zones, forestry recreation zones) to more appropriate zones. The existing sites would then be retired and remediated. The existing sites could contain sensitive habitats, and remediation could have an overall positive effect on the habitat. Implementation of Mitigation Measure 3.4-4 would offset the project's contribution to this significant cumulative impact on sensitive natural communities riparian habitat and wetland vegetation because it would require applicants to identify and avoid sensitive resources, or provide compensation for the loss of riparian habitat through enhancement of existing populations, creation and management of off-site populations, conservation easements, or other appropriate measures. Thus, after implementation of Mitigation Measure 3.4-4, the project's contribution to significant cumulative impacts to sensitive natural communities **would not be cumulatively considerable**.

Implementation of the proposed ordinance would include land use conversion that could adversely affect waters of the United States, such as streams, rivers, lakes, and wetlands. This would contribute to significant cumulative impacts in Humboldt County. Implementation of Mitigation Measure 3.4-5 would offset the project's contribution to this significant cumulative impact because it would require no net loss of functions and acreage of wetlands and other waters through implementation of USACE mitigation guidelines. Thus, after implementation of Mitigation Measure 3.4-5, the project's contribution to significant cumulative impacts on Water of the United States **would not be cumulatively considerable**.

Actions under the proposed ordinance would include land use conversion that could adversely affect resident or migratory wildlife corridors through habitat fragmentation, degradation of aquatic habitat (e.g., streams and rivers), or blockage of important wildlife migration paths (see Impact 3.4-6). This would contribute to significant cumulative impacts in Humboldt County. Implementation of Mitigation Measures 3.4-6a and 3.4-6b would offset the project's contribution to this significant cumulative impact because they would prohibit the removal of old growth habitat, and retain features critical for habitat connectivity. Thus, after implementation of Mitigation Measures 3.4-6a and 3.4-6b, the project's contribution to significant cumulative impacts to migratory corridors **would not be cumulatively considerable**.

4.3.5 Cultural Resources and Tribal Cultural Resources

The cumulative context for the cultural resources analysis considers a broad regional system of which the resources are a part. The cumulative context for historical resources is the Coast Range and the Klamath Mountains where common patterns of historic-era settlement have occurred over roughly the past two centuries. The cumulative context for archaeological resources, human remains, and tribal cultural resources (TCRs) is the former territory of the Yurok, Wiyot, Karuk, Hupa, Chilula, and Sinkyone tribes, which stretches out into neighboring counties. The Humboldt County General Plan Update Revised Draft EIR identifies significant project and cumulative cultural impacts. Thus, there are significant cumulative impacts to cultural resources.

Ground-disturbing activities associated with the proposed ordinance, in combination with other development in the region, could cause a substantial adverse change in the significance of an historical resource or unique archaeological resource (see Section 3.5, "Cultural Resources"). These impacts could contribute to significant cumulative cultural resources. Implementation of Mitigation Measures 3.5-1 and 3.5-2 would offset the proposed ordinance's contribution by requiring cultural evaluations prior to ground-disturbing activities and would require implementation of protective measures of significant resources identified. The proposed ordinance, in combination with other development in the region could contribute to the disturbance of human remains because of project-related construction activities. However, compliance with California Health and Safety Code Sections 7050.5 and 7052 and California Public Resources Code Section 5097 would ensure that treatment and disposition of the remains occurs in a manner consistent with the California Native American Heritage Commission guidance. Thus, upon implementation Mitigation Measures 3.5-1 and 3.5-2, the project's contribution to cumulative impacts to historic and archaeological resources **would not be cumulatively considerable**.

As identified in Impact 3.5-4, no tribal cultural resources (TCRs) were identified for this project. As a result of consultations between the Blue Lake, Karuk, and Wiyot tribes and the County, standards have been incorporated into the proposed ordinance to protect any potential resource of tribal interest through setbacks and notifications of commercial cannabis applications. The proposed ordinance requires:

- Tribe consultation provisions and notification of permit application for commercial cannabis operation sites within 1,000 feet of the boundary of tribal reservations, rancherias, or tribal ancestral area.
- 600-foot setback for all commercial cannabis sites from TCRs.
- 1,000-foot setback for all commercial cannabis sites from tribal ceremonial sites.

These provisions would avoid project contributions to cumulative tribal cultural resources, as it would allow for additional review of sites and setbacks from identified resources. Thus, the proposed ordinance's contribution to cumulative impacts to tribal cultural resources **would not be cumulatively considerable**.

4.3.6 Geology and Soils

Geotechnical impacts tend to be site specific rather than cumulative in nature and each site would be subject to, at a minimum, site development and construction standards relative to seismic and other geologic conditions that are prevalent within the region (see Section 3.6, "Geology and Soils" for a discussion of these standards). Impacts regarding surficial deposits, namely erosion and sediment deposition, can be cumulative in nature within a watershed. These impacts are subject to permitting requirements and other regulations, as described in Section 3.6, "Geology and Soils." These impacts are site-specific and would not combine such that a cumulative impact could occur. There would be no cumulative impact related to geology and soils.

The cumulative context for the paleontological resources covers a broad regional system of which the resources are a part. Because all significant paleontological resources are unique and non-renewable members of finite classes, all adverse effects erode a dwindling resource base. The loss of any one site affects all others in a region because these resources are best understood in the context of the entirety of the system of which they are a part. The project, in combination with other development in the region, could cause damage to or destruction of undiscovered paleontological resources (see Impact 3.6-5). Implementation of Mitigation Measures 3.6-5 would offset the project's contribution to the loss of paleontological resources because it would ensure that discovered resources are evaluated and protected. Thus, after implementation of Mitigation Measure 3.6-5, the proposed ordinance's contribution to paleontological resources **would not be cumulatively considerable**.

4.3.7 Hazards and Hazardous Materials

The cumulative context for hazards and hazardous materials is the historic and existing land uses county-wide that contribute to the potential for contamination and other hazardous conditions. As identified in Section 3.7, "Hazards and Hazardous Materials," approximately 71 percent of Humboldt County is classified as state responsibility area (SRA) for wildfire hazards, 26 percent is federal responsibility area (land managed by the federal government, such as Six Rivers National Forest, or tribal land), and 3 percent is local responsibility area.

Impacts related to hazards and hazardous materials, as discussed in Section 3.7, "Hazards and Hazardous Materials," are associated with transport, use, or disposal of hazardous materials; exposure to existing on-site hazardous conditions; and hazards to the public or environment because of upset and accident conditions. Topics related to the transport, use, or disposal of hazardous materials and hazard to the public or environment because of upset and accident conditions are subject to existing regulations that would reduce the potential for individual projects to create a hazard to the public or environment. Mitigation measures 3.7-2a and 3.7-2b are provided to reduce the potential for exposure to existing on-site hazardous conditions. These impacts are site-specific and would not combine such that a cumulative condition associated with hazards or hazardous materials could occur. The project's contribution to cumulative wildfire hazards would not be considerable as it would require compliance with County Code requirements for existing and new commercial cannabis operations. Thus, the project's contribution to this impact **would not be cumulatively considerable**.

4.3.8 Hydrology and Water Quality

The cumulative context for hydrology and water quality is the surface water (watersheds) and groundwater in Humboldt County. As discussed in Section 3.8, "Hydrology and Water Quality," water bodies in Humboldt County are currently on the North Coast Regional Water Quality Control Board's (RWQCB's) list of impaired water bodies. These water bodies include the Mattole River, Eel River, Klamath River, and Mad River because of various issues such as temperature, nutrients, and presence of heavy metals (see Table 3.8-3). The cumulative conditions groundwater includes current and future uses of groundwater by local community service districts, cities, and individual users. Generally, groundwater is available in many parts of the County, particularly in areas that overlay the four major groundwater basins and 10 minor subbasins. Aquifers are present outside of these areas as well; however, data pertaining to groundwater quantity and quality is limited. Depending on the location of extraction and condition of local groundwater resources, it is possible for drawdown at a well in one location to affect groundwater elevations in other wells. Conversely, it is possible for wells that are near to each other to have no related effect. Thus, there is potential for significant cumulative impacts associated with water resources in Humboldt County.

New and modifications to existing commercial cannabis operations in the County that may occur under the proposed ordinance would require ground-disturbing activities that could result in erosion and sedimentation, leading to degradation of surface water quality (see Impact 3.8-1). In addition, commercial

cannabis operations that may occur under the proposed ordinance have the potential to modify surface drainage and flows in such a manner that increased sedimentation and erosion could take place, leading to water quality degradation. The long-term operational use of pesticides, fertilizers, and other chemicals can also have a negative effect on water quality and ultimately affect the health and sustainability of organisms that rely on high quality waters. Compliance with County Code Section 331-14 (detailed rules and regulations regarding grading, excavation, erosion, and sedimentation control) and North Coast RWQCB Order 2015-0023 (requirements for discharges of waste from cannabis cultivation) would generally minimize the potential for erosion, sedimentation, and chemical transportation. Implementation of Mitigation Measure 3.8-2 would extend the requirements of North Coast RWQCB Order 2015-0023 to all cannabis operations, thereby offsetting impacts from construction and operation of commercial cannabis operations to water quality. Thus, after implementation of Mitigation Measure 3.8-2, the project's contribution to cumulative impacts to surface water quality **would not be cumulatively considerable**.

The project could result in an increase in demand for local groundwater resources that could contribute to cumulative groundwater supply and impacts in areas of the County with limited groundwater resources (e.g., fractured bedrock conditions). The proposed ordinance contains testing requirements for new wells on parcels 10 acres or smaller located within 400 feet of property lines to determine if drawdown would occur on any adjacent wells. These requirements further identify that use of a well for cannabis related irrigation may be prohibited, limited or subject to provisional approval and monitoring. These requirements would address groundwater impacts of the initial installation of a new well, but may not necessarily identify later operational impacts that could result in unanticipated reductions in local groundwater levels that could adversely impact adjacent wells. Mitigation Measure 3.8-3 will require the reporting of annual monitoring of groundwater conditions to the County as part of the annual inspections of commercial cannabis operations. This monitoring will identify if on-site well operations are resulting in groundwater drawdown impacts and what adaptive measures that will be implemented to recover groundwater levels and protect adjacent wells. Because implementation of this mitigation measure would be required as part of annual commercial cannabis operations permit renewals, it would provide on-going protection of local groundwater resources and would offset contribution to cumulative impacts to local groundwater conditions. Thus, after implementation of Mitigation Measure 3.8-3, the project's contribution to cumulative impacts to groundwater **would not be cumulatively considerable**.

Implementation of proposed ordinance could alter drainage patterns that may contribute to cumulatively significant drainage and flooding impacts within the County watersheds. As shown in Exhibit 3.8-9, the 100-year floodplain is currently located near existing populated areas of the County that could be worsen from cumulative development activities in the watersheds. Implementation of Mitigation Measure 3.8-4 would offset the project contributions to cumulative drainage and flood impacts by requiring site drainage facilities to retain pre-development flow conditions. Thus, after implementation of Mitigation Measure 3.8-4, the proposed ordinance's contribution to cumulative impacts to drainage and flooding **would not be cumulatively considerable**.

Surface water diversion for future cannabis irrigation under the proposed ordinance could substantially reduce or eliminate surface water flows on individual tributaries that are already affected by existing illegal cannabis cultivation operations. Low flows are associated with increased temperature. In addition, low flows also aggravate the effects of water pollution (see Impact 3.8-5 for more information regarding the effects of low flow conditions on water quality). As noted in Section 3.8, "Hydrology and Water Quality," several watersheds in the County are currently impaired by historic land use activities (e.g., timber production). Dilution is the primary mechanism by which the concentrations of contaminants (e.g., copper, lead) discharged from industrial facilities and other point and some non-point sources are reduced. However, during a low flow event, there is less water available to dilute effluent loadings, resulting in higher in-stream concentration of pollutants. This could occur along waterways listed as impaired under Section 303(d) of the federal Clean Water Act, thereby resulting in a considerable contribution to an existing cumulative impact. Mitigation Measure 3.8-5 would require cannabis-related surface water diversions to meet future flow rate standards set forth by the State Water Resources Control Board during a limited period of time through the year, which correlates to the greater level of water availability within watersheds in Humboldt County. This mitigation measure would offset project

impacts to surface water resources because it would restrict diversions to ensure that Numeric Flow Requirements are met and beneficial uses are protected that are based on information from the State Water Board. Thus, after implementation of Mitigation Measure 3.8-5, the proposed ordinance's contribution to cumulative impacts to surface water **would not be cumulatively considerable**.

4.3.9 Land Use and Planning

The cumulative setting for land use is Humboldt County. It is anticipated that regional growth would be reviewed for consistency with adopted land use plans and policies by the County and its incorporated cities (Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad), in accordance with the requirements of CEQA, the State Zoning and Planning Law, and the State Subdivision Map Act, all of which require findings of plan and policy consistency prior to approval of entitlements for development. Thus, no significant cumulative land use impact would occur.

The proposed ordinance contains permitting requirements that would manage conditions that create public nuisances by enacting restrictions on the location, type, and size of cannabis cultivation sites and commercial activities in Humboldt County, as well as other permitting requirements such as setbacks, security, and other protective measures. Because the project would include the above permitting requirements, land use conflicts that could result in the division of established communities would not occur. These topics are discussed in Section 3.9, "Land Use and Planning." Inconsistencies with adopted land use plans and policies and division of established communities would be site-specific and would not occur in a way that would result in a cumulative impact. There would be **no cumulative impact** related to land use.

4.3.10 Noise

Exposure to noise is a localized issue; cumulative noise impacts would be possible in instances where a receptor or group of receptors could be exposed to excessive noise from multiple sources (construction and operation). The extent to which cumulative impacts may exist would be based on site-specific conditions, considering all noise sources, including those associated with commercial cannabis activities. In light of the uncertainty regarding many of the exact locations where commercial cannabis operations would occur and whether other substantial noise sources exist that could combine to create a cumulative impact, however, it is difficult to determine whether and where significant cumulative impacts could exist or the extent to which the proposed ordinance may contribute to them. Mitigation Measure 3.10-1 would address potential cumulative construction noise impacts by restricting construction activities to daytime hours. In addition, proposed ordinance setback requirements and noise requirements for generator operation (maintenance of existing ambient noise levels at property lines) would offset project operational noise impacts. Thus, after implementation of Mitigation Measure 3.10-1, the project's contribution to cumulative noise impacts **would not be cumulatively considerable**.

4.3.11 Public Services

The cumulative context for public services is Humboldt County. Increases to population levels, anticipated under the proposed Humboldt General Plan Update, and evaluated in its EIR could result in the need for physical alterations and construction related to the provision of fire protection and law enforcement. It identified that this significant cumulative impact would be reduced to a less-than-significant level through implementation of proposed policy provisions.

Compliance with fire and electric codes would lead to improved provision of fire protection because the locations of commercial cannabis facility sites would be known and subject to compliance inspections. The proposed ordinance requires that commercial cannabis operations submit and implement a security plan

that identifies specific security measures to protect the sites from criminal activities. Such measures may include security cameras, watch dogs, perimeter fencing, gated access, and on-site resident caretakers. Implementation of the project would also require that applicants for cannabis cultivation licenses comply with all state and local regulations and ordinances. Violation of the requirements and performance standards of the proposed ordinance, including failure to obtain and maintain in good standing with a required clearance certificate or permit, would be considered a public nuisance and unlawful and subject to injunction, abatement, or any other administrative, civil, or criminal remedy available to the County under the applicable state and county laws. Thus, the project's contribution to cumulative public service impacts **would not be cumulatively considerable**.

4.3.12 Transportation and Circulation

The cumulative context for transportation and circulation is Humboldt County, and local roadways. Under the proposed General Plan Update, vehicle miles travelled per person is anticipated to increase and roadway level of service (LOSs) ratings are expected to deteriorate in many areas of the County (Humboldt County 2017a). Thus, there is a significant cumulative impact associated with transportation and circulation associated with implementation of the proposed General Plan Update and growth of the incorporated cities.

The construction of new commercial cannabis operations would add employee vehicle trips to the local roadway system. However, the low number of trips generated by each commercial cannabis operation during the construction phase would be distributed throughout the County roadway network, which has low existing traffic volumes on the local roadways, and would not substantially contribute to future traffic operations (see Section 3.12, "Transportation and Circulation"). Additionally, the amount of traffic generated by each commercial cannabis operations during the fall harvest under cumulative conditions (year 2040) under the proposed General Plan Update would not result in traffic operations below level of service "C" on state highways. This is based on applying a 2.3 percent County growth to traffic volumes on state highways and the traffic volumes shown in Table 3.12-6.[1] Thus, the proposed ordinance's contribution to cumulative traffic operation impacts **would not be cumulatively considerable**.

The potential for inadequate emergency access is a site-specific issue. Emergency access to commercial cannabis operations would be provided primarily via existing public and private roadways, and access driveways that would be required to meet the County's Category 4 road standard (or access design that has the same practical effect) and the County's access standards. Thus, the project's contribution to cumulative emergency access impacts **would not be cumulatively considerable**.

4.3.13 Utilities and Service Systems

The cumulative context for public wastewater treatment requirements, capacity, and related infrastructure is Humboldt County. Several community service districts are anticipated to exceed wastewater treatment requirements and may not be able to serve County growth anticipated under the proposed General Plan Update (see Table 3.13-1). Thus, there are significant cumulative impacts in Humboldt County associated with wastewater service.

Commercial cannabis operations would generate additional wastewater flows that contain contaminants and that may not be adequately treated by existing public wastewater treatment systems. Implementation of Mitigation Measures 3.13-1a and 3.13-1b would offset wastewater impacts by ensuring that commercial cannabis operators verify that adequate wastewater service exists for the site and that anticipated wastewater effluent quality from non-cultivation operations would not affect current wastewater treatment facilities of service providers and provide pretreatment of wastewater discharges if required. Thus, after

[1] A 2.3 percent growth rate in state highway traffic volumes is based on population growth rates identified in Table 4-1.

implementation of Mitigation Measures 3.13-1a and 3.13-1b, the project's contribution **would not be cumulatively considerable**.

The cumulative context for water supplies and infrastructure needs are the water supply service providers in Humboldt County. Briceland community services district (CSD), Big Lagoon CSD, Redway CSD, Orleans CSD, and Westhaven CSD are currently unable to meet water demand associated with projected growth under the proposed General Plan Update. Thus, there are existing significant cumulative impacts related to water supplies and infrastructure needs in Humboldt County.

Future commercial cannabis facilities that would be allowed under the proposed ordinance could result in increased water demand from public water systems that could exceed supply and related infrastructure if they are located within these public water systems. Operation of individual wells and surface water diversions for new commercial cannabis operations outside of public water systems could also result in reductions in water supply availability to public water systems. Implementation of Mitigation Measures 3.13-2 would assist in addressing impacts municipal water supply because applicants would be required to verify adequate water supplies for municipal water services and infrastructure. Given that it is unknown whether the public water service providers would have adequate water supply to meet future development needs and potential commercial cannabis operations located within their service boundaries, the proposed ordinance's contribution to water supply **would be cumulatively considerable** and **significant and unavoidable**. The provision of adequate water supply and distribution facilities is the responsibility of the CSDs that are not under the jurisdiction of the County.

Solid waste in Humboldt County is processed at transfer stations and transported to areas outside of the County for disposal. As identified in Impact 3.13-3, there is adequate capacity in contracted landfills to accommodate future solid waste disposal for 100 years. Future commercial cannabis facilities that would be allowed under the proposed ordinance would generate solid waste from various materials and containers used during cultivation (e.g., soils, fertilizers, pesticides, pots), as well as household trash from workers. All cultivation and operation plans must prepare a solid waste management plan that describes how solid waste would be disposed as part of clearance and permit requirements. Implementation of Mitigation Measure 3.13-3 would require the development a materials management program to be approved by Humboldt County Division of Environmental Health and public agencies or private enterprises accepting waste materials, including CSDs and waste transfer stations. This mitigation measure would offset the proposed ordinance's contribution to cumulative solid waste services. Thus, after implementation of Mitigation Measure 3.13-3, the project's contribution **would not be cumulatively considerable**.

4.3.14 Energy

The cumulative context for energy is Humboldt County. Energy consumption is related to construction activities and operational-related energy demand from existing and new land uses. Construction-related energy would be used during construction activities and would not represent a long-term increase in energy demand. In Humboldt County, development has increased and is projected to continue increasing. The Humboldt County General Plan Update Revised Draft EIR identifies that the proposed General Plan Update would result in a significant cumulative impact associated with the wasteful, inefficient, or unnecessary consumption of energy. Thus, this is a significant cumulative impact.

Implementation of the proposed ordinance would require the use of energy, such as petroleum-based fuels for construction equipment and worker transportation. Construction cost is directly linked to the time and materials consumed to complete the work, thus it is assumed that minimal levels of energy would be used to reduce costs and, therefore, energy consumed by these operations would not be considered wasteful, inefficient, or unnecessary. Operational-related energy demand would result from energy use from both cultivation and non-cultivation operations use as well as increases in vehicular traffic from employee commute trips. The cultivation operations and non-cultivation facilities would comply with the most current energy-efficient standard (i.e., Title 24). Throughout the County, the new cultivation and non-cultivation

operations would be required to use renewable energy sources for electricity needs (100 percent renewable energy usage). Existing outdoor and mixed-light cannabis cultivation operations with no connection to the grid that apply for a permit under the proposed ordinance would be required to obtain at 80 percent of their energy demand from renewable sources. These project requirements, combined, would reduce overall project energy use and current energy use by existing cannabis operations. Thus, the proposed ordinance's contribution to this cumulative impact on energy demand **would not be cumulatively considerable**.

Extension of existing PG&E infrastructure to the more rural parts of the County where cannabis cultivation operations are located is not anticipated to occur because it would be cost-prohibitive for individual permitted sites. Due to the requirement of renewable energy on-site, it is anticipated that sites would procure solar power through individual arrays. Furthermore, the cultivation operations that can use the existing energy grid in the County would be supplied by PG&E, which is anticipated to maintain sufficient capacity to provide power to through the lifetime of cultivation and non-cultivation sites. Thus, the proposed ordinance's contribution to this cumulative impact related to expansion of energy infrastructure **would not be cumulatively considerable**.

5 OTHER CEQA SECTIONS

5.1 SIGNIFICANT UNAVOIDABLE IMPACTS

Section 21100(b)(2)(A) of the State CEQA Guidelines provides that an EIR shall include a detailed statement setting forth "in a separate section: any significant effect on the environment that cannot be avoided if the project is implemented." Accordingly, this section provides a summary of significant environmental impacts of the project that cannot be mitigated to a less-than-significant level.

Sections 3.1 through 3.14 of this Draft EIR describe the potential environmental impacts of the project and recommend various mitigation measures to reduce impacts, to the extent feasible. Chapter 4, "Cumulative Impacts," determines whether the incremental effects of this project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, which require modification of draft language within the proposed ordinance, most of the impacts associated with implementation of the project would be reduced to a less-than-significant level. The following impacts are considered significant and unavoidable; that is, no feasible mitigation is available to reduce the project's impacts to a less-than-significant level.

Air Quality (Section 3.3)

- Impact 3.3-2: Long-term operational emissions of criteria pollutants and precursors.
- Cumulative air quality impacts involving particulate matter (PM_{10}) emissions.
- Impact 3.3-4: Exposure of people to objectionable odors.
- Cumulative impacts from exposure of people to objectionable odors.

Utilities and Service Systems (Section 3.13)

- Impact 3.13-2: Provision of sufficient water supplies and infrastructure needs.
- Cumulative impacts associated with the provision of sufficient water supplies and infrastructure needs.

Chapter 6, "Alternatives," considers alternatives to the project that may be capable of reducing or avoiding some of these impacts.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines (Section 15126) require a discussion of the significant irreversible environmental changes which would be involved in a project should it be implemented. The irreversible and irretrievable commitment of resources is the permanent loss of resources for future or alternative purposes. Irreversible and irretrievable resources are those that cannot be recovered or recycled or those that are consumed or reduced to unrecoverable forms.

The project would result in the irreversible and irretrievable commitment of energy and material resources during construction and operation, including the following:

- construction materials, including such resources as soil, rocks, wood, concrete, glass, roof shingles, and steel;

- land area committed to new commercial cannabis-related facilities;
- water supply for project construction and operation; and
- energy expended in the form of electricity, gasoline, diesel fuel, and oil for equipment and transportation vehicles that would be needed for project construction and operation.

The use of these nonrenewable resources is expected to account for a minimal portion of the region's resources and would not affect the availability of these resources for other needs within the region. Construction activities would not result in inefficient use of energy or natural resources. Construction contractors selected would use best available engineering techniques, construction and design practices, and equipment operating procedures. Long-term project operation would not result in substantial long-term consumption of energy and natural resources because buildings would be designed using current energy efficient technologies as required by applicable building codes.

5.3 GROWTH-INDUCING IMPACTS

5.3.1 CEQA Requirements

CEQA specifies that growth-inducing impacts of a project must be addressed in an EIR (CCR Section 21100[b][5]). Specifically, Section 15126.2(d) of the State CEQA Guidelines states that the EIR shall:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Direct growth inducement would result if a project involved construction of new housing, which would facilitate new population to an area. Indirect growth inducement would result, for instance, if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; and/or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with available capacity through an undeveloped area).

The State CEQA Guidelines do not distinguish between planned and unplanned growth for purposes of considering whether a project would foster additional growth. Therefore, for purposes of this EIR, to reach the conclusion that a project is growth inducing as defined by CEQA, the EIR must find that it would foster (i.e., promote, encourage, allow) additional growth in economic activity, population, or housing, regardless of whether the growth is already approved by and consistent with local plans. The conclusion does not

determine that induced growth is beneficial or detrimental, consistent with Section 15126.2(d) of the State CEQA Guidelines.

If the analysis conducted for the EIR results in a determination that a project is growth-inducing, the next question is whether that growth may cause adverse effects on the environment. Environmental effects resulting from induced growth (i.e., growth-induced effects) fit the CEQA definition of "indirect" effects in Section 15358(a)(2) of the State CEQA Guidelines. These indirect or secondary effects of growth may result in significant environmental impacts. CEQA does not require that the EIR speculate unduly about the precise location and site-specific characteristics of significant, indirect effects caused by induced growth, but a good-faith effort is required to disclose what is feasible to assess. Potential secondary effects of growth could include consequences – such as conversion of open space to developed uses, increased demand on community and public services and infrastructure, increased traffic and noise, degradation of air and water quality, or degradation or loss of plant and wildlife habitat – that are the result of growth fostered by the project.

5.3.2 Growth-Inducing Impacts of the Project

The California Department of Food and Agriculture estimates that cannabis production in the state in the year 2016 was approximately 13.5 million pounds, with no anticipated increases in overall production from implementation of Medical Cannabis Regulation and Safety Act (MCRSA) and Adult Use of Marijuana Act (AUMA) by the year 2018 (California Department of Food and Agriculture 2017: 3-22 and 3-23). Thus, substantial growth in cannabis operations state-wide is not expected to occur.

Implementation of the proposed ordinance is intended to regulate commercial cultivation, processing, and distribution of cannabis in a manner consistent with the existing character and goals of the County. As noted by the number of anticipated operations identified in Chapter 2, "Project Description," the number of new commercial cannabis operations does not represent a dramatic increase in development or the division of existing properties into numerous parcels for dense and intensified development. The project would not substantially increase population growth in the surrounding region because it would not require the construction of new housing. Many of the employees necessary during harvest and cultivation are already present within the County and adjoining counties, as evidence by the level of commercial cannabis cultivation and processing currently within the County. Additionally, the project would not remove barriers to population growth because no new or expanded (beyond what is currently planned) public infrastructure facilities would be installed. Potential development associated with the proposed ordinance is not anticipated to meaningfully affect employment or other growth in the region, given the size of the regional economy and current conditions. The project would result in increased revenue with the County, both by residents and the County itself, however, with respect to increased revenue for the County, this is anticipated to increase the ability of the Humboldt County Sheriff's Office, Humboldt County Code Compliance, and the Humboldt County Planning and Building Department to process, monitor, and enforce cannabis-related activities within the County, per the County's requirements. Therefore, the project would not contribute to substantial population growth or be considered growth-inducing.

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6 ALTERNATIVES

6.1 INTRODUCTION

The California Code of Regulations (CCR) Section 15126.6(a) (State CEQA Guidelines) requires EIRs to describe "… a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather, it must consider a range of potentially feasible alternatives that will avoid or substantially lessen the significant adverse impacts of a project, and foster informed decision making and public participation. An EIR is not required to consider alternatives that are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the "rule of reason." This section of the State CEQA Guidelines also provides guidance regarding what the alternatives analysis should consider. Subsection (b) further states the purpose of the alternatives analysis is as follows:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

The State CEQA Guidelines require that the EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be discussed, but in less detail than the significant effects of the project as proposed (CCR Section 15126.6[d]).

The State CEQA Guidelines further require that the "no project" alternative be considered (CCR Section 15126.6[e]). The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a project with the impacts of not approving the project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives" (CCR Section 15126[e][2]).

In defining "feasibility" (e.g., "… feasibly attain most of the basic objectives of the project …"), CCR Section 15126.6(f) (1) states, in part:

> Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries (projects with a regionally significant impact should consider the regional context), and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site (or the site is already owned by the proponent). No one of these factors establishes a fixed limit on the scope of reasonable alternatives.

In determining what alternatives should be considered in the EIR, it is important to consider the objectives of the project, the project's significant effects, and unique project considerations. These factors are crucial to the development of alternatives that meet the criteria specified in Section 15126.6(a). Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by the lead agency's decision-making body, here the Humboldt County Board of Supervisors (See PRC Sections 21081.5, 21081[a][3]).

6.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

6.2.1 Attainment of Project Objectives

As described above, one factor that must be considered in selection of alternatives is the ability of a specific alternative to attain most of the basic objectives of the project (CCR Section 15126.6[a]). Chapter 2, "Project Description," articulated the following County's project objectives:

- expand the scope of the Ordinance 2554 and 2559 to include commercial marijuana operations for adult recreational uses now authorized by Adult Use of Marijuana Act (AUMA), under the same general regulations as medical cannabis;
- establish local land use regulations to allow for continued commercial cannabis operations in the unincorporated area of the County that ensure the health and safety of residents, employees, County visitors, neighboring property owners, and end users of cannabis;
- provide consistency with state agency regulations associated with commercial cannabis operations;
- establish requirements that address land use and environmental impacts of cannabis operations, consistent with state agency regulations;
- support the local cannabis industry through maximizing participation of existing non-permitted cannabis farmers in the County's permitting program;
- improve baseline environmental conditions in the County by removing existing cannabis cultivation operations from environmentally sensitive locations and relocating them to areas with public services; and
- relocating existing non-permitted cannabis related activities into more centralized locations with better infrastructure (e.g. nurseries, community propagation centers, processing centers).

6.2.2 Summary of Project Impacts

Sections 3.1 through 3.14 of this Draft EIR identify the environmental impacts of the project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant adverse effects of the project. The following list is comprised significant impacts associated with the proposed ordinance.

Air Quality and Greenhouse Gas Emissions

- Operation of new commercial cannabis operations under the proposed ordinance would result in the increase in particulate matter (PM_{10}) emissions during the harvest season that would exceed North Coast Unified Air Quality Management District (NCUAQMD) thresholds and contribute to the nonattainment status of the North Coast Air Basin for PM_{10}. No feasible mitigation is available to reduce this impact. Therefore, the impact would be **significant and unavoidable** (Impact 3.3-2).

  The project's contribution to cumulative air quality impacts involving particulate matter (PM_{10}) emissions **would be cumulatively considerable** and **significant and unavoidable**.

- Operation of new commercial cannabis operations under the proposed ordinance could generate objectionable odors to nearby residents. Mitigation has been recommended to reduce this impact. However, this mitigation measure would not completely offset the odor impact. Therefore, the impact would be **significant and unavoidable** (Impact 3.3-4).

The project's contribution to cumulative impacts from exposure of people to objectionable odors **would be cumulatively considerable** and **significant and unavoidable**.

Biological Resources

- Construction and operation of new commercial cannabis operations under the proposed ordinance would result in the disturbance and potential loss of special-status wildlife species and habitat. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-1).

- Surface water diversions from new commercial cannabis cultivation that may occur under the proposed ordinance could adversely affect several special-status fish species. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-2).

- Construction of new commercial cannabis operations under the proposed ordinance could result in the loss of special-status plant species. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-3).

- Construction of new commercial cannabis operations under the proposed ordinance could result in the disturbance or loss of sensitive natural communities in the County. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-4).

- Construction of new commercial cannabis operations under the proposed ordinance could result in the disturbance or filling of waters of the US. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-5).

- Construction and operation of new commercial cannabis operations under the proposed ordinance could result in the disturbance of wildlife movement in the County. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.4-6).

Cultural Resources

- Construction of new commercial cannabis operations under the proposed ordinance could result in the damage or loss of historic resources. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.5-1).

- Construction of new commercial cannabis operations under the proposed ordinance could result in the damage or loss of archaeological resources. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.5-2).

Geology and Soils

- Construction of new commercial cannabis operations under the proposed ordinance could result in the damage or loss of paleontological resources. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.6-5).

Hazards and Hazardous Materials

- Construction of new commercial cannabis operations under the proposed ordinance could result in the accidental release of unknown contamination or hazardous waste. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.7-2).

Hydrology and Water Quality

- Operation of new commercial cannabis operations under the proposed ordinance could result in the water quality impacts. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.8-2).

- Operation of new wells associated commercial cannabis operations under the proposed ordinance could result in the localized groundwater and well impacts. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.8-3).

- Construction and operation of new commercial cannabis operations under the proposed ordinance could alter drainage patterns that result in on-site or off-site flooding impacts. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.8-4).

- Operation of new commercial cannabis operations under the proposed ordinance could result in could result in the surface water resource impacts from diversions. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.8-5).

Noise

- Construction of new commercial cannabis operations under the proposed ordinance could result in excessive (though temporary) noise levels for nearby noise-sensitive land uses. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.10-1).

Utilities and Service Systems

- Operation of new commercial cannabis operations under the proposed ordinance would increase the demand for wastewater service and exceed the capacity of public wastewater systems. Mitigation has been recommended to reduce this impact to **less than significant** (Impact 3.13-1).

- Operation of new commercial cannabis operations under the proposed ordinance would increase the demand for water supply and service from public water supply distribution systems. Mitigation has been recommended that would reduce the extent of this impact. However, impacts related to the ability of some community service districts to provide adequate water service cannot be fully mitigated. Therefore, this impact would be **significant and unavoidable** (Impact 3.13-2).

  The project's contribution to cumulative impacts associated with the provision of sufficient water supplies and infrastructure needs would be **cumulatively considerable** and **significant and unavoidable**.

6.2.3 Alternatives Considered but Not Evaluated Further

State CEQA Guidelines Section 15126.6(c) provides the following guidance in selecting a range of reasonable alternatives for the project. The range of potential alternatives for the project shall include those that could feasibly accomplish most of the basic objectives of the project, and could avoid or substantially lessen one or more of the significant effects. The EIR should also identify any alternatives that were considered by the lead agency, but were rejected during the planning or scoping process and briefly explain the reasons underlying the lead agency's determination.

The following describes alternatives considered by Humboldt County but not evaluated further in this Draft EIR, and a brief description of the reasons for the County's determination.

BAN ON COMMERCIAL CANNABIS OPERATIONS IN THE COUNTY

Under this alternative, the County would implement a ban on commercial cannabis operations and cannabis cultivation. No new commercial cannabis cultivation, processing, or distribution facilities would be allowed within the County. This alternative would also result in the cessation of commercial cannabis operations currently allowed under the Commercial Medical Marijuana Land Use Ordinance (CMMLUO) and would require the restoration of existing sites to pre-existing conditions. Enforcement activities would be undertaken by the County and other agencies to shut down existing commercial cannabis operations. However, it is anticipated that illegal cannabis operations would continue to some extent in the County

because of the size and forested condition of the County that make it difficult to detect cannabis cultivation operations.

This alternative is not considered to be feasible. It would not be consistent with the objectives of the proposed ordinance, which allow and regulate legal commercial cannabis activities and address the environmental impacts of historic unregulated cannabis cultivation in the County. As identified in Section 3.4, "Biological Resources," illegal cannabis cultivation operations within public and private lands have led to illegal water diversions, unpermitted removal of sensitive vegetation, and direct mortality to protected species from exposure to rodenticides and insecticides.

100 PERCENT WATER STORAGE THROUGHOUT THE DRY SEASON

In response to the notice of preparation (NOP), Environmental Protection Information Center encouraged consideration of an alternative that mandates 100 percent water storage throughout the dry season. The dry season is not defined in the comment letter; however, it is typically considered to be May 15 through October 31. The proposed ordinance contains requirements for forbearance during this period. In addition, further restrictions have been included under Mitigation Measure 3.8-5. Thus, because this recommended alternative is consistent with the proposed ordinance it does not need to be discussed further.

NO INDOOR CULTIVATION, NO ARTIFICAL LIGHTS

The No Indoor Cultivation, No Artificial Lights Alternative was proposed in a letter submitted by the Friends of the Eel River in response to the NOP. This alternative would prohibit indoor and mixed-use cultivation, allowing only for outdoor cultivation. Closely regulated nursey operations would be allowed, but restricted to industrial sites serviced by the electrical grid and required to fully offset their carbon footprint.

Under the proposed ordinance, energy demand would be required to be met with primarily renewable energy sources. Performance standards in the proposed ordinance would prohibit nighttime lighting from escaping nurseries and mixed-light cannabis cultivation operations. Thus, no environmental impacts would be reduced relative to the proposed ordinance and CEQA requirements for a project alternative would not be met. This alternative is not discussed further.

6.3 ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

The following alternatives were selected for analysis based on the environmental analysis and ability to attain the basic objectives of the project. These alternatives are described in further detail and analyzed below.

- **Alternative1: No Project, No Additional Permits Issued.** This alternative would consist of not adopting the proposed ordinance. The County would continue to implement the requirements of the CMMLUO and would not consider any new permit applications beyond what was submitted on or before December 31, 2016 pursuant to Section 55.4.17 (Sunset of Applications).

- **Alternative 2: No Project, New Permits Issued.** This alternative would be like Alternative 1. The County would continue to implement the requirements of the CMMLUO, but would amend the ordinance to allow for the submittal of new permit applications.

- **Alternative 3: Prohibition of New Outdoor and Mixed-Light Cultivation Operations in City Spheres of Influence and Community Plan Areas.** This alternative would consist of the proposed ordinance, but would prohibit new outdoor and mixed-light commercial cannabis cultivation operations within the spheres of influence of the incorporated cities and the community plan area boundaries.

- **Alternative 4: Prohibition of New Outdoor and Mixed-Light Cultivation Operations.** This alternative would cap the extent of new outdoor and mixed-light commercial cannabis cultivation allowed under the

proposed ordinance to applications for new cultivation received on or before December 31, 2016 under the CMMLOU. Only new indoor commercial cannabis cultivation would be allowed under this alternative.

- **Alternative 5: Reduction of New Commercial Cannabis Operations.** This alternative would prohibit all new commercial cannabis outdoor and mixed-light cultivation that did not exist on or before December 31, ~~2016~~ 2015 except under the RRR program, and would not allow any new permits for pre-existing cultivation in areas zoned Timber Production Zone (TPZ). New commercial cannabis indoor cultivation and non-cultivation operations would only be allowed within community plan boundaries.

6.3.1 Alternative 1: No Project, No Additional Permits Issued

Alternative 1 assumes no change in the County Code and continuation of the existing zoning ordinance. The CMMLUO would continue regulate commercial medical cannabis operations in the County, but would not allow non-medical operations (e.g., microbusinesses). No new applications for commercial medical cannabis operations would be accepted beyond those submitted before December 31, 2016 in compliance with CMMLUO. Thus, the total potential extent of permitted commercial cannabis operations would be limited to 941 new applications for 283.35 acres of cultivation area, 1,838 applications that consists of 919.92 acres of existing cultivation area and that intend to comply with the CMMLOU, and 157 applications that consist of 48.32 acres of cultivation area that proposed to modify their existing operation (see Table 2-2).

Table 6-1 provides an overview of the substantive differences between the CMMLUO and the proposed ordinance requirements and performance standards that pertain to the environmental analysis.

Table 6-1 Major Differences Between the CMMLUO and the Proposed Ordinance Performance Standards

Requirements	CMMLUO	Proposed Ordinance
Setbacks	Thirty (30) feet from any property line. Six hundred feet (600) from school bus stop, church or other place of religious worship, public park, or tribal cultural resource.	Thirty (30) feet from any property line. Three hundred feet (300) from any residence. Six hundred feet (600) from school bus stop, church or other place of religious worship, public park, or tribal cultural resource. One thousand feet (1,000) from all tribal ceremonial areas.
Roads	N/A	Meet or exceed Category 4 road standards set forth under County Code Title III, Division 2, Subdivision Regulations. Road maintenance associations and cost sharing. BMPs for private road systems.
Water Supply	Compliance with all statutes, regulations and requirements of the California State Water Resources Control Board, Division of Water Rights, at a minimum to include a statement of diversion of surface water from a stream, river, underground stream, or other watercourse required by Water Code Section 5101, or other applicable permit, license, or registration. Where surface water diversion provides any part of the water supply for irrigation of cannabis cultivation, the applicant shall either: 1) consent to forebear from any such diversion during the period from May 15th to October 31st of each year and establish on-site water storage for retention of wet season flows sufficient to provide adequate irrigation water for the size of the area to be cultivated, or 2) submit a water management plan prepared by a qualified person such as a licensed engineer, hydrologist, or similar qualified	Irrigation for nurseries, outdoor, and mixed-light cannabis cultivation would be required to use stored water from non-diversionary sources or water from a public or private water supplier. Water from on-site greywater systems is also authorized for year-round use. Dry farmed outdoor or mixed-light cultivation sites may obtain water supplies for irrigation from diversionary sources for propagation areas and transplantation. Irrigation water sourced from diversionary sources may be permitted with a Special Permit pursuant to the Streamside Management Area Ordinance, Humboldt County Code Section 314-61.1., and subject to the following performance standards. *Documentation of Current and Projected Water Use* All requests to permit commercial cannabis cultivation activities would be required to provide information detailing past and proposed use(s) of water on the site. Information in the plan would be developed to the satisfaction of County staff, and would be used to assist in identifying and establishing an appropriate forbearance period. At minimum, the following items would be included: ◢ Information identifying the cultivation season(s).

Table 6-1 Major Differences Between the CMMLUO and the Proposed Ordinance Performance Standards

Requirements	CMMLUO	Proposed Ordinance
	professional, that establishes minimum water storage and forbearance period, if required, based upon local site conditions, or 3) obtain approval from the RWQCB through enrollment pursuant to NCRWQB Order No. 2015-0023 and/or preparation of a Water Resources Protection Plan.	◢ A water budget showing weekly and monthly past or projected irrigation demands, including daily irrigation demand during periods of peak usage, broken out by each discrete cultivation site. Irrigation reporting or projections would be differentiated where cultivation methods and conditions result in differences in water usage at specific cultivation sites. ◢ A listing of current or proposed areas of on-site water storage, showing volume in gallons. *Forbearance Period and Storage Requirements* The County may require that operators of cannabis cultivation site(s) forbear from diversions of surface water for irrigation during periods of low or reduced stream flows. Unless otherwise specified, the default forbearance period would be required to occur from May 15th through October 31st of each year. In determining the appropriate forbearance period, the County would review the past record of water use at the site, the volume and availability of water resources and other water use and users in the local watershed, as well as relevant gaging information. Under certain circumstances, limited diversion during the forbearance period(s) may be authorized. The County may require the submittal of a water management plan prepared by a qualified person such as a licensed engineer, hydrologist, or similar qualified professional, establishing a smaller or larger water storage and forbearance period, if required, based upon local site conditions. Where subject to forbearance, the applicant would be required to provide a plan for developing adequate on-site water storage to provide for irrigation, based on the size of the area to be cultivated. *Metering and Recordkeeping* A metering device would be required to be installed and maintained on all discrete points of diversion, located at or near the point of diversion, and at or near the outlet of all water storage facilities used for irrigation. Operators would be required to maintain a weekly record of water collected from diversionary sources, as well as a record of all water used in irrigation of permitted cultivation areas. A copy of these records would be stored and maintained at the cultivation site, and kept separately or differentiated from any record of water use for domestic, fire protection, or other irrigation purposes. Irrigation records would be reported to the County on an annual basis, and made available for review during site inspections by local and state officials. Cultivation site(s) located within areas planned or zoned for lot sizes of ten acres or smaller where proposing or conducting Irrigation with water from a proposed or existing well located within 400 feet of a property line, shall be subject to groundwater testing to determine connectivity of the source supply well. These tests shall be preceded by a minimum of eight (8) hours of non-operation to maintain a static depth to water measurement. Results of testing would be required to be provided with the permit application submittal. If the testing demonstrates use of the well results in the drawdown of any adjacent well(s), a Special Permit will be required. Use of the well for cannabis-related Irrigation may be prohibited, limited, or subject to provisional approval and monitoring.
Prime Soil	New sites must be located on parcels that have prime soils	New cultivation is not restricted to prime soil areas.