Chapter 3. Environmental Setting and Impacts

The following is a description of the baseline assumptions used to evaluate the impacts of the GPU during the planning period 2016-2040. This introduction builds on the general growth assumptions for the planning area described in Chapter 2 – Project Description, and is supplemented by details in the individual technical sections of the RDEIR (Sections 3.1 through 3.16) regarding the specific assumptions and methodologies used in the analysis for that particular subject matter.

3.0 Baseline Environmental Conditions Assumed in the RDEIR

Section 15125(a) of the State CEQA Guidelines requires that an EIR include a description of the physical environmental conditions in the vicinity of a project, as they exist at the time the Notice of Preparation (NOP) is published. The CEQA Guidelines also specify that this description of the physical environmental conditions should serve as the baseline physical conditions by which a lead agency determines whether the impacts of a project are considered significant.

The environmental setting conditions of the County of Humboldt are described in detail in the individual technical sections of the RDEIR (see Sections 3.1 through 3.16). In general, these sections describe the setting conditions of Humboldt County as they existed when the NOP for the project was released on January 22, 2007. In addition, the RDEIR also includes information about the environmental setting that has been updated since release of the NOP, such as the release of the 2010 Census; updates regarding local development proposals; updated housing and population estimates from the State of California; updates from local agencies regarding their infrastructure and services; and updated information from local, state, and federal regulatory agencies.

Unfortunately, comprehensive and reliable data regarding baseline conditions related to the pervasive and unregulated development of illicit cannabis cultivation in Humboldt County is still not available. Although this RDEIR attempts to summarize some of the data that is available in Chapter 3.2 - Agriculture and Timber Resources, future regulation of cannabis cultivation, processing, manufacturing, or distribution is not within the scope of the draft GPU and potential impacts of such a regulatory program are not analyzed in this RDEIR. The County of Humboldt is in the process of developing a separate Environmental Impact Report for ordinances regulating commercial cannabis industry development in accordance with rapidly evolving state and federal law.

Growth Assumptions under the General Plan associated with the Planning Area & Period

Future growth in the General Plan Planning Area and Period is guided by the land uses identified in the General Plan Land Use Diagram (See General Plan Update Appendix F, Map Book). In the RDEIR, impact analysis of both temporary [i.e. construction-related] and operational effects is based on these proposed land use patterns. The estimated maximum feasible housing development potential of the General Plan Update land uses is far greater (38.972 housing units) than can reasonably be expected to be developed within the planning period of the General Plan (2016-2040). As explained in Chapter 2 - Project Description, the most recent population projections for Humboldt County from DOF reveal that Humboldt County's population is projected to grow fairly slowly in the coming years, and reach a peak population in 2028 of

141,441 persons, and then it is projected to start to decline to 138,307 persons in 2040, at the end of the planning period.

Appendix T of this RDEIR explains the methodology used to estimate that 1,721 new housing units will be needed to meet the demand of the increase in population to 2028 and 2040. The methodology goes on to explain how those new units were distributed across the county, reflecting historic development patterns that are most likely to continue into the future. This assumption is based on access, availability of infrastructure (water, sewer, schools, etc.), distance to work and shopping, and other factors that influence cost and market desirability. The methodology also describes how the projected increase in employment (5,980 jobs countywide) is used to estimate the commercial and industrial space constructed during the period.

Parcel-specific development potential estimates are used in this RDEIR to inform the environmental impact discussion presented later in this chapter. The estimates represent a future development pattern that most closely resembles historic development patterns. Should future development be proposed in a manner that is inconsistent with the projections and estimates in the RDEIR, additional environmental assessments pursuant to CEQA will be necessary before any such proposal could be approved.

Review of potential future development applications beyond that as set forth in this RDEIR is outside the scope of the analysis of this RDEIR, and may require supplemental or subsequent CEQA analysis.

3.1 Land Use, Housing and Population

This section contains an analysis of the impacts that the General Plan Update (GPU or Plan) may have on land use, population, and housing in Humboldt County. The section provides a description of existing land use pattern, population trends, and housing conditions as well as a brief analysis of regulations and plans pertinent to the implementation of the General Plan Update.

Existing land use, population, and housing conditions are described in detail in Chapter 2, Project description, Section 4.2 – Growth Planning of the GPU, and Appendix G of the Housing Element, August 2014 (Appendix K of this document). The General Plan Update process relied upon the *Building Communities Report*, February 2002 (Appendix C), which includes a discussion of existing land use patterns, population and housing, development trends, resource land conversion, and future land use requirements. Discussions of population and housing in the County are also found in the *Community Infrastructure and Services Technical Report*, July 2008. These reports are incorporated herein by reference, and summarized below. The reports are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://humboldtgov.org/571/Background-Reports. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.1.1 Land Use, Housing and Population -Environmental and Regulatory Setting

State Land Use Planning Law

California state law requires that each city and county adopt a general plan "for the physical development of the county or city and any land outside its boundaries which bears relation to its planning" (California Government Code, Section 65300). The plan can be understood as an expression of a community's values and its vision for the future, a "blueprint" for anticipated growth and development, both public and private, which forms the basis for most local government land-use decision making. In a larger sense a county general plan is a "constitution for future development," which is how the California Supreme Court has described it.

The general plan establishes the kinds, locations, and intensities of land uses as well as applicable resource protection and development policies. Land use maps are used to show land use plan designations, constraints, and public facilities. According to California law, a general plan must contain at least seven elements: land use, open space, conservation, housing, circulation, noise, and safety. It may also contain other elements that a county wishes to adopt. The law also requires periodic review and revision of a general plan, as necessary.

Article 10.6 of the California Government Code defines the requirements for General Plan Housing Elements. The Housing Element must analyze existing and projected housing needs, examine special housing needs within the population, evaluate the effectiveness of current goals and policies, identify governmental and other constraints, determine compliance with other housing laws, and identify opportunities to incorporate energy conservation into the housing stock. The element must also establish goals, policies and programs to maintain, enhance, and develop housing. State Housing Element law also requires that each city and

county accommodates its fair share of its region's new housing construction needs for all income groups and ensure there is, or that there will be, adequate zoned land, infrastructure, and services present for such housing. The feasibility of accommodating lower-income housing (homes for households earning 80% of less of median county income) typically requires higher densities, which in turn must often be served by public or shared water and sewer facilities, even in rural areas.

The General Plan sets forth the general distribution and location of uses within he County, as well as standards of population density and building (Government Code 65302) and zoning regulations serve as the primary implementation tool for the general plan, and must be consistent with the general plan (Government Code 65860).

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 [Caltrans] 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 in the vicinity of 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.

Local Land Use Planning

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 Community Plan Area 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. Urban Development Areas and Urban Expansion Areas (see Section 4-7, Growth Planning, of the General Plan Update for a detailed discussion of Urban Development and Expansion Areas) within this CPA are defined in terms of density and service available rather than mapping.
- 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 added by this GPU, 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 Local Coastal Program 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 3.1-1 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
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 due to 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. All cities but the City of Ferndale have Spheres of Influence 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 Spheres of Influence are subject to review and approval by the Humboldt County Local Agency Formation Commission (LAFCo). Cities in the County have General Plans that were adopted between 1966 and 2014 that have planning areas that include some or all of their Spheres of Influence. No city in the County has executed an agreement with the County, pursuant to Government Code Section 56425, to "ensure that development within the sphere occurs in a manner that reflects the concerns of the affected city and is accomplished in a manner that promotes the logical and orderly development of areas within the sphere."

Humboldt County Airport Land Use Planning. In Humboldt County**,** the Board of Supervisors serves as the Airport Land Use Commission and conducts airport land use compatibility planning

around the nine public use airports within the County. On January 27, 1998, the Humboldt County Airport Land Use Commission adopted the Airport Land Use Compatibility Plan for the California Redwood Coast – Humboldt County Airport (previously Arcata-Eureka Airport). See "Airport Safety" and Impact 3.7.3.2, Airport Safety Hazards, in Section 3.7, Hazards, for a more detailed description of airport land use compatibility planning in Humboldt County.

3.1.2 Land Use, Housing and Population - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update would result in a significant impact related to land use if it would:

Land Use and Planning

a) Physically divide an established community.
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
c) Conflict with any applicable habitat conservation plan or natural community conservation plan.

Population and Housing

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Land Use and Planning item "a" is discussed in Impact 3.1.3.1, Divide an Established Community. Item "b" is discussed in Impact 3.1.3.2, Conflict with Other Applicable Land Use Plans. Item "c" is discussed in Chapter 3.11, Biological Resources, Impact 3.11.3.5, Habitat Conservation Plans. Population and Housing item "a" is discussed in Impact 3.1.3.4, Induce Population Growth. Items "b" and "c" are discussed in Impact 3.1.3.5, Displace Existing Housing or People.

3.1.3 Land Use, Housing and Population – Impacts and Mitigation Measures

The Land Use Element frames the policies that will govern the use and intensity of development for lands located in the unincorporated area. These policies impact a broad spectrum of uses and development, ranging from creating new residential, commercial and industrial lots, and constructing or remodeling structures on existing lots, to minor projects such as accessory structures. The policies also cover a broad spectrum of land use types ranging from agricultural lands to high-density residential areas.

Impact 3.1.3.1 Divide an Established Community

Implementation of the General Plan Update would result in construction of new facilities or infrastructure, or other land use changes, which could result in the division of existing communities.

This impact analysis addresses Land Use and Planning item "a" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.1.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Physically divide an established community.

The General Plan Update Circulation Maps show a number of new road segments in the Eureka and McKinleyville Community Plan Areas. These local road segments are largely comprised of connecting roads between neighborhoods where one currently does not exist and are intended to bridge gaps between existing County roads and new roads in currently undeveloped areas that are planned for future development. Given that these roads are intended to make new connections between neighborhoods, none of these road segments represent facilities that would divide existing communities. In addition, the General Plan Update does not propose any freeways or other major transportation systems or other development that would act to divide established communities.

Rather than divide existing communities, the General Plan Update land use map maintains existing communities and continues a development timing system that identifies urban development and urban expansion areas in a CPA within and adjacent to existing communities. Urban development areas are suitable for development at greater than one unit per acre, where public services are provided. Urban expansion areas are not provided with public water or sewer services, but are expected to be developed to urban densities and to be provided with public water and sewer services in the near future. The General Plan Update identifies these areas to guide future urbanization. The General Plan Update areas also maintains the existing areas of separation between communities that is intended to preserve the unique identities of the county's cities and communities.

Analysis of Relevant General Plan Update Policies

The General Plan Update has a number of policies that are directed toward protecting community character and help to avoid dividing an established community. Land Use Element, Urban Land Goals UL-G2, Design and Function, and UL-G4, Community Character, call for aesthetically appealing urban development areas that preserve and enhance existing community character and identity, and are supported by several policies. Policy UL-P5, Community Identity, directs the County to preserve community features that residents value and to create development that compliments or adds to community identity and character. Policy UL-P8, Neighborhood Connectivity, requires that subdivisions be designed to promote road and trail circulation between neighborhoods, schools, parks and open space areas, and requires that the subdivision ordinance specify standards and limitations for cul-de-sacs, dead end roads, and block sizes. Policy UL-P11, Natural Amenities, encourages the County to incorporate natural amenities, such a landmark trees and rock outcroppings, into new project design. UL-P12, Design Review, requires development within designated Design Review overlay zones to undergo design review consistent with an adopted Design Review Ordinance. Policy UL-P20 requires all designs to use landscaping to, among other things, enhance the appearance of

neighborhoods. Implementation Measure UL-IM8, Review and Update Design Review Ordinance and Areas, directs the County to comprehensively review and update the Design review standards of the zoning ordinance and maps of areas subject to design review.

The General Plan Update Circulation Element contains policies that are directed toward maintaining neighborhood integrity, connectivity and non-motorized accessibility. Circulation Element goal C-G2, Diverse Transportation Opportunities, seeks a transportation system that integrates and balances needs of vehicles, transit, bicycles, and pedestrians.

Circulation Element Policy C-P1, Circulation System, encourages development of a circulation system that supports orderly development. C-P25, Multimodal Level of Service (LOS) and Quality of Service (QOS) Standards, directs the County to use objective methods and criteria to formulate LOS and QOS standards that consider "walkability audits" and "bikeability audits" suitable for the locality, to assess and plan the multi-modal quality and capacity of County roads and intersections. C-P26, Bicycles and Pedestrian Facilities in New Subdivisions, provides that bicycle and pedestrian facilities should be encouraged to connect neighborhoods, and that standards for urban, suburban, rural and remote contexts shall be developed. Policy C-P28, Landscape Buffer Strips, requires the County to provide landscape buffer strip standards as part of the Countywide Transportation Plan road cross-section standards and according to the context of urban, suburban, rural and remote, and suggests the County should use landscape buffer strips to segregate pedestrian walkways from arterial and collector roadways, where feasible. C-P27, Right-of-Way Design Standards, requires that the County develop and include in the Countywide Transportation Plan right-of-way design standards incorporating the needs of all users, consistent with urban, suburban, rural or remote community character, and also requires the development of incentives for development of multi-modal facilities to offset any potential loss of developable land. C-P29, Removal of Obstacles in Pathways, requires that where feasible and consistent with the Countywide Transportation Plan, new pathways and sidewalks shall be free of obstacles such as utility poles and mailboxes, and where obstacles are unavoidable on existing sidewalks or pathways, pedestrian facilities would be widened or otherwise designed to provide the least amount of obstruction to users. C-P30, On-Street Parking, directs that on-street parking be designed to minimize conflicts with all users consistent with the Countywide Transportation Plan and where appropriate, creative on-street parking arrangements such as parking pockets or bays are required to be considered to improve design flexibility. C-P31, Design Standards for All Pathways, requires that design standards appropriate to urban, suburban, rural and remote character shall be used by the County Public Works Department for the design and construction of pedestrian and bicycle facilities. C-P32, Traffic Calming, directs the County to use traffic calming measures, where feasible and appropriate, as a means of improving safety for all users. C-P?, Encourage Bicycle and Pedestrian-Friendly development, directs that incentives should be given to developers who provide non-motorized facilities that connect neighborhoods in a design that is appropriate to the character of those neighborhoods.

These policies are supported and implemented by Standards and Implementation measures. Standard C-S2, Neighborhood Connectivity, requires that local roads shall be planned to allow for orderly development of the community. Standard C-S7, Transit, Bicycle, and Pedestrian Quality/Level of Service Standards, requires that bicycle and pedestrian Quality of Service and Level of Service standards shall be specified in County code, and that the County shall reference Transit Level of Service standards specified in the Public Transit Service Element of the Regional Transportation Plan as amended. Standard C-S8, Pedestrian and Bicycle System, requires that a Board adopted Pedestrian and Bicycle System Plan consistent with the Regional Transportation Plan shall identify trails and routes considered a part of the County maintained circulation system, and that development projects proposed on lands that include a County

maintained trail or route may be required to dedicate easements or make improvements. Standard C-S9, Prioritization of Pedestrian and Bicycle Facilities and Routes, requires that objective criteria shall be used to prioritize construction of pedestrian and bicycle facilities and routes, and that criteria be developed that reflects consideration of providing safe and continuous connections between a variety of community facilities and areas, reductions in motorized vehicles miles traveled, and community demand and public interest.

Circulation Element implantation measures are defined to ensure that the above neighborhood connectivity programs are carried out. In particular, C-IM1, County-Wide Transportation Plan, requires the County to adopt a clear plan for development and improvement of multi-modal transportation infrastructure consistent with land use plans, intended community character and community priorities in unincorporated Humboldt County; the plan will also include a review and update of roadway, pedestrian, and bicycling facility standards. C-IM12, Pedestrian and Bicycle System Plan, directs the County to prepare a Pedestrian and Bicycle System Plan consistent with the Regional Transportation Plan and incorporate appropriate implementation standards in Title III – Land Use and Development Division 2 Subdivision Regulations.

Conclusion

The General Plan Update does not propose changes such as roads or other public facilities or other land uses that would result in the division of existing communities. In addition, the General Plan Update contains a series of policies in the Land Use and Circulation Elements to prioritize programs that preserve existing communities and facilitate neighborhood connectivity. Therefore this impact would be **less than significant**.

Mitigation

None required.

Impact 3.1.3.2: Conflict with Applicable Land Use Plans, Policies or Regulations

Implementation of the General Plan Update could result in development that conflicts with state law, County zoning or other land use regulations, city general plan, public land management plans, or other applicable land use plans, policies or regulations.

This impact analysis addresses Land Use and Planning item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.1.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

State General Plan Law

California Government Code, Title 7, Division 1, Chapter 3, Article 5, Authority for and Scope of General Plans, beginning with Section 65300, and Article 6, Preparation, Adoption, and Amendment of the General Plan, beginning with Section 65300, together with other relevant statues and the Governor's Office of Planning and Research *General Plan Guidelines,* govern and guide the preparation and content of a general plan. The General Plan Update has been prepared consistent with these and other relevant statutes and guidelines.

Open Space Requirements. After October, 2015, when the Board of Supervisors concluded its review of the General Plan Update, state law was revised to specify additional types of open space land to be included in the open-space element of a county general plan and the local open space plan. At the time the Board of Supervisors concluded its review, Government Code Section 65560 defined open space lands to include open space for the preservation of natural resources, managed production of resources, outdoor recreation, and public health and safety.

In 2016, Government Code 65560 was revised (AB 2651, SB 974) to add open space in support of the mission of military installations that comprises areas such as military training routes (Government Code 65560(5)) and Open space for the protection of places, features, and objects described in Public Resources Code Sections 5097.9 (which generally includes Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property) and 5097.993 (which generally includes Native American historic, cultural, or sacred sites) of the Public Resources Code (Government Code 65560(6)). Consequently, these open space areas are not included in the General Plan Updated Conservation and Open Space Elements.

Although these two open space types are not included in the General Plan Update Conservation and Open Space Elements narrative (pages 10-1 and 10-2, which contain a list of the types of open space lands) and Conservation and Open Space Policy Summary (Table 10-A), they are addressed fully in the General Plan Update. Conservation and Open Space Elements Section 10.6, Cultural Resources, includes Standard CU-S1, Significant Cultural Resources Defined, which defines Public Resources Code Sections 5097.9 and 5097.993 as significant cultural resources and ties these important open space types to resource protection policies and consultation requirements of the Conservation and Open Space Elements. The Safety Element describes Military Training Routes and Military Operating Areas on page 14-8 in a

description of airport safety and shown in GPU Military Operation Area Figure 14-1. Protections for these open space types are included in Safety Element policy S-P1, Reduce the Potential for Loss which directs the County to plan land uses and regulate new development to reduce the potential for loss of life, injury, property damage, and economic and social dislocations resulting from natural and manmade hazards, and S-PX7, Military Operating Areas, which directs the County to provide notification and project information to the military for discretionary development projects within military airspace operating areas as may be required by the California Government Code.

Unincorporated Legacy Communities. In 2011, SB 244 (Wolk) amended the Government Code to require counties to identify the infrastructure and service needs of unincorporated legacy communities in their general plans at the time of the next Housing Element update. SB 244 defines an unincorporated legacy community as a place that meets the following criteria:

- Contains 10 or more dwelling units in close proximity to one another;
- is geographically isolated and has existed for more than 50 years; and
- Has a median household income that is 80 percent or less than the statewide median household income.

The 2014 Housing Element included a detailed analysis of legacy communities in the Housing Element Appendix (§8.20.22), and included an implementation measure, H-IM34, Revise the Land Use Element to Facilitate Development in Legacy Communities, to reference that analysis in the Land Use Element of the Framework Plan in §2611 – Community Plan Areas: Background. To date, the Framework Plan has not been amended to include this reference.

California Coastal Act

The California Coastal Act governs land use and development activities within the coastal zone. The Act empowers the California Coastal Commission to review and approve (certify) local coastal programs (LCP). LCPs meet the requirements of, and implement the provisions and policies of, the Coastal Act at the local level, and serve as local government's land use plans and zoning regulations within the coastal zone.

Changes proposed by this countywide general plan update may require amendment of the County's LCP. The current LCP will continue to govern land use within the coastal zone unless and until amendments are submitted to and certified by the California Coastal Commission. This certification review will ensure amendments proposed by this General Plan Update will not conflict with the provisions of the Coastal Act.

Under Section15251 of the CEQA Guidelines, the Secretary of Resources has certified the Coastal Commission's regulatory program as a "functionally equivalent process" to CEQA. Accordingly, this EIR is not a decision document for amendments within the coastal zone, but may be used as a technical background document in assessing the project's environmental effects and conformance with applicable policies and standards of the County's LCP and/or the Coastal Act.

Humboldt County Community Plans

Project Description Section 2.4, The Proposed Plan, Key Features, describes proposed changes to the Humboldt County Community Plans that would be included in the General Plan Update. See Section 2.7, Relationship to Other Documents, in Chapter 2 Public Guide of the General Plan Update, including the portion of that section entitled "Companion Documents" for a detailed discussion of proposed amendments to the Community Plans to maintain consistency with the proposed General Plan Update. Proposed changes to the Community Plans include changes in land use designations; the deletion or modification of the existing Community Plan glossary, definitions and policies; the addition of terms, definitions and policies; the renumbering of all policies; and the consolidation and incorporation of Community Plans, except the Avenue of the Giants, Eureka, and McKinleyville Community Plans, into a single document entitled Community Area Plans Extract (Appendix C). The Avenue of the Giants, Eureka, and McKinleyville Community Plans and the Housing Element, will remain as stand-alone documents, but are subject to the mapping and policy revisions to maintain consistency with the General Plan Update.

Adoption of the General Plan Update would therefore add/delete/amend certain Community Plan definitions and policies, harmonize Community Plan land use designations with the General Plan Update, and amend Community Plan land use maps. It would also incorporate all Community Plans, except the Avenue of the Giants, Eureka, and McKinleyville Community Plans, into a single document, Appendix C, Community Area Plans Extract of the General Plan Update. Chapter 2, Public Guide, of the General Plan Update states that the Plan is considered to be the Community Plan for those communities included in Appendix C until such time that the Community Plans are updated. Adoption of Appendix C, which would occur with the adoption of the General Plan Update, would maintain consistency between these Community Area Plans and the General Plan Update.

As part of its review of modifications to Community Plan policies, the Board of Supervisors also considered changes to the three stand-alone Community Plans in a document entitled "Suggested Revisions to Other Community Plans to Maintain Consistency with the General Plan Update." This document contained suggested changes to the Avenue of the Giants, Eureka, and McKinleyville plans that relate to land use designations revised as a part of the General Plan Update; references to the Framework General Plan or other plans that have since been updated; and corrected references to state law or County Zoning Regulations. Adoption of the "Suggested Revisions to Other Community Plans to Maintain Consistency with the General Plan Update" would be required in order to maintain consistency between the Avenue of the Giants, Eureka, and McKinleyville Community Plans and the General Plan Update.

Humboldt County Zoning Regulations

The County's Zoning Regulations provide implementation for the General Plan land use designations, and are administered in a manner consistent with the General Plan. Section 4.8, Land Use Classifications, of the General Plan Update, describes each the general plan land use designation, including the allowed use types within each classification and density or intensity standards. The use types are defined within the Zoning Ordinance to help ensure consistency. Section 4.8 of the General Plan Update also provides a Zoning Consistency Matrix for inland land use designations (Table 4-H) and for coastal land use designations (Table 4-I) that identify which zones are compatible with which land use designations.

Amendments to the Zoning Regulations will be necessary to implement the General Plan Update and ensure continuing consistency between to two documents. Examples of required amendments include:

- Changes to Streamside Management Area regulations specified in BR-S5, Streamside Management Area Defined, which will require amendments to Streamside Management Area Regulations contained in Title 3, Division 1 of the County Code, addressed in Conservation and Open Space Element Implementation Measure BR-IMx4, Modifications to the Streamside Management Area Ordinance.
- Establishment of mixed use zoning as directed by the Land Use Element, Urban Lands Policy UL-P6, Mixed Use Zoning, would implement the Mixed Use "MU" plan designation set forth in General Plan Update Section 4.8 and applied in various areas around the County.

In addition, adoption of the General Plan land use map will cause some zoning districts to be inconsistent with the General Plan. The zoning map will need to be amended within "a reasonable time" to re-establish consistency. The following is a general discussion of zoning inconsistencies that will result from the amendment of the General Plan as well as other zoning map changes that will need to occur within approximately two years of General Plan Update Adoption.

Unclassified. Approximately 655,000 acres of the County is zoned Unclassified, "U." The "U" zoning is applied to areas of the County that have not been sufficiently studied to justify precise zoning classifications, and includes regulations to protect the health, safety and general welfare of the citizens and to insure orderly development in conformance with the General Plan. Within the "U" zone, single family dwellings and general agriculture are principally permitted, and all other uses that are consistent with the General Plan are conditionally permitted. Comprehensive zoning for Humboldt County was carried out in the middle 1970's, and at that time "U" zoning was applied to certain areas. Some areas that were originally zoned "U" have since been precisely zoned. A focus of the General Plan Update is to carry out comprehensive planning to allow the precise zoning of those remaining areas currently zoned "U."

Zone Inconsistencies. Zoning inconsistencies with the General Plan exist within the County and may be the result of circumstances such as expected sewer or water system expansions that did not occur, or planned zone changes that have not yet occurred. Upon adoption of the General Plan Update, the zoning of approximately 14,000 acres would remain or become inconsistent with the General Plan.

In the majority of cases, the zoning of a property is consistent with the proposed General Plan Update land use designation, or is zoned "U" and would therefore be re-zoned as part of the comprehensive planning to allow the precise zoning of areas currently zoned "U" described above. However, in some instances, most particularly for landowner requested land use changes considered by the Board of Supervisors described in the Land Use Requests section below, parcels with resource zoning are proposed to be given a residential land use designation. In this case, the resource zone can only be considered consistent with the General Plan Update as a "holding zone." The use of the term "holding zone" implies there is a plan to rezone the property to a zone consistent with the General Plan uses and density or intensity. Therefore, zone changes, or a plan to carry out zone changes would be required.

For areas with land use and zoning inconsistency, consistency could be achieved by one of several zoning map amendments: (1) where the principally or conditionally permitted uses are not consistent with the range of allowable uses of the land use designation specified in the Land

Use Element, apply a new zone classification from Table 4-H, Zoning Consistency Matrix; (2) where the minimum lot size of the zone is not consistent with the density range of the Land Use Designation, apply a combining zone, such as "B"', Special Building Site, to ensure that the density/minimum lot size criteria are consistent; and (3) where a resource zone is applied to a non-resource Land Use Designation, evaluate whether or not that planned use is expected to be developed within a "a reasonable time."

Land Use Requests. Property owner requests to change the land use on their property were considered by the Board of Supervisors during the General Plan Update land use mapping process. The Board considered the specifics of each landowner request; a map of the parcel showing its location and current and proposed land use designations, zone, and community planning area, if any; information regarding service availability; and public input. The Board deliberated on each individual request, eventually tentatively accepting all landowner requests for a change in land use without concern for the zoning inconsistency that would result from some of the granted land use changes. Some of these land use inconsistencies resulting from landowner requests occur in resource zones where the concept of "holding zones" as described in the section above would apply. The majority, if not all, changes in land use that result in "holding zones" are a result of Board granted requests for land use changes.

Airport Land Use Compatibility Plans

Airport land use compatibility plans (ALUCP) are required to be prepared for each public airport and the area surrounding the airport within a county to reduce the potential for land use conflicts between airports and surrounding uses. Government Code Section 65302.3 requires that the general plan be consistent with the airport land use compatibility plan adopted or amended pursuant to Section 21675 of the Public Utilities Code. General Plan Update Chapter 14, Safety Element, contains goals, policies, standards, and implementation measures relating to airport land use compatibility and airport safety and noise. Consistency between the General Plan Update and the adopted ALUCP is analyzed in Section 3.7 Hazards, Impact 3.7.3.2: Airport Safety Hazards. Prior to approval of the General Plan Update, it will be referred to the Airport Land Use Commission for a review for consistency between the Plan and the adopted ALUCP.

City General Plans

The seven incorporated cities within Humboldt County all maintain General Plans for their jurisdictional areas. In some cases these General Plans have planning areas that extend into County jurisdiction. Since the cities do not have jurisdiction in these unincorporated areas, differences between city plans and County plans would not be a conflict of applicable land use plans. However such differences inform a discussion of potential areas of concern. To quote the City of Arcata's General Plan EIR, "Defining a Planning Area is a means by which the city can communicate its concerns for the future of surrounding lands under the jurisdiction of the County or neighboring cities."

City of Arcata. Arcata adopted a revised General Plan in 2000, with a planning area that includes the lands west of the city between Humboldt Bay and the Mad River out to the Pacific Ocean, and the entire Jacoby Creek watershed to the east. The Arcata General Plan accommodates projected population growth of approximately 4,000 persons through 2020, with 1,686 dwelling units based on mid-point density range estimates.

On the west side of the Arcata planning area there is generally a match between Arcata's general plan and the proposed County General Plan Update. Two properties identified for residential development in the Arcata General Plan (Assessor's Parcel Number 505-161-011 and

505-192-004) are designated Urban Reserve in the General Plan Update, which reserves these parcels for annexation and development consistent with the City plan. These two parcels are planned in a manner consistent with the Arcata General Plan. Two other parcels that are designated industrial and residential urban reserve, respectively, in current County plans, are designated Agriculture Exclusive in the General Plan Update to match the Arcata plan. APN 505-151-006 is a vacant approximately 12 acre parcel used for the production of hay and grazing is designated RE2.5 in the General Plan Update, which differs from the Agriculture-Exclusive designation applied in the Arcata General Plan. The balance of the land in this area is designated Agriculture Exclusive and Natural Resources in the Arcata plan and the General Plan Update.

On the northeast side, there is general agreement between Arcata's general plan and the proposed County General Plan Update. However the Arcata plan designates most of the Jacoby Creek watershed area Natural Resources (NR), which includes existing residential development and land zoned Timberland Production Zone (TPZ). The Arcata plan NR designation allows timber production and buildout of one residential unit per existing parcel. Therefore, the General Plan Update allowance for buildout at greater than one unit per existing parcel would not be consistent with the City of Arcata's preference. However, because Arcata's plan is not the applicable land use plan outside city limits, the County's proposed General Plan Update does not conflict with an applicable plan in this case. The City continues to pursue land acquisitions of forested land within the Jacoby Creek watershed area, consistent with the goals of their plan, and these land transactions are aided by the County's General Plan designations, which help maintain a reasonable market value during appraisal and acquisition. Since the City continues to produce timber on these lands, these acquisitions are consistent with the County's General Plan designation of Timber Production.

City of Eureka. The City of Eureka's general plan was adopted in 1997, and has a planning area that covers the unincorporated areas of Cutten, Ridgewood Heights, and Humboldt Hill. The City's plan for these areas is generally consistent with the County's existing 1995 Eureka Community Plan and the proposed General Plan Update. The City's plan has slightly higher densities for the Low Density Residential areas (4.1- 8 units per acre) than the County's existing Plan (1- 7 units/acre) or the proposed General Plan Update (3 – 8 units/acre), and encourages accommodation and retention of neighborhood commercial areas, similar to the County plans. The City of Eureka is in the process of updating its General Plan; however, the adopted land use map was not available during the period of this analysis for comparison.

City of Fortuna. The City of Fortuna updated its General Plan in October 2010. Humboldt County initiated its General Plan Update prior to the City of Fortuna and mapped land uses around the City in consultation with City staff. There are several differences between the proposed General Plan Update land use map and the Fortuna General Plan Land Use Diagram (Figure LU-1, Land Use Diagram, Fortuna General Plan 2030). Based on past consultations with City staff, the General Plan Update land use map identifies several areas as Urban Reserve; however, these areas do not entirely match the City of Fortuna's annexation planning carried out as part of that jurisdiction's general plan update process. The City of Fortuna has recently annexed the River Walk Annexation Area and portions of the Carson Woods Annexation Area, and is in the process of annexing portions of the Strong's Creek Annexation Area. The County General Plan Update plans portions of the Strong's Creek Annexation Area as Urban Reserve.

The Fortuna General Plan Land Use Diagram is largely similar to the proposed General Plan Update land use map. Some of the major differences include portions of the unincorporated area to the north, east, and south east of the city that the Fortuna General Plan Land Use Diagram identifies as Open Space. The Fortuna Open Space land use designation provides for

natural resource use such as timberland management, public uses, and hazards areas, and specifies no residential use. Over half of these lands are proposed to be planned Agriculture Grazing (AG) or Timberland (T) and the remainder is proposed to be planned Rural Residential and Residential Estates under the General Plan Update. Most of these areas contain scattered rural residential development with parcels greater than five acres. Another area of difference would be the area along Hillras Way north of the Rohnerville Airport, which the General Plan Updates plans Residential Estates and the Fortuna General Plan Land Use Diagram plans Industrial. However, because Fortuna's plan is not the applicable land use plan outside city limits, the County's proposed General Plan Update does not conflict with an applicable plan in this case.

City of Rio Dell. The City of Rio Dell updated its General Plan in 2008. The City identified a planning area that includes the entire City's Sphere of Influence, but does not identify land use designations or zoning classifications for areas outside the City. The General Plan Update identifies land use designations for all unincorporated area around the City. In addition, the General Plan Update identifies approximately 44 acres of the unincorporated area as Urban Reserve/Rural Residential 5-20 (acres per unit), outside of the City of Rio Dell Sphere of Influence. This area was jointly identified as Urban Reserve by City of Rio Dell and County staff. The City of Rio Dell Sphere of Influence area is proposed to be planned Rural Residential 5-20, but is not identified as Urban Reserve. However, because Rio Dell's plan is not the applicable land use plan outside city limits, the County's proposed General Plan Update does not conflict with an applicable plan in this case.

City of Trinidad. The City of Trinidad General Plan was last updated in 1992. The City of Trinidad General Plan indicates that proposed land uses in the City of Trinidad Planning Area (Plate 2 of the Trinidad General Plan) which includes all land between the City and the Burris Creek watershed to the north, (approximately 3.25 miles north of the City limit) and the Luffenholtz Creek watershed to the south (approximately 1.5 miles south of the City limit). The land uses mapped in the City of Trinidad General Plan include rural residential, suburban residential, and resource production, and are generally consistent with the proposed General Plan Update.

City of Blue Lake. Humboldt County consulted with the City of Blue Lake in identifying land uses for the unincorporated areas surrounding the City of Blue Lake. Humboldt County utilized draft pre-zoning maps provided by the City of Blue Lake consulting planner to determine the City's plans for these areas. The land uses contained on the proposed General Plan Update or very similar to those mapped by the City of Blue Lake on the draft pre-zoning map.

City of Ferndale. The City of Ferndale General Plan Land Use Map was initially adopted in the 1970s and has undergone few revisions since that time. Ferndale has had a very stable population of just over 1300 for more than 40 years. The 1970 population was 1352; the 2010 population count is 1371. The General Plan Update proposes no changes in land use designations adjacent to the city, and the policies of the proposed plan should help to maintain the existing uses surrounding the town.

Public Land Management Plans

Various federal and state agencies manage lands within Humboldt County and a number of these lands have adopted management plans. Land Use Element Section 4.7, Public Lands, of the General Plan Update contains goals and policies to promote consistency between the General Plan Update and the management plans of other agencies.

Conclusion

With respect to applicable land use plans and policies, the above analysis does not identify any inconsistencies between the proposed General Plan Update and other applicable plans, programs, and regulations with jurisdiction over the project that would result in adverse physical effects pursuant to CEQA. However, the description of open space types on pages 10-1 and 10-2 in the Conservation and Open Space Element does not include new open space definitions established in recent changes in state law. Although Policies and Standards in the Conservation and Open Space Elements and the Safety Element contain protections for these newly defined open space lands consistent with state law, they are not adequately described as open space land.

Regarding unincorporated legacy communities, the Housing Element contains the analysis that is required by Government Code Section 65302.10(a)(2). However, the General Plan Update should include a policy to require that on or before the due date for each subsequent revision of its Housing Element, the County shall review, and if necessary amend, the General Plan to update the analysis of unincorporated legacy communities.

As part of its review of modifications to Community Plan policies, the Board of Supervisors also considered changes to the three stand-alone Community Plans in a document entitled "Suggested Revisions to Other Community Plans to Maintain Consistency with the General Plan Update." This document contained suggested changes to the Avenue of the Giants, Eureka, and McKinleyville plans that relate to land use maps; land use designations revised as a part of the General Plan Update; references to the Framework General Plan or other plans that have since been updated; and corrected references to state law or County Zoning Regulations. Adoption of the "Suggested Revisions to Other Community Plans to Maintain Consistency with the General Plan Update" would be required in order to maintain consistency between the Avenue of the Giants, Eureka, and McKinleyville Community Plans and the General Plan Update.

In addition, the proposed changes to the General Plan Update land use map would cause the zoning of various areas of the County to either remain inconsistent or become inconsistent with Plan land use designations. State land use regulation requires that cities and counties re-establish consistency within a reasonable time after a comprehensive general plan revision, which is interpreted to be up to two years. The General Plan Update contains some specific policies and programs to map zoning changes, such as UL-IM2, Neighborhood and Town Centers, which would create a zoning overlay for this land use type, or AG-IM1, Develop Planned Rural Development Program, which directs the Zoning Regulations to be updated to include provisions for a planned development program for rural areas. However, there are no implementation measures or programs to ensure that consistency between the General Plan land use map and zoning map is re-established in a reasonable time. As a result, the above described deficiencies would pose a **potentially significant impact**.

Mitigation

The following implementation measure below shall be fulfilled to help address the potential impacts related to the re-establishment of zoning consistency with the General Plan Update.

Mitigation Measure 3.1.3.2.a. Add the following implementation measure to the Growth Planning section of the Land Use Element to reduce potential impacts related to conflict between the General Plan Update and applicable land use regulations:

Implementation Measure GP-IMX, Zoning Consistency. *Within two years after the adoption of the General Plan Update, revise the Zoning Regulations to re-establish zoning consistency with the policies of the General Plan and amend the Zoning Map to achieve consistency with the General Plan Land Use Map.*

Mitigation Measure 3.1.3.2.b. Add the following narrative to Section 10.1.1, Relationship to Other Elements, and Table 10-A Conservation and Open Space Policy Summary, of the Conservation and Open Space Elements to fully demonstrate consistency between General Plan Update and state law:

Add the following text to the Section 10.1.1, Relationship to Other Elements:

- ***Open Space for military bases, installations, and operating and training areas*** *—areas adjacent to military installations, military training routes, and underlying restricted airspace that can provide additional buffer zones to military activities and complement the resource values of the military lands. [add to the bottom of page 10-1]*

- ***Open Space for Native American historic, cultural or sacred site*** *— Open space for the protection of places, features, and objects described in Sections 5097.9 and 5097.993 of the Public Resources Code. [add to the bottom of page 10-1]*

Open Space for military bases, installations, and operating and training areas:

- *Narrative description of these open space lands and a map showing their locations is included in the Safety Element.*
- *Policies to minimize impacts to military trainings areas are included in the Safety Element.*
- *Policies to provide notification to the military are included in the Safety Element. [add to the bottom of page 10-2]*

Open Space for Native American historic, cultural or sacred site:

- *Narrative description of these open space lands is included in the Cultural Resources Section of the Conservation and Open Space Elements.*
- *Policies relating to Native American Tribal consultation are included in the Cultural Resources Section of the Conservation and Open Space Elements.*
- *Policies relating to the identification, protection, and enhancement of cultural resources are included in the Cultural Resources Section of the Conservation and Open Space Elements.*
  [add to the bottom of page 10-2]

Add to Table 10-A. Conservation and Open Space Policy Summary	
Open Space for Military Training Areas A. Minimize impacts to military trainings areas B. Provide notification to the military of projects that could affect military readiness.	Safety Element

Mitigation Measure 3.1.3.2.c. Add a map identifying the Unincorporated Legacy Communities within the County as well as the following policy to the Community Infrastructure and Services

Element to reduce potential impacts related to conflict between the General Plan Update and state General Plan law:

> ***Appendix F: Map Book***. *Add a map of Humboldt County showing the location of Unincorporated Legacy Communities.*
>
> ***Policy IS-PX3, Unincorporated Legacy Communities.*** *On or before the due date for each subsequent revision of its Housing Element, the County shall review, and if necessary amend, the General Plan to update the analysis of unincorporated legacy communities.*

Level of Significance after Mitigation

Therefore, with implementation of the mitigation measure identified above, impacts related to conflict between the General Plan Update and applicable state laws relating to the open space and land use elements would be **less than significant**.

Impact 3.1.3.3: Habitat Conservation Plans

Implementation of the General Plan Update would facilitate additional development that could conflict with habitat conservation or natural community conservation or recovery plans.

This impact analysis addresses Land Use and Planning item "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.1.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

> c) Conflict with any applicable habitat conservation plan or natural community conservation plan.

For a discussion of potential conflict with any habitat conservation plan or natural community conservation plan see Chapter 3.11, Biological Resources, Impact 3.11.3.5, Habitat Conservation Plans.

Impact 3.1.3.4. Induce Population Growth

Implementation of the General Plan Update would create opportunities for new development that could induce growth directly or indirectly.

This impact analysis addresses Population and Housing item "a" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.1.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

> d) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Implementation of the General Plan Update would maintain and create new opportunities for the development of residential, commercial, and industrial land uses. These additional growth opportunities could induce growth directly (e.g., through the construction of new dwelling units) or indirectly (e.g., through the creation of new jobs or the extension of roads, or the extension of sewer or water mains). Population growth itself is not considered growth inducing if it is consistent with what has been projected in regional population forecasts.

The General Plan Update is the long range land use plan that establishes development patterns and guides future growth in the unincorporated area. The land use map identifies areas for development of residential and commercial land uses, as well as roads and other infrastructure, to accommodate forecasted population growth. As such, the General Plan Update would induce population growth; however, growth would not be considered substantial unless the General Plan Update induced growth beyond state and regional projections.

Humboldt County is projected to grow at a significantly slower rate than the rest of the State of California. The State of California is anticipated to grow approximately 38 percent from 39,255,883 in 2016 to 54,266,115 in 2040. The DOF forecasts that Humboldt County will grow approximately 2.4 percent between 2016 and 2040 to a population of 138,307 in 2040. The County would represent substantially less than one percent of the statewide population in 2040.

Unlike most areas of the state, growth projections are not prepared by the regional transportation planning agency for this county. The HCAOG relies on DOF population forecasts for the regional transportation plan. Therefore, growth that can be accommodated by the General Plan Update cannot be compared with state or regional projections other than DOF projections.

The Humboldt County Board of Supervisors adopted the County Housing Element that identifies, based on the 2014-2019 Regional Housing Need Allocation (RHNA), a need to construct 859 new dwelling units in the unincorporated area at various income levels during the 2014 through 2019 planning cycle. The Housing Element identifies a specific need for 212 units for the extremely low and very low income categories (0 to 50 percent of median income), 135 for the other low income (51 to 80 percent of median income), 146 for moderate income (81 to 120 percent of median income), and 366 for above moderate income households. The General Plan Update estimated maximum feasible development potential is 38,972 dwelling units (See Section 2.5, Proposed Plan Estimated Maximum Feasible Development Potential, of the project description for additional information regarding the estimated maximum feasible development potential). The General Plan Update land use map provides a wide range of locations that can accommodate growth, which would ensure that the implementation of the Housing Element would not be jeopardized.

The General Plan Update provides sufficient flexibility in terms of its ability to accommodate growth to allow for the Housing Element to be implemented without obstruction. In order to provide a reasonable opportunity to obtain the RHNA housing goal, adequate potential area for development of various housing types has been provided. The General Plan Update maintains the potential area for development as considered in the Housing Element, and therefore, would not conflict with the Housing Element housing objectives.

According to the project description, the proposed General Plan Update provides for modest expansion of urban areas. The General Plan Update also provides for a slight increase in planned urban residential densities, increasing infill opportunities and urban-serviceable

development. Additional industrial and commercial lands would be made available based on historic proportion to residential land uses.

Development under the General Plan Update has the following characteristics:

- Generally maintains the characteristics of existing communities.
- Applies land use designations that support mixed-use development and other techniques to increase efficiency of land utilization, including the use of alternative subdivision standards, density bonuses, second unit incentives, live-work commercial centers, etc.
- Maintains current planned residential densities outside of community planning areas and facilitates opportunities for second residential units.
- Increases resource production land protections using a range of planning tools such as, clustered development incentives, open space standards, conservation easements and regulatory reform.

Analysis of Relevant General Plan Update Policies

The Land Use Element, Housing Element, Community Infrastructure and Services Element, Conservation and Open Space Element, and Water Resources Element provide a framework to accommodate future development in an efficient and sustainable manner that is compatible with the character of unincorporated communities and the protection of valuable and sensitive natural resources. Humboldt County has not been confronted with significant growth pressures in recent decades. However, even though population growth rates are low, the supply of land in urbanized areas capable of supporting development continues to decrease. In order to accommodate growth, the General Plan Update establishes increased residential densities and mixed use zones, encourages the provision of diverse housing choices, commercial facilities, and infrastructure to accommodate forecasted growth while protecting resource lands and the established character of existing urban and rural neighborhoods. The Land Use Element also contain development timing policies, which are described in Impact Topic 3.1.3.1, Divide an Established Community, above, that are intended to allow for the orderly expansion of existing urban areas.

Conclusion

The proposed General Plan Update accommodates the growth that is projected to occur within the County by the State Department of Finance. Population growth in Humboldt County is projected to peak in 2028 and then steadily decline thereafter through the remainder of the planning period and beyond. The General Plan Update does not propose any specific development proposals or contain policies that are intended induce growth. These policies address how growth is intended to be accommodated. The General Plan Update utilizes development timing policies similar to what is currently reflected in the community plans. The General Plan Update also provides for a slight increase in planned urban residential densities in a few cases, increasing infill opportunities and urban-serviceable development, as well as maintains or increases densities in other areas. Such policies are not intended to induce growth, but would accommodate growth to the greatest extent possible within urbanized area that can best provide needed community services.

The General Plan Update is a comprehensive plan to guide future growth throughout the County and accommodate growth to the greatest extent possible within urbanized areas

that can best provide needed community services. Therefore, the proposed project would not result in the direct or indirect inducement of unplanned population growth and potential impacts would be **less than significant**.

Mitigation

None required.

Impact 3.1.3.5 Displace Existing Housing or People

Implementation of the General Plan Update would facilitate new development that could displace substantial numbers of existing housing units or people, thereby requiring construction of replacement housing in a different location.

This impact analysis addresses Population and Housing items "b" and "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.1.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

The General Plan is a long range land use plan that defines development patterns and establishes guidance for future growth in the unincorporated area, including the development of housing. New development or infrastructure consistent with the proposed General Plan Update could have the potential to displace existing housing, and would result in a significant impact if replacement housing would be required elsewhere outside of the unincorporated area.

The General Plan Update Land Use Element is intended to support growth within urban areas, maintain levels of development elsewhere, and increase resource production land protections. A substantial portion of the population growth projected by the Department of Finance would be expected occur in areas within CPAs and is intended to occur in a manner that maintains the characteristics of existing communities.

Humboldt County has dedicated substantial resources to the analysis of housing unit capacity within the County, especially within Urban Development and Water Service Areas. The Humboldt County Planning and Building Department has been refining its analysis of residential development capacity since the adoption of the 2003 Housing Element, and has utilized an on-line housing inventory to gather information from the public regarding development potential and constraints at the Assessor's parcel level. The ongoing housing inventory analysis was informed by the Urban Study Area planning that was conducted as part of the preparation of the Community Infrastructure and Services Technical Report, 2008, and provided the basis for the Housing Element housing inventory and the land use projections for the General Plan Update. In addition, Dyett and Bhatia conducted a housing demand and land capabilities analysis as part of the preparation of the Building Communities Report, 2002.

The development capacity analyses described above confirm that the proposed land use map would allow for an adequate number of dwelling units to meet the projected population growth within the unincorporated area, and additional housing outside the unincorporated area would not be required to accommodate demand.

The General Plan Update does not contain specific development projects; rather it contains policies and applies land use designations to guide development within the unincorporated area. The implementation of the proposed General Plan Update would generally retain the existing land use pattern of the unincorporated area. However, development consistent with the General Plan Update could displace existing housing. Some areas that currently contain residences are designated for commercial or other non-residential land uses under the current General Plan and the General Plan Update; future construction of these non-residential land uses would have the potential to displace the existing housing. However, existing and increased residential density in adjacent areas or other areas of the unincorporated area would sufficiently offset displaced housing so that replacement housing elsewhere would not be necessary.

Analysis of Relevant General Plan Update Policies

The Land Use and Housing Elements contain a series of policies intended to assure adequate land for residential development within the unincorporated area. Housing Element policy H-P9, Maintenance of an Adequate Supply of Residential Land, requires that the County maintain an adequate supply of residentially zoned land to meet projected housing needs. Pursuant to the Land Use Element, Urban Development Areas and Water Service Areas are intended to accommodate the levels of development that are projected to occur over the 20 year planning period of the General Plan. Policy GP-S7, Required Findings for Urban Expansion, contained in the Growth Planning Chapter of the Land Use Element, states that it is permissible to expand into Urban Expansion Areas when land within Urban Development Areas and Water Service Areas are not sufficient to meet Housing Element goals and service systems can accommodate additional demands.

Conclusion

Development during the General Plan Update planning period has the potential to displace people or housing units necessitating the construction of new units elsewhere. However, the General Plan Update does not contain specific development projects; rather it contains policies and applies land use designations to guide development within the unincorporated area. The proposed General Plan Update policies described above would lessen potential impacts to the displacement of people or housing by providing more than sufficient land to accommodate growth during the planning period. Therefore, the General Plan Update would not displace substantial numbers of existing housing units, necessitating the construction of replacement housing elsewhere. Therefore, impacts relating to the displacement of people or housing resulting from the General Plan Update would be **less than significant.**

Mitigation

None required.

3.2 Agricultural and Timber Resources

This section provides background information regarding agricultural and timber resources within Humboldt County, the regulations and programs that provide for their protection, and an assessment of the potential impacts resulting from the implementation of the proposed General Plan Update. The key issues relating to agricultural and timber resources identified through the General Plan Update process include: 1) the effects of increased parcelization for residential development; 2) the purchase and conversion of productive farmlands by resource agencies; 3) the effects of increased regulations on timber harvest activities and economic productivity; and 4) conflicts of land use in the Forest-Residential Interface Areas. The proposed plan buildout information cited in Section 3.1, Land Use, Population, and Housing is also discussed and referenced in this section as it relates to development on agricultural and timber resource lands. Existing agriculture and timber resource conditions are described in Chapter 3, Forest Resources, and Chapter 4, Agricultural Resources, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), Agricultural Resources and Policies, August 2003 (Appendix E); and Forest Resources and Policies Report, October 2003, revised April 2006 (Appendix F). These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://co.humboldt.ca.us/gpu/documentsbackground.aspx, are incorporated herein by reference and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.2.1 Agricultural and Timber Resources – Environmental and Regulatory Setting

Agricultural Resources

Significant precipitation, fertile soils, and the mild coastal climate make for productive farming in Humboldt County. Agriculture production is an important component of both the local economy and community character.

The total agricultural acreage in 2008 was approximately 345,238 acres, (tabulated by the Humboldt County Geographical Information Services GIS mapping program for the technical background studies and updated for the Planning Commission Hearing Draft) covering 15% of the County's total land area. As there have been no substantial conversion of agricultural land to non-agricultural uses between 2008 and 2016, total agricultural acreage in 2016 is still about 15% of the total land area.

These agricultural lands can be divided by land type, such as delta land, river and mountain alluvial flats, and upland grazing. Most areas are actively engaged in ranching, row cropping, or specialty agriculture, such as organic foods and organic/grass-fed meats, while some areas are occupied by rural residential development or are being acquired by public agencies for resource protection and parkland.

The total agricultural acreage reported by Humboldt County is significantly lower than the U.S. Department of Agriculture, National Agricultural Statistics Service's Census of Agriculture statistics

and the County Agricultural Commissioner's figures. The 2007 Agricultural Census reported 597,186 acres of productive agricultural lands in the County, while the County Agricultural Commissioner estimated it at 492,876 acres. This difference is primarily due to the tabulation of "grazing" lands, which include timberlands zoned as Timberland Production Zone (TPZ). The County Agricultural Commissioner reported a total of 470,000 acres as "rangelands," whereas the Agricultural Census classified only 295,105 acres as "rangelands".

Prime and Non-Prime Agricultural Lands

The land best suited for a wide range of agricultural crops is called "prime" agricultural land. There is neither a single fixed definition of "prime" agricultural land nor is there a single prescribed system for classifying lands as "prime". A number of different systems of agricultural land classifications are in use in California. Understanding the different classification systems described below is helpful when understanding the use of the term "prime" agricultural lands.

USDA Land Capability Classification System. The United States Department of Agriculture (USDA) defines prime farmland as the land best suited to food, feed, forage, fiber, and oilseed crops. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

The USDA Land Capability Classification System is the best known and most widely used land capability classification system (USDA Soil Survey Manual, 2012 online publication - http://soils.usda.gov/technical/). It is an interpretive classification system for agricultural purposes which uses soil and climatic data to place delineated soil areas into groups of similar management options or problems. The basic foundation of the system is the soil mapping unit found in the soil survey report. Arable soils are placed into groups according to their potentialities and limitations for sustained production of cultivated crops. Non arable soils are grouped according to their potential and limitations for the production of permanent vegetation and according to their risks of soil damage if mismanaged. Classes I and II in the system are often referred to as "prime" agricultural lands.

USDA Prime and Unique Farmland Definition (LIM). The primary intention of the USDA in developing the Land Inventory and Monitoring system (LIM) was to inventory and evaluate the nation's best farmlands. Criteria for designating prime agricultural lands according to the LIM included ten categories (in California) such as water supply, adequate temperature regime, adequate growing season, suitable pH, susceptibility to flooding, depth of soil, soil permeability (including rock fragment content), slope and erodibility, salinity and rooting depth.

The LIM system further defines 1) unique farmland, 2) farmland of statewide importance, and 3) farmland of local importance. "Unique Farmland" is land other than prime farmland that is used for the production of specific high value food and fiber crops (such as artichokes, dates, melons, and several other high value fruits and vegetables). "Farmland of Statewide Importance" is land of statewide importance for the production of food, feed, fiber, forage and oilseed crops (criteria for defining and delineating this land is determined by the appropriate state agency). "Farmland of Local Importance" covers those local farmland areas that are of concern to the local jurisdiction (city and/or county) for the cultivation of crops that do not fit into any of the other previously described categories. These lands are identified by the local agency concerned.

Storie Index. Unlike the USDA Capability Classifications or LIM systems, the Storie Index Rating (SIR) is a quantitative system which rates four soil factors on the basis of 0-100 points. This system rated agricultural land according to its quality which was determined on the basis of

productivity data from a number of major soils in California that were classified in the 1920-s and 30's. These factors included soil profile, soil texture, slope and soil limitations (such as drainage, pH, nutrient levels, erosion, etc.). Each of these factors were rated and then multiplied together to produce the composite index rating. Thus, a poor rating in any one factor may greatly affect the overall grade. Prime agricultural land was not a part of the SIR but "excellent" agricultural land was considered to rate between 80 -100 points.

California Farmland Mapping and Monitoring Program. The California Farmland Mapping and Monitoring Program (FMMP) was established in 1982 in response to a critical need for assessing the location, quality, and quantity of agricultural lands and conversion of these lands over time. The FMMP is a nonregulatory program and provides a consistent and impartial analysis of agricultural land use and land use changes throughout California. The modern soil surveys produced by the Natural Resources Conservation Service (NRCS) are the basis for FMMP's qualitative soil ratings range in age, scale, and coverage. Humboldt County is currently in the process of having a countywide soil survey produced by the NRCS (formerly known as the Soil Conservation Service). Therefore, Humboldt County is not included in the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP).

California Legislative Definition of Prime Land. Of the three previous methods classifying agricultural land, only the LIM system explicitly defines "prime" agricultural lands. The California Land Conservation Act or Williamson Act of 1965 defines prime agricultural lands as a combination of soil properties and/or economic considerations (California Government Code Section 51200-51297). Government Code Section 51201(c) defines prime agricultural land as any of the following:

- All land that qualifies for rating as Class I or II in the Natural Resources Conservation Service (NRCS) land use capability classification; or
- Land which qualifies for rating 80 through 100 in the Storie Index Rating; or
- Land which supports livestock used for production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the United States Department of Agriculture; or
- Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than $200 per acre; or
- Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than $200 per acre for three of the previous five years.

This definition was developed as recognition that many of California's specialty crops are not grown on Class I and II lands. This definition is also used in the California Coastal Act for prime agricultural lands.

Agricultural Soils – Humboldt County

The County's agricultural soils were mapped in 1965 in a cooperative project between the Department of Soils and Plant Nutrition, University of California, Davis, and the County of Humboldt utilizing the Storie Index Rating system (SIR) as described above. The NRCS is currently in the process of updating the soils survey. Approximately 75% of the County has been mapped. Because the new soil survey information is not available countywide and has not been incorporated into the Humboldt County GIS mapping system, for purposes of this Environmental Impact Report, the SIR has been utilized for providing guidance on determining prime agricultural lands.

The rating of soils according to the Storie Index Grade, expresses the relative suitability of the soil for general intensive agriculture. Storie Index Grade 1 soils (those with a composite index rating from 80 to 100) are well suited to general intensive agriculture. Grade 1 soils are easily worked, very productive, and irrigation is simple and efficient. The Lower Eel watershed has the greatest amount of land in agricultural production and by far the most Grade 1 soils in proportion to other areas. Grade 2 soils (index rating 60-80) are moderately well suited for agriculture and Grade 3 (index rating 40-60) indicates only fair suitability. Grades 4, 5, and 6 (index rating below 40) indicate poor suitability for agriculture.

Soil types in Humboldt County can be generalized as alluvial or upland. Alluvial soils occur in the river flood plains and deltas and are used for pasture and crop lands. Seasonal flooding replenishes these soils. Upland soils sustain both forests and open rangelands.

Prime Agricultural Lands – Humboldt County

The County currently utilizes the following definition for prime agricultural lands:

PRIME AGRICULTURAL LAND: Under the General Plan, identified by any of the following definitions.

a. Rated Class I or II by the U.S. Soil Conservation Service.

b. Rated 80 through 100 percent in the Storie Index.

c. Land that has a livestock carrying capacity of one animal unit per acre.

d. Land planted with fruit or nut-bearing trees, vines, bushes or crops which have a non-bearing period of less than five years and which will normally provide a return adequate for economically viable operations during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production.

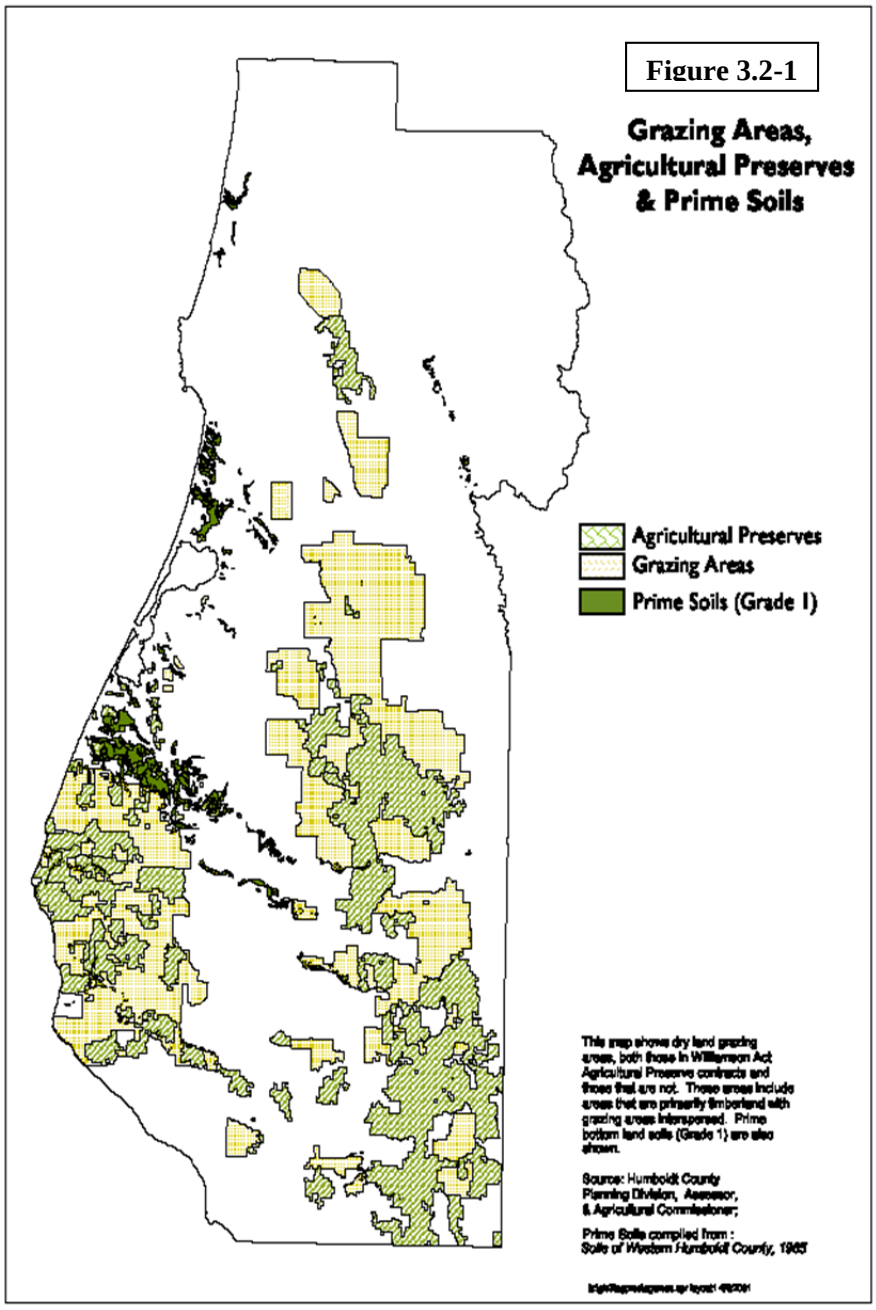
e. Land capable of producing an unprocessed plant production adequate for economically viable operations.

f. Additional lands in proximity to a, b or c above which are necessary to provide for physically and economically viable, coherent agricultural areas. These lands are included to prevent the establishment of incompatible land uses within an area defined by natural or man-made boundaries.

Of the approximately 345,238 acres of land identified as agricultural lands by the Humboldt County GIS mapping system, approximately 12%, or 42,000 acres are identified as prime agricultural lands, primarily based upon soils type. The highly productive soils of the Mad River, Redwood Creek, Eel River Deltas, Humboldt Bay, as well as other areas, provide the basis for Humboldt's significant agricultural resources. The majority of the County's prime agricultural lands are found in these areas (see Figure 3.2-1).

Agricultural Productivity

By California standards, Humboldt County's agricultural production is small. The County produced approximately $269 million of the State's $46 billion of annual farm goods in 2013 (0.5% percent of State production). However, agriculture is a large part of the local economy, sustaining hundreds of farm and ranch families and workers. While the number of farms has declined over the last decade, the agricultural industry has seen an increase in employment of 37% since 1985, accounting for 2.2 percent of the County's employment sector 2008.



Excluding timber production values, Humboldt County ranked 35th in the state for gross value for agriculture production in 2008 (with timber receipts, it ranked 18th). The top four valued agricultural crops in 2013 and 2015, based on the Humboldt County 2013 Crop and Livestock Report published by the Humboldt County Agricultural Commissioner and data provided by the Commissioner's office, were:

1. Livestock (includes aquaculture) - $77 million (2013); $108 million (2015)
2. Timber Production - $73 million (2013); $70 million (2015)
3. Milk and Milk Products - $62 million (2013); $60 million (2015)
4. Nursery Stock - $50 million (2013); $57 million (2015)

Livestock Production. The two major livestock industries in the County are cattle and sheep production. While cattle production has maintained a consistent market level production over the last 20 years, sheep production has undergone a steady decline. Goat production, for milk and meat, is a small but growing industry.

Cattle ranching has a long history in Humboldt County and currently supports over 250 ranching families. Beef production utilizes almost 470,000 acres of grazing land within the County (areas not in timber production). There were 52,000 cattle in Humboldt County in 2013 according to the 2013 Humboldt County Crop and Livestock Report published by the Humboldt County Agriculture Department. The total value of Humboldt's beef and cattle herds was estimated to be $51.8 million.

Milk and Dairy Products. Until recently, the largest agricultural industry in Humboldt County was dairy production. Historically, the industry in the County was an important milk supplier for the San Francisco Bay Area beginning in the mid-to-late 1800's. After World War II, better refrigeration and transportation technologies caused the bulk of California's dairy industry to shift to the San Joaquin Valley, which is now responsible for producing over 70 percent of California's milk production.

The value of dairy production continued to increase steadily over time. According to the 1980 Humboldt County Agricultural Report, the value of milk produced in 1980 was estimated at a little under $20 million (this value is not adjusted to compensate for inflation). By 2013, Humboldt County dairies grossed approximately $50 million.

County dairy operators must compete with large operators in the San Joaquin valley. Milk products are "pooled" in California and a set price is determined for all producers. Often, dairy profit lies in the balance of feed costs and milk prices. Dairy operators seek to meet unstable market conditions by getting bigger and more efficient. In the 1950's, the average California dairy herd numbered 40 cows; by 1979, it was over 300. In the San Joaquin valley and other major dairy regions, dairies contain 2,000 cows or more, confining their animals in mechanized barns with food and water delivery systems.

Keeping their animals on pasture year-round, Humboldt County's dairies typically run herds of between 200 and 400 dairy cows. Local dairy ranchers feel the same pressures to increase productivity and expand their herds. However, the ample rainfall and mild climate create cost-effective pastureland with little need for heat or air-conditioning for the cows and goats, unlike dairies in the Central Valley. With these cost savings, the small local dairies are able to compete with dairies located in Central Valley.

Nursery Stock. Nursery production has steadily increased over the last decade. The County Agricultural Commissioner estimated 2001 sales of flowers and nursery products at $34 million compared with 2013 values of $49 million. Local floral products have gained national reputations and command top prices.

Humboldt County nursery production is a viable niche industry flourishing in the coastal "fog belt" where temperatures remain moderate year-round. Two forest-tree nurseries and dozens of specialty plant growers were responsible for some of that production, but Sun Valley Floral Farms, located in the Arcata Bottoms, generated the bulk of the value. Sun Valley Farms is the single largest agricultural employer with a workforce of approximately 270 people on about 280 acres. The operation has grown since its start in 1991 to become one of the top three flower distributors in the U.S. The operation produces more than 50 million flowers a year from a 1.5 million square-foot greenhouse complex.

Cannabis Cultivation. Humboldt County is said to be the heart of the Emerald Triangle (Humboldt, Mendocino and Trinity Counties), considered by many to be the epicenter of domestic marijuana (also known as cannabis) cultivation in the United States, if not the world. Current estimates are that there are 8,000 – 12,000 or more outdoor or mixed light cultivation operations (Butsic, Brenner (2016)), and an unknown number of indoor cultivation facilities. The pervasive presence of marijuana cultivation throughout large portions of rural Humboldt County grew gradually over a period of 50 years beginning in the late 1960s, but accelerated at an increasing rate over the past 20 years -- with the last few years at a pace often referred to locally as the "green rush."

For most of this history, growing marijuana was an illicit, clandestine, contraband activity, and is still prohibited by federal criminal law. As a consequence, it developed in remote rural locations, disbursed in relatively small areas of cultivation on large tracts of land. Access to sites is often over old private logging or ranch roads built with little or no consideration for erosion control and sedimentation of watersheds. New roads have been bulldozed into the landscape without permits or proper design to prevent erosion. Traffic on unpaved roads is estimated to contribute as much as 60% of Humboldt County's PM_{10}, the only criteria air pollutant for which the County exceeds established standards. (See Section 3.12 Air Quality.)

The primary value of these remote locations to illicit growers is concealment and difficulty of enforcement. The location of the bulk of marijuana cultivation operations is in areas which were previously suited only for forest or grazing lands, too steep and without sufficient water or adequate soils that could support commercially viable cultivation of other legal field or orchard crops.

As of 2014, outdoor and greenhouse marijuana cultivation was most prevalent in southern Humboldt County. In some areas of the County the density of grows evident from Google Earth were as high as 27 grow sites per square mile in 2014. One three square mile area southwest of Alderpoint, known as Rancho Sequoia with 158 parcels, included more than 82 separate grow areas in 2012-2014. Parcel sizes in this area range from about 4 acres to over 112 acres, with the average about 10 acres. About 41% of the parcels appeared to have one or more grow sites on them during 2012-2014. The largest site incorporated over 3 acres of cleared forest and 36 separate hoop houses as of 2012.

Estimates of the value of marijuana produced in Humboldt County are speculative and based on wholesale value that can vary widely depending on whether for legitimate medical use in California under state law, or for black market national and international export. Figures range from $1 – 4 billion annual street value. A study of outdoor and greenhouse production in 60 of 112 randomly sampled watersheds in the County estimated a wholesale gross value to growers of $150,000,000 in 2014 (Butsic, Brenner (2016)). One study conservatively estimated that cash spending of revenue from marijuana cultivation in the Humboldt County economy may have amounted to as much as $500,000,000 in 2016 (Times-Standard article, "Pot Economy: 'Ours to Lose', published 8/5/2016: www.times-standard.com/article/NJ/20160805/NEWS/160809935). By any measure, marijuana accounts for a very significant proportion of the economic activity in the County.

In large part because it has been an illegal contraband commodity, marijuana is a very high value crop. That value underwrites cultivation practices that are costly and inefficient. Outdoor planting areas have to be cleared and graded. Cultivators import specialized soil for planting in beds or pots, often discarding and replacing it annually with new soil. Low and seasonal flows from local springs or creeks requires construction of ponds or tanks for water storage, often supplemented by water delivered by truck. These locations are often far off the electrical grid;

power for supplemental lighting to increase the yield of crops and to power pumps, fans and other equipment is often supplied by diesel or propane powered generators. The result is noise and increased fire hazards in sensitive forest habitat area, as well as air quality and carbon emissions that would not exist or could be more easily mitigated if cultivation and processing occurred in areas on the grid. Inappropriate use of herbicides, rodenticides and fertilizers has resulted in deaths of wildlife (Gabriel, et al 2012)). Unregulated water diversions from surface streams and springs likely result in decreased stream flows adversely affecting threatened or endangered species (Bauer, et al 2015). The demand for remote sites for marijuana cultivation is believed to have played a role in illegal land divisions in violation of the Subdivision Map Act, and contravening Williamson Act land conservation contracts in several large areas of the County, resulting in parcelization of agricultural and timberlands.

The expansion of marijuana cultivation in Humboldt County has been, in part, spurred by changes in attitudes and regulations beginning in 1996 with the passage of the Compassionate Use Act, Proposition 215, codified at Health and Safety Code section 11362.5, which provided state law protections from criminal prosecution for the cultivation, possession and use of medical marijuana by qualified patients. Legislation to provide a partial framework to implement the initiative did not follow until 2003 with the enactment of SB 420, Stats. 2003, Ch. 875. In 2008, then-Attorney General Jerry Brown provided further guidance for law enforcement to focus law enforcement resources away from quasi-legitimate medical marijuana cultivation. These developments established a non-profit cultivation / collective-cooperative model for medical marijuana cultivation, product manufacturing and dispensaries.

Adoption of the Medical Marijuana Regulation and Safety Act in the fall of 2015, since renamed the Medical Cannabis Regulation and Safety Act (MCRSA), represents a paradigm shift to a regulated commercial marketplace model. MCRSA refers to medical cannabis as an agricultural product (Health and Safety Code sec 11362.777 (a).) Humboldt County became the first county in California to adopt land use regulations to implement local permitting required by MCRSA.

Medical cannabis under the protection of the Prop 215/SB 420 regime to be transitioned to MCRSA, is believed to account for a relatively small percentage of marijuana cultivated in Humboldt County, perhaps as little as 10 – 20%. Participation in the Humboldt County's permitting program for medical cannabis is therefore expected to represent a proportionately small fraction of the total of cannabis activity. Proposition 64, the Adult Use of Marijuana Act enacted in November 2016, makes it likely that the legal marketplace for cannabis products in California will be much larger, resulting in a higher participation rate. Because there will still be a market for marijuana in other states and internationally where marijuana is not legal, it is expected that the black market activity for marijuana products will persist in Humboldt County.

On January 26, 2016, the Board of Supervisors approved Ordinance 2544 to implement land use regulations for commercial cultivation, processing, manufacturing and distribution of cannabis for medical use within the County consistent with the state Medical Marijuana Regulation and Safety Act ("MMRSA")(SB 643, AB 266, and AB 243 as approved by the Governor on October 9, 2015). These regulations, entitled the Commercial Medical Marijuana Land Use Ordinance (CMMLUO), were modified for clarity on September 13, 2016 by Ordinance 2559. The County's regulations are intended to reduce or eliminate any adverse environmental effects of existing commercial cannabis cultivation operations, and to prevent adverse environmental effects of any new commercial cannabis activities. The regulations include mitigation measures to avoid significant environmental effects of medical marijuana cultivation, and to reduce the effects of unregulated cannabis cultivation below existing baseline conditions.

The regulations recognize the commercial cultivation of cannabis for medical use is a highly regulated specialty crop and the cultivation and processing of that specialty crop shall not be allowed as a principally permitted use under the General Agriculture use type classification applicable within the County of Humboldt, unless a Zoning Clearance Certificate, Special Permit, or Use Permit is first obtained from the County, and unless the person engaged in such activity has obtained all state licenses and permits which may be required by the applicable state licensing authorities whenever such licenses become available. The CMMLUO allows applications for commercial cannabis activities to be accepted until December 31, 2016.

The County is considering adopting future regulations for commercial cannabis operations in separate independent phases or stages through successive revisions of the regulatory program. Each phase or stage would have its own independent utility, and the substance of any anticipated possible future phase or stage would not be a reasonable foreseeable consequence of any previous phase or stage. No phase or stage would include a commitment to proceed with possible future revisions until the potential environmental effects of any future phase or stage were evaluated by subsequent environmental review in accordance with CEQA Guidelines section 15162.

The environmental impacts of the future regulatory program will be evaluated in a separate environmental document, and are therefore not discussed any further in this EIR.

Agricultural Preserves (Williamson Act Lands)

The California Land Conservation Act of 1965, better known as the Williamson Act, created a program for counties to protect viable agricultural land by offering a tax incentive to property owners to keep their land in agricultural production. The Act provides an arrangement where private landowners voluntarily restrict their land to agricultural and compatible open space uses under a contract with the County, known as a land conservation contract, or Williamson Act contract.

The Williamson Act contract is an enforceable restriction on land and is binding on successors to both the landowner and the local government. The minimum term for a contract is 10 years, and the contract is automatically renewed annually, unless either party gives advance notice on non- renewal. Contracts may be canceled immediately, terminating the restriction to agricultural uses, only if the local legislative body finds that termination or canceling of the contract would be consistent with the Act and in the public interest. The purpose of the Act is to encourage property owners to continue to farm their land and to prevent the premature conversion of farmland to urban uses.
Humboldt County's Board of Supervisors first adopted guidelines for the Williamson Act on June 24, 1969. From 1972 to 1981, nearly 243,000 acres were put under Williamson Act contracts in the County's jurisdictional area. As of December 2011, there were just under 300,000 acres in the program in 169 established preserves, of which approximately 200,000 acres are eligible to receive subvention funding from the state (approximately 100,000 acres are enrolled in the TPZ program and are not eligible for subventions). Currently, only 50 percent of farmland in the County is actively preserved under the Williamson Act, utilizing the acreage figures from the U.S. Department of Agriculture. Of this amount, only 2% is located on prime agricultural soils (approximately 15% of all prime agricultural lands are in Williamson Act program).

The Board of Supervisors continues to support the Williamson Act program in spite of the state eliminating subvention funding in 2010 by establishing grant funding to cover the costs of enrollment for new preserves, and by upholding County policies that strive to protect and enhance existing contracted lands.

Conservation Easement Support Program

Despite the efforts to protect agricultural lands through zoning and tax incentive programs, the pressure for development on agricultural lands is increasing. Agricultural land is often valued higher for use as residential estates than for agricultural production capabilities. The County funded a Recreational and Conservation Easement Support Program in 2003 that uses grant funds to help keep working lands in production. Private landowners may voluntarily decide to put working lands under conservation easements for the preservation of resource production, open space, and/or habitat values.

To date, these project funds have been utilized to support easement costs for six large ranches (protecting approximately 24,000 acres), three forestland easements (protecting approximately 2,000 acres) one dairy farm, and two coastal access easements. The funding has also been instrumental in the establishment of 16 new Williamson Act Preserves, protecting approximately 8,500 acres of farmland.

Right to Farm Ordinance

Humboldt County has undertaken several actions to reduce urban and rural conflicts, including the 1984 adoption of the Right to Farm Ordinance. This ordinance declares that it is the County's policy to enhance and encourage agricultural operations within the County. The ordinance strives to reduce the loss of the County's agricultural resources by limiting the circumstances under which existing and planned agricultural operations may be considered a nuisance. The ordinance promotes a good neighbor policy between agricultural and non-agricultural property uses by advising purchasers and users of property adjacent to or near agricultural operations of the inherent potential problems associated with agricultural uses, including, but not limited to, the noises, odors, dust, chemicals, smoke, and hours of operation that may accompany agricultural operations.

Agricultural Land Conversion

While agriculture is one of the most enduring industries in Humboldt County, operators are facing increasing challenges to maintain economically viable operations. The long-term sustainability of the agricultural industry depends on continued profitability and the availability of productive farmlands. Depending upon interests and economics, farms can be broken up into smaller non-viable parcels or taken entirely out of production. For some of these property transfers, unfunded estate taxes can force the sale of all or portions of the ownership.

According to the United States Department of Agriculture 2012 Census of Agriculture, and summarized in Table 3.2 -1, Farmland Statistics in Humboldt County, between the years 2007 and 2012, Humboldt County lost 3,880 acres or 0.6 percent of farmland, but added 78 farms. The average farm size decreased in those five years from 701 acres to 638 acres. The number of full-time farmers increased 25 percent from 417 to 522.

Table 3.2-1. Farmland Statistics in Humboldt County.

Item	1992	1997	2002	2007	2012
Farms	874	792	993	852	930
Land In Farms	597,766	584,538	613,931	597,477	593,597
Land in farms - average size of farm (acres)	684	738	638	701	638
Average Market Value of Products Per Farm	$70,835	$95,297	$97,604	$175,813	$218,559

Source: USDA Census of Agriculture

According to the County Framework Plan (1984), nearly 100,000 acres of farmland were converted to non-farm uses over several decades due to subdivision activity. Since the adoption of the Framework Plan, it is estimated that the County has lost approximately 3,000 -5,000 acres per year of productive farmland to other uses from 1984 through 2003 (Humboldt County Agricultural Resources and Policy Report, August 2003). Agricultural operations near population centers are being moved to areas further away, frequently on poorer farmland that requires more energy and increases costs for transportation, fertilization, and irrigation.

A study of the County's agricultural and timberland conversions identified substantial amounts of land potentially lost to production through zone reclassifications, subdivisions, and conditionally permitted uses that conflict with agricultural and timber operations (Humboldt County Forest Resources and Policy Report, October 2003, updated in 2008). In addition to conversion occurring because of General Plan amendments and new subdivisions, resource lands may be converted through the Certificate of Compliance process, which involves recognition of historic parcels that may be substandard to minimum parcel sizes and densities established by the General Plan. Approximately 25 percent of all the Certificate of Compliance applications submitted from 1985 - 2000 occurred on agricultural properties and timberlands, affecting more than 18,000 acres. From 2001 to June 2005, this rate increased from 25 percent to over 67 percent, affecting over 53,000 acres.

These changes in land use as a result of zone reclassifications, subdivisions, and the issuances of Certificates of Compliance on historic parcels, are primarily reflective of the breakup of old family ranches. Commercial grazing operations will likely be negatively affected by the recognition of historic parcels if they are too small to support grazing and are sold off. Urban and rural conflicts occur at the interface of agricultural and non-agricultural uses. Development introduces new residents who are exposed to and/or interfere with agricultural operations. Depending on the types of nearby agricultural operations, visitor and resident complaints typically involve dust, odors, noise, presence of pests, manure, or spray drift where agricultural chemicals are applied. Agricultural complaints generally include trespass, vandalism, and theft. Even when people move to an area expressly for its rural character, these conflicts can occur because of their expectations, urban values, and residential (i.e., not agricultural) activities.

In addition to reducing the quantity of agricultural lands and timberlands, conversion impacts the remaining lands in many qualitative ways. As these types of lands are converted to suburban and urban uses, remaining farms and ranches as well as timber operations are impacted by conflicts over farming, ranching and timber activities, by transportation challenges, and by the loss of support services and infrastructure. In addition, "loss" in terms of the benefits associated with the open space and environmental benefits provided by agricultural lands and timberlands, would be experienced indefinitely. Finally, keeping land in agricultural and timber uses saves local governments money in infrastructure costs necessary to serve residential developments in remote rural areas.

Forested Areas and Timberlands

There are 1.9 million acres of forested land in Humboldt County, covering more than 80 percent of the County's total land area. National Forests encompass nearly 338,000 acres within the County. national and state parks include 70,000 and 72,000 acres, respectively, while national and state wildlife areas cover 2,600 and 2,000 acres. County parks and community parks account for 1,000 acres. The Bureau of Land Management's forest reserves cover 7,600 acres. Altogether, these public forested lands (including reserves, parks, and other holdings) total over 679,500 acres or 35.5 percent of all forested lands in Humboldt County.

Forest resources, much like agricultural resources, are dependent on the quality of the climate and soils. Humboldt County's mild and wet climate is conducive to timber production. Of the 1,900,000 acres of forestland in Humboldt County, 1,700,000 are considered suitable for timber production. About 1,000,000 acres are designated by the County as TPZ. This acreage is equal to 45 percent of the total land acreage in the County. Humboldt County has one of the highest value timber harvest each year of any county in the state of California.

However, the County's timber industry has been in decline over the past 30 years. In 2000, the County's total gross value of timber production was $285,232,953, for which Humboldt County ranked first in the state. By 2008, the total gross value of timber dropped to $108 million, 25 percent less than the 2007 gross value of $147 million.

The forest products industry is currently 29 percent of the County's base economy (export) and about 8 percent of the total economy (excluding cannabis), based on reported payroll information for 2008. This is down from 32 percent of the base and 11 percent of the total in 2006, which is due to the dramatic crash of the housing market and low demand for lumber nationwide. However, forest products are still the single largest exporting industry in Humboldt County, and makes the County the center of the forest products industry in California.

The market value of timberland for the growing and harvesting of trees has also fallen relative to the value of the land for residential uses and conservation purposes. In the conservation realm, large tracts of timberland have been sold to state and federal agencies to create parks. These parklands have increased conservation and open space values and made Humboldt County a worldwide tourist destination, but at a cost of decreased commercial timber production.

Due to a rising market demand for rural homes and falling timberland profits, forestland property which has an adequate building site and road access is often priced too high to be purchased for profitable commercial timber production. As long as valuations of forestland are driven primarily by residential market demand and only secondarily by commercial income potential, the County can expect more forestlands being bought, sold and ultimately developed as residential property.

Fragmentation of timberlands into smaller lot sizes can accelerate this trend. First, lower priced smaller lots appeal to a larger residential market and second, reduced economies of scale for commercial timber production on smaller lots, particularly associated with fixed regulatory costs, results in less commercial income potential. Once a house is built on timberland property, the combined house and land price becomes too high for the property to be subsequently purchased by timber producers for commercial timber production as the primary use. Nonetheless, forest resources have been important in the growth of the tourism and tourist-related industries in the County, which have increased with the global recognition of California's redwood forests.

Forest Types

Trees are generally classified as hardwood (including oak, alder, and other deciduous or broadleaf species) or softwood (including fir, spruce, pine, redwood and all other coniferous or needle-bearing species), although some "hardwoods" are softer than softwoods.

Forest types, as listed by the California Department of Forestry and Fire Protection (CAL FIRE), are categorized by the dominant tree species or mix in that region. The most common forest types in Humboldt County include the following:

- Douglas fir forest, the dominant forest type in the County, is found at elevations of 500 to 2,000 feet (normally above redwood, but also below in the southern County), and includes a variety of oaks and pines, with yew, cedar, and hemlock also growing in moister sites.
- Redwood forest, which grows primarily along the coast and in nearby lowland areas, with redwood interspersed with a variety of other conifers and red alder.
- Montane hardwood forest is found largely in steep canyon slopes and ridgetops, and is dominated by the canyon live oak, with other oaks and pines, madrone, and laurel at lower elevations.
- Montane hardwoods conifer forest, which is found farther inland above rainier areas, and includes black oak, white oak, and live oak along with white fir and Douglas-fir.
- Montane riparian forest, which is generally not productive timberland, and is marked by bigleaf maple, California bay, and Fremont cottonwood.

Table 3.2-2, Forest Types in Humboldt County, lists the types of forests in Humboldt County and the acreage covered by that forest type. A more generalized depiction of forest types is provided in Figure 2-2 (Vegetation Types) in Chapter 2, Biological Resources, of the *Natural Resources and Hazards Report* (Dyett and Bhatia, 2002) (Appendix D).

Table 3.2-2. Forest Types in Humboldt County.

Habitat Type	***Acres***
Douglas-Fir	701,437
Montane Hardwood	469,351
Redwood	428,277
Montane Hardwoods Conifer	167,452
Montane Riparian	51,165
White Fir	33,366
Coastal Oak Woodland	32,812
Klamath Mixed Conifer	18,918
Red Fir	6,884
Jeffrey Pine	2,451
Closed-Cone Pine Cypress	614
Ponderosa Pine	73
Blue Oak Foothill Pine	27
Other	143
Total	1,912,970

Source: Humboldt County GIS, 2008

Timberland Production Zone (TPZ)

The Timberland Production Zone was established by the California Forest Taxation Reform Act of 1976 as a new designation for lands for which the Assessor's records indicated that the "highest and best use" would be timber production and accessory uses. This law made two modifications to the way timberland was taxed. It placed values on undeveloped land that are related to its ability to grow trees, and it substituted a percent tax on the value of timber at the time of harvest ("yield" tax) for the annual property tax on the trees. In exchange for this tax benefit, landowners had to be willing to dedicate their timberland to timber growing and compatible uses for a period of at least 10 years. Unless terminated by the County or landowner, these ten year commitments renew each year, thus creating a rolling minimum 10-year commitment.

Parcels in TPZ must be no smaller than 160 acres, or 40 acres if a joint timber management plan (JTMP) is prepared by a registered professional forester and approved by the Board of Supervisors. A JTMP must include a management plan (identifying access, rights-of-way, and stocking requirements as regulated by state law) and a management guide (describing the property, existing and proposed access, timber inventory and stocking plan). Once approved, the JTMP is recorded with the County Recorder.
Public improvements and urban services are prohibited on TPZ lands except where necessary and compatible with ongoing timber production. TPZ land in Humboldt County is generally clustered along a north-south axis through the middle of the County, from the western side of the Lower Klamath watershed to the center of the Lower Eel watershed.

The original purpose of TPZ zoning was to preserve and protect timberland from conversion to other, more profitable uses and to ensure that timber producing areas not be subject to use conflicts with neighboring lands. The Timberland Productivity Act of 1982 (TPA) later formalized the state's policy in favor of sustainable harvest, allowing for long-term availability of timber resources.

Timberland Conversion

There are multiple viewpoints of "timberland conversion" depending on how it is defined and in what context the term is used. The Forest Practices Act, which regulates timber harvest practices in California, provides a legal definition of "timberland conversion" (see text box). Basically, whenever a timberland owner proposes to carry out a project that will result in timberland (regardless of its zoning) being converted to a non-timber growing use, they must obtain either a timberland conversion permit or an exemption from this requirement. The permits are processed by CAL FIRE as the lead agency. The County is minimally involved in this process unless there is a rezone application out of TPZ, at which point the County becomes the lead agency.

Forest Practices Act
(Title 14, Article 7)

(g) "Timberland Conversion":
(1) Within non-Timberland Production Zone (TPZ) timberland, transforming timberland to a non-timber growing use through timber operations where:
(A) Future timber harvests will be prevented or infeasible because of land occupancy and activities thereon; or
(B) Stocking requirements of the applicable district forest practice rules will not be met within five years after completion of timber operations; or
(C) There is a clear intent to divide timberland into ownerships of less than three acres (1.214 ha.).
(2) Within TPZ lands, the immediate rezoning of TPZ lands, whether timber operations are involved or not except as exempt from a timberland conversion permit under 14 CCR 1104.1.
(h)"Conversion Permit":
the timberland conversion permit, issued by the Director or the Board upon appeal, approving the application for timberland conversion and authorizing a conversion of timberland to use or uses other than the growing of timber.

Another type of "conversion" that is more difficult to define and track is the change in land management priorities based upon parcel size, market conditions, and ownership values. As parcel sizes go down, the cost of timber harvest per acre (permitting and harvest costs) increases, and timber production may no longer be the most economical use of the property. When this occurs, timberlands become more valuable as rural residential properties. In addition, when houses are placed on timberlands, the value of the structures may be greater than what the standing timber is worth and can price resource land purchasers out of the market.

Timber production on such parcels may still be viable; it is unclear what specific effects this trend has had on the timber economy. However, forest management practices are generally not enhanced with smaller parcel sizes. Land ownership patterns, for example, are likely to become more complicated with smaller parcel sizes, which may inhibit resource production.

Rezoning out of TPZ. Lands zoned TPZ are committed to timber production for the initial 10 years after the zoning declaration; the TPZ status is then renewed automatically every year thereafter. Land zoned TPZ for which the owner petitions to have rezoned otherwise, may be required to remain TPZ for one year after the rezoning declaration is made.

When TPZ was originally proposed in Humboldt County in 1977, a total of 1,103,842 acres were identified as candidates for TPZ zoning. During the TPZ program, landowners had the opportunity to "contest" the zoning into TPZ by filing a written affidavit that a parcel had a "higher and better use" that was not included as a compatible use in the County's TPZ ordinance, or that the parcel was not physically suited for timber production. In response to these affidavits, 42,053 acres were not zoned into TPZ, leaving 1,061,789 acres that were ultimately zoned TPZ. Additionally, as a consequence of Redwood National Park expansion in 1978, an additional 51,115 acres were considered but not zoned into TPZ because they were placed into the Park.

According to the Humboldt County Assessor, the total acreage of TPZ as of 2009 was 1,008,408 acres, indicating a loss of 53,381 acres since 1977, when the TPZ was first adopted in Humboldt County. Approximately 1,000 acres of this conversion out of TPZ has been as a consequence of direct rezones approved by the Planning Commission and Board of Supervisors. Approximately 910 acres of this were part of the County's Eureka Community Plan in 1995.

There have not been many property owner requests to rezone properties in the County out of TPZ. During the period of 2001 - 2008 there were only nine direct rezones affecting TPZ lands, and of these, seven were rezones from other zones into TPZ. The two rezones out of TPZ during this seven-year period involved 10-year phase-outs of TPZ for a 30 acre parcel and a 20 acre parcel.

Conversion from Fragmentation. Fragmentation and "parcelization" studies have found that there is a direct positive relationship between timber production volumes and land holding size.[1] As the *California Forest Legacy Program Assessment* notes:

[1] "Parcelization" is used by the Forest Legacy Program to refer to subdivisions that occur without additional, immediate non-forest development. The CAL FIRE Fire and Resource Assessment Program's (FRAP) Forest and Range 2003 Assessment considers parcelization to be the process of landownership being broken into increasingly smaller holdings—FRAP's definition of "rural residential" is a housing density of one or more units per 20 acres and less than one unit per acre. The meaning in this paper is not limited only to subdivisions that create new parcels, but includes a shift of land holdings to many landowners with smaller holdings, which may or may not require review by the County. (California Department of Forestry and Fire

> "While this process of creating new parcels and reducing average parcel sizes, or "parcelization", does not in and of itself reflect on the quality of forest resource management occurring on that property, it can have several adverse effects on the maintenance of certain forest values and traditional forest uses. Where parcels are divided to facilitate the construction of housing or other "developed" uses, parcelization brings with it increased roading, fencing, and vegetation changes, increased human and domestic animal populations, and other direct impacts to timber stocks, wildlife populations and habitat, water quality and other forest resources. Increased development in resource lands also places a fiscal and management burden on local governments and other bodies responsible for providing infrastructure and other public services."

A study commissioned by the North Coast Regional Land Trust for Humboldt County in 2009 documented the effects of timberland parcelization on annual harvest volumes. The study found that as parcel size went down, the amount and rate of harvest went down significantly. A survey of TPZ landowners in the Mattole conducted by the Mattole Restoration Council found that as parcel size decreased, the number of property owners interested in harvesting timber also decreased significantly. For those TPZ landowners with 160 acres or more, 79 percent responded that they were interested in harvesting timber compared with 44 percent of TPZ landowners holding less than 160 acres.

Fragmentation of the forest resource land base in Humboldt County is affected by the existence of patent parcels and strong support for the property rights assumed to be associated with land ownership. A land patent is the right of ownership to a parcel of land granted by government to an individual or private company. The Subdivision Map Act sets out a process that determines whether a patent parcel is considered a separate legal parcel under the law, a process usually culminating in the recordation of a Certificate of Compliance or Conditional Certificate of Compliance.

According to the Bureau of Land Management, over 18,000 patent parcels have been issued in Humboldt County, of which many have been altered by subdivision, lot line adjustments, and mergers, and do not retain their original status. Development rights associated with many of these patents imply that lands that would not otherwise be considered for rural residential development may in fact be available for such use. Thus, several policies were incorporated into the Framework Plan to consider the potential impacts of these parcels on fragmentation and parcelization of the forest resource land base.

The County adopted a merger ordinance in 1986 that set forth a process that merged substandard TPZ lands. A section of the merger ordinance, Article II, applies to "new mergers," and provides conditions for merging substandard parcels zoned TPZ, and to parcels enforceably restricted by a Williamson Act contract. To date, this section of the merger ordinance has only been implemented as a precondition to entry into Williamson Act contracts, and not lands zoned TPZ.

Protection, Fire and Resource Assessment Program, 2003. *The Changing California: Forest and Range 2003 Assessment*. http://frap.cdf.ca.gov/assessment2003)

During the development of the merger ordinance, which followed the adoption of the Framework Plan in 1984, the County raised concerns over the impacts of the unregulated transfer of substandard patent parcels on the ability of the County to meet land use planning goals. Specific concerns included:

- Allowing smaller units of land without regard to general plan policies addressing resource management
- Adequate access
- Building site suitability
- Sewage disposal
- Water supply
- Slope stability
- Impacts on public service delivery

These issues are still relevant today, as loss of resource lands was one of the key issues identified during the General Plan Update discussions.

There has also been an overall decrease in acres held by industrial timber owners in the past eight years. During the years of 2001 through 2008, industrial timberland owners transferred approximately 8 percent (51,000 acres) of their total ownership of forest lands for purposes ranging from sales to public agencies (primarily BLM) to rural residential development. As was stated in the Agricultural Resources section above, the County has experienced a significant increase in the recognition of patent and legal parcels in the resource lands, which can serve as a legal mechanism to break up large ranches and timberland into smaller ownerships.

A trend recorded throughout the planning period has been the construction of residential structures in the rural lands without the benefit of building permits. From 1998 to 2008, 134 TPZ parcels changed from "vacant" to "improved" on the assessment rolls. During this same time period, only 63 building permits were issued by the County on lands zoned TPZ, and of those, only 35 were for residential structures (totaling 26 percent). It is unknown exactly how many houses have been built without the benefit of permits; however, without these permits, compatibility with resource production values cannot be evaluated.

Another trend is the increased monetary valuation of resource lands for rural residential purposes rather than resource production uses. In the past decade, several large tracts of land totaling more than 30,000 acres that were previously in timber production have been proposed for conversion to rural residential uses. During the bankruptcy hearings for the Pacific Lumber Company's lands in 2007, MAXXAM Corporation submitted a Plan for Reorganization to the courts that included a plan for development on approximately 22,000 acres of timberlands for the purposes of developing 136 residential parcels. These "kingdom estates" (as referenced in the Reorganization Plan) would be approximately 160 acres in size, based upon the existing patents, and would retain their TPZ zoning designation, even though they would include infrastructure such as roads, utilities, golf courses and tennis courts. In order to prevent this type of development, the County enacted a temporary moratorium on building permits for TPZ lands until the County could review policy options to address the development. Subsequently, the courts dismissed the Plan for Reorganization primarily because of the County action.

In 2003, Eel River Sawmills closed their mills and began selling off their remaining timber holdings of approximately 22,000 acres, with the majority of these lands being transferred to a private real estate developer. Part of this transaction included a portion of the Schmook Ranch, one of the original "tree farms" enrolled in the Williamson Act prior to the development of the TPZ Ordinance. The Schmook Ranch contains approximately 5,200 acres of a mix of TPZ and AE

lands. In 1980, Eel River Sawmills sold approximately 1,200 acres of the ranch to 12 different owners by utilizing the original patent configuration. The remainder of the ranch was sold in 2004. The current owner has an application for 46 certificates of compliances recognizing the original patents and has conveyed the majority of this ranch to multiple owners. Of the parcels under new ownership, only two remain in timber production. Although numerous structures have been built on the ranch, no building permits have been issued for these structures.

In 2006, Vilica Corporation bought approximately 8,500 acres of TPZ lands for the purpose of subdividing and sale for rural residential parcels. An enforcement action by the County was taken for illegal grading and building. During the investigation, it was determined that 51 parcels were sold and eight structures were built without permits.

In 2008, RLF Redwood Properties LLC, a real estate investment firm out of Colorado, bought the Hilltop Ranch, containing timberlands originally owned by The Pacific Lumber Company and Barnum Timber Company. The new owners applied for and received certificates of compliance for the land patents (and two conditional certificates for subdivisions violations) and subsequently sold off all 23 lots between 2009 and 2010. During that time, at least nine new structures were built on the ranch, of which only one has obtained a building permit. Enforcement action is currently pending with the County.

The protection of forestlands and their timber producing capabilities was one of the key issues during the many public meetings during the General Plan Update process. The main source of controversy identified during this process centers around how the County can protect these resources while balancing the desire of property owners to maintain economic value through residential development potential on resource lands.

3.2.2 Agricultural and Timber Resources - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on agricultural and forest (including timber) resources if it would:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract.
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
d) Result in the loss of forest land or conversion of forest land to non-forest use.
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Items “a”, “d”, and “e” of the significance criteria are discussed in Impact 3.2.3.1, and Items “b” and “c” are discussed in Impact 3.2.3.2.

3.2.3 Agricultural and Timber Resources - Impacts and Mitigation Measures

Impact 3.2.3.1: Convert Farmland or Forest Land

Implementation of the General Plan Update could result in changes in land use designations that would directly convert farmland or forest land to another use, or could include new policies which could facilitate conversion of farmland or forest land.

This impact analysis addresses items "a", "d", and "e" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.2.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.
d) Result in the loss of forest land or conversion of forest land to non-forest use.
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

Pursuant to item 'a' of Appendix G of the CEQA Guidelines, the proposed County General Plan Update would have a significant impact if it would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use. Humboldt County does not participate in the statewide Farmland Mapping and Monitoring Program, and is therefore unable to analyze the impacts to these lands. Humboldt County is currently in the process of updating the soils maps so that ultimately the County could qualify to participate, but as of the preparation of this DEIR, the soils survey is not complete. However, the County addresses the loss of farmlands, both prime and non-prime, as described in the following sections and provides mitigation measures to address this loss as a result of the General Plan Update.

Conversion of Farmlands and forest land - Overview

Farmland may be converted for one or more of the following reasons: direct conversion to urban uses, falling idle due to conflicts with nearby urban uses, subdivision, and a change in use to parkland or open space. The conversion process involves a complex interplay of a number of factors, including farm profitability, urban growth, land value, personal lifecycle considerations, community expectations, and government incentives and regulations. The conversion of agricultural land would occur if the proposed General Plan Update: 1) includes changes from an agricultural land use designation to another non-agricultural land use designation; 2) retains existing designations or policies that would lead to development of prime agricultural lands; or 3) includes new policies or designations that would allow the development of non-agricultural uses on agricultural lands. Conversion can also occur when parcel sizes of resource lands (for both agricultural and timberlands) become too small for economic viability through either subdivisions or the break-up of ranches and timber holdings from the sell-off of patent and/or legal parcels.

Conversion as a result of a change in land use classification

The General Plan Update contains three resource land use mapping designations to compliment the Land Use Element policies for the identification and protection of agricultural and timberlands in Humboldt County. Provided below is a description for each of these designations from Section 4.7 of the General Plan Update, Land Use Element:

Agricultural Exclusive (AE)

This plan designation applies to bottomland farms and lands that can be irrigated, and is also used in upland areas to retain agricultural character. Typical uses include dairy, row crops, orchards, specialty agriculture, and horticulture. Residential subdivision is not supported. Residential uses must support agricultural operation. Density range is 20-60 acres/unit.

Agricultural Grazing (AG)

This designation applies to dry-land grazing areas in relatively small land holdings that support cattle ranching or other grazing, supplemented by timber harvest activities that are part of the ranching operation and other non-prime agricultural lands. Residential uses must support agricultural operation. Density range is 20 -160 acres/unit.

Timberland (T)

The Timber Production T designation is utilized to classify land that is primarily suitable for the growing, harvesting and production of timber. Prairie and grazing lands may be intermixed. Density range is 40 -160 acres/unit.

Section 3.1 Land Use, Population, and Housing, contains a discussion of the expected buildout based upon the proposed plan changes. The discussion includes summary charts of land use mapping changes illustrating expected buildout on agricultural lands. The information contained below in Table 3.2-3 is a summary of the proposed agricultural land use designation changes under the General Plan Update. A more detailed description of proposed plan changes by watershed is found on the following pages.

It should be noted that the discussion below highlights the changes in land use classifications that are going from a resource production designation (AE, AG and T) to a non-resource production designation (such as Public Lands, Residential or Commercial). There is not an exact correlation in the charts below in the number of acres currently in the Framework Plan and what is proposed in the General Plan Update as to "acres lost", as sometimes these acres "shift" between one resource production classification to another. The proposed mapping for the General Plan Update reflects how the lands are currently managed, and follow parcel lines, not habitat type.

As can be seen in Table 3.2-3 below, there is a net decrease in acreage under the agricultural land use designations for the General Plan Update of approximately 17,729 acres. However, the majority of that change is a result of the transfer of agricultural lands to either timberlands or public lands. Furthermore, there is a net increase in land transferred from residential uses to agricultural uses under the General Plan Update. Additionally, there is a net increase in lands planned for Agriculture Exclusive, representing the majority of prime agricultural lands in the County.

Approximately 1,037 acres of the 42,000 acres identified as prime agricultural lands by the County's GIS mapping program (primarily through the identification of prime soils) have been re-designated to a non-agricultural designations. These changes reflect either the acquisition by a public agency or the current use and parcelization of the land. The average parcel size for these properties that were re-designated out of an agricultural land use designation was approximately 6 acres. A more detailed discussion of these changes can be found in the following sections by watershed description.

Table 3.2-3. Countywide Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	899,717	19,876	897,026	19,398
AE	59,465	1,925	76,311	2,181
AG	409,722	18,041	377,838	17,201
Total	***1,368,904***	***39,842***	***1,351,175***	***38,780***

Land use changes under the General Plan Update and Framework Plan, Humboldt County GIS Mapping, 2016.

The proposed land use maps also include numerous changes to land use designations that reflect the actual uses of land versus the land use designation that had been applied by the 1984 General Plan (Framework Plan). For example, several large tracts of land that had previously been given agriculture or timberland land use designations were subsequently acquired for public uses such as state park land or wildlife refuge acreage. In these instances, the land use designation was changed to reflect the fact that the land is no longer used for agriculture and has been converted to public use. Rather than indicating a policy shift of the General Plan Update to encourage or facilitate the conversion of agricultural land to other uses, changes such as this represent an effort to align the land use map with the actual uses put to the land. Humboldt County does not have land use jurisdiction over these lands. Nevertheless, while the General Plan Update does not directly call for conversion of these lands to non-agricultural uses, and measures to reduce or avoid this conversion are often beyond the County's jurisdiction, such conversion would still represent a significant effect.

Rural Residential (RA) Land Use Category

The proposed Rural Residential Agriculture (RA) designation replaces existing land use categories that are currently represented as agricultural lands in the Framework Plan. These include:

> **Agricultural Lands (AL)** Lands characterized as remote, steep, and high natural hazards areas with marginal timber, grazing, mining and quarrying, recreational areas, watershed and wildlife areas, and occasional rural residences. The primary and compatible uses include resource production allowing intensive management opportunities, recreational uses, single family residences and cottage industries. The density range is one dwelling unit per 20 acres to one dwelling unit per 160 acres.
>
> **Agricultural Rural (AR)** Lands characterized as large lot areas on slopes generally less than 30 percent, located outside of Urban and Rural Community Centers areas, with few public services required. The primary and compatible uses include agriculture and

timber harvesting under intensive management, single-family residences, cottage industries, educational and religious activities, and recreational uses. The density range is one dwelling unit per 5 acres to one dwelling unit per 20 acres.

During the initial scoping process for the General Plan Update, the agricultural community, through the Humboldt County Farm Bureau, requested that the County re-designate areas that were not being used for commercial agricultural production and that are likely not appropriate for such use due to existing parcel size, intensity of development, and other land use factors, to another land use category more reflective of the primary use of the property. In most cases, this was rural residential. This action would then provide a "brighter line" for the lands currently under cultivation or managed for commercial agricultural (such as grazing lands). In most cases, the lands designated AL or AR were re-designated as RA. Where agriculture is still the primary use of the property, lands were re-designated to AG.

The RA designation applies to large lot residential uses that typically rely upon onsite water and wastewater systems. Agricultural uses are considered a compatible use, but not the primary use. Varying densities are reflective of land capabilities and/or compatibility issues. RA5-20 and RA20 are rural residential designations for lands with slopes generally less than 30 percent and served by individual water and wastewater systems and good road access. The RA40, RA60, and RA160 designations are applied to more remote, steep, and high hazard areas or where necessary to ensure compatibility with adjacent resource production and open space uses.

The second largest change reflects proposed changes from AG to RA. In the proposed General Plan Update, most AG lands designated in the current 1984 General Plan have been designated AG or T in the General Plan Update, which reflects the current primary use of these properties and does not reflect a conversion from resource production use. In some cases though, AG lands have been re-designated to RA to reflect the de facto use of these lands.

Some of the largest scale changes in resource land mapping were due to a change in mapping style, from mapping timber and agriculture soils to mapping land management. Lands managed primarily for timber production are designated T and lands managed as ranches are given AG designations. This approach is more in keeping with General Plan land use classifications, rather than attempting to map the intricate intermixing of agricultural and timber soils. All the resource production land use designations allow both timber production and general agriculture as primary uses to reflect the intermixed land capabilities of these lands. The impact analysis in this EIR, however, is based on the permitted uses on high quality soils.

This re-designation of lands from AG to T or vice versa is not likely to promote the change or conversion in resource production uses; however, if the density for these land use categories changes and increases the residential development entitlements, this could cause a loss of resource production lands because the land may be more valuable as rural residential than for resource production.

Following is a summary of the mapping changes for resource lands based upon watershed boundaries. It should be noted that the existing Plan(s) currently contains over 100 separate land use designations. Many of these categories will not be used in the new Plan. In order to provide for comparison between the existing Plan and the proposed Plan, some categories were consolidated to facilitate analysis of the changes. For instance, the Humboldt Bay Area Plan contains an Agriculture Exclusive – Grazing (AEG) land use category, which is not included in the proposed Plan. This land use designation is most similar to the AG land use designation. In order to compare changes between plans, the AEG acreage was included in the AG category. Appendix T describes how this consolidation was done for the proposed project and provides a

conversion chart for all the land use designations and the assumptions used in developing the buildout numbers.

South Fork Eel

The South Fork Eel River watershed includes Richardson Grove and Humboldt Redwoods State Park, the Avenue of the Giants and a number of community areas: Benbow Briceland, Garberville, Miranda, Myers Flat, Phillipsville, Redway, and Weott.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-4. South Fork Eel River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	54,901	1,090	60,255	1,117
AE	110	0	0	0
AG	43,650	2,064	39,135	1,788
Total	***98,661***	***3,154***	***99,299***	***38,780***
Note: No re-designation of prime agricultural lands is proposed from a resource designation to a non-resource land designation in the South Fork Eel Watershed.				

Changes from AG. There are approximately 43,650 acres planned AG within the South Fork Eel watershed, approximately 4,605 acres of which are proposed to be redesignated to other uses. The majority of this acreage will be re-designated to T. Approximately 33 acres at various locations across the watershed are proposed to be redesigned to PF or CR. Approximately 100 acres are proposed to be redesignated to RA, most of which is the result of re-aligning land use boundaries to parcel boundaries, and consists mostly of parcels less than 20 acres with the exception of a 37-acre parcel in the Salmon Creek area and a 24-acre parcel east of Benbow.

Changes from AE. There are 110 acres planned AE in the South Fork Eel watershed that contain a portion of the Benbow Lake State Park, all of which are proposed to be redesignated to P.

Changes from T. There are approximately 54,901 acres currently planned T within the South Fork watershed. The General Plan Update provides an increase of 5,354 acres in lands planned T, mainly from lands being re-designated from AG to T. However, while there will be a net increase in lands designated T, some lands are also proposed to be re-designated from T to other classifications, primarily to RA. Many of these changes are proposed to better align plan boundaries with property boundaries. Also, lands are being re-designated to P to reflect public acquisitions by BLM and State Parks. Approximately 55 acres of land owned by the Redway Community Services District containing wastewater facilities is proposed to be redesignated to PF. Approximately 13 acres along the Eel River and U.S. 101 at the County line and containing gravel extraction operations is proposed to be redesignated to IR. Approximately 7 acres is

proposed to be redesignated to CR along U.S. 101 south of Phillipsville to align the land use map with current non- timberland uses.

Lower Eel

The Lower Eel watershed extends from the Middle Eel and South Fork Eel in Dyerville to the Pacific Ocean, and includes the communities of Redcrest, Scotia, Rio Dell, Fortuna, Ferndale, and Loleta.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-5. Lower Eel River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	87,506	1,990	89,162	2 027
AE	32,517	1,039	35,173	1,059
AG	47,626	1,999	43,248	1,866
Total	***167,649***	***5,028***	***167,583***	***4,952***
Note: 285 acres considered prime agricultural lands are proposed to be changed from a resource designation to non-resource land designations.				

Changes from AG. There are approximately 47,626 acres planned AG within the Lower Eel watershed, of which approximately 4,378 acres are proposed to be re-designated. The majority of this acreage will be re-designated to T. Less than one acre along Francis Creek, outside Ferndale, is proposed to be redesignated to P to reflect use as a water intake facility by the Del Oro Water Company. Approximately 21 acres in Williams Creek is proposed to be redesignated to RE 2.5-5 to reflect the current parcelization of this area and approximately 35 acres, also in the Williams Creek area, is proposed to be redesignated to RA to reflect existing uses.

Changes from AE. There are 32,517 acres planned AE in the Lower Eel watershed, approximately 344 acres of which are proposed to be redesignated to non-resource uses, which includes: 200 acres located between Newburg and Loop Roads within the City of Fortuna Sphere of Influence (SOI)that has been identified by the City as a planned annexation area as part of their General Plan Update; 60 acres along Singley Road containing the trust lands of the Bear River Band of the Rohnerville Rancheria Tribe that is planned to be redesignated to Tribal Lands; 60 acres at the intersection of Blue Slide Road and Price Creek Road containing parcels ranging in size from 0.5 to 6.0 acres and portions of two larger parcels that is proposed to be redesignated to RA; 31 acres proposed to be redesignated to RE, about 15 acres of which contains parcels that range in size from 0.25 to 6.0 acres located in the Metropolitan area north of Rio Dell; and 13 acres located at the edge of the City of Fortuna comprised of three parcels ranging in size from 3.25 to 7.5 acres that are proposed to be redesignated RE.

Changes from T. There are approximately 87,506 acres currently planned T within the Lower Eel watershed, of which approximately 416 acres are proposed to be changed to non-resource production uses. Approximately 110 acres of the Eel River area in Scotia is proposed to be redesignated to CF and approximately 100 acres of the Headwaters Preserve that are located within the Lower Eel watershed are proposed to be redesignated to P. An additional 13 acres of the Humboldt Redwoods State Park near Redcrest is proposed to be redesignated to P. Also, lands to the west and south edges of the City of Rio Dell containing 18 parcels ranging in size from 0.3 to 20 acres are proposed to be redesignated as RA5-20.

Middle Main Eel

The Middle Main Eel watershed is rural and remote, extending from the southeastern corner of the County to the Dyerville and covering approximately 216 square miles. The Middle Main Eel watershed consists of ranch and timberlands, small pockets of dispersed rural residences, a larger rural community around the Alderpoint area, and smaller concentrations of residential development in Island Mountain, Blocksburg, Fort Seward, Eel Rock, Fruitland, and McCann.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-6. Middle Main Eel River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	32,557	762	40,906	799
AE	730	33	751	31
AG	78,655	3,679	75,907	3,515
Total	***111,942***	***4,324***	***117,564***	***4,345***
Note: No re-designation of prime agricultural lands is proposed from a resource designation to a non-resource land designation in the Middle Main Eel Watershed.				

Changes from AG. There are approximately 78,655 acres planned AG within the Middle Main Eel watershed, approximately 2,748 acres of which is proposed to be changed to other land use designations. The majority of this acreage will be re-designated to T. Approximately 160 acres that contains the Casterlin School and the Blocksburg County maintenance facility and a 110-acre parcel in Humboldt Redwoods State Park are proposed to be redesignated to P. A correction of the RCC boundary for the communities of Alderpoint, Blocksburg, and Fort Seward will also remove lands currently planned AG. Approximately 1,890 acres are proposed to be redesignated to RA.

Changes from AE. There are 730 acres planned AE in the Middle Main Eel watershed, of which approximately 15 acres near Fort Seward comprised of two 6 to 7 acre parcels are proposed to be redesignated to RA40.

Changes from T. There is approximately 32,557 acres planned T within the Middle Main Eel watershed, of which about 147 acres located at the edge of the Middle Fork Eel River near McCann is proposed to be redesignated to RA 40-160. In addition, approximately 40 acres are proposed to be designated to RA5-20 and RA40 relating mostly to realignment of land use boundaries to parcel lines.

Lower Klamath

The Lower Klamath Watershed encompasses approximately 519 square miles of the Klamath River basin and its tributaries, including the community of Orleans and the Yurok Reservation. The Six Rivers National Forest and the Yurok Reservation comprise approximately 50 percent of this watershed.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-7. Lower Klamath River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	127,810	3,018	127,598	2,949
AE	23	0	60	0
AG	2,027	16	589	22
Total	***129,860***	***3,018***	***126,247***	***2,971***
Note: 15 acres considered prime agricultural lands is proposed to be changed from a resource designation to non-resource land designations. Land currently planned AE are developed with no additional development potential available.				

Changes from AG. Table 3.2-7 indicates that there are approximately 2,027 acres within this watershed that are currently designated AG in the Framework General Plan. The majority of these lands are a part of the Northern Humboldt General Plan that underwent a "lumping" exercise of land use designations. These lands are not strictly designated AG, but instead contain multiple designations that were then combined into one category for comparison purposes. These lands are being redesignated to a category more fitting to the current use of the land. As a result, there are only approximately 589 acres planned AG for the proposed General Plan update for this watershed. The AG area located outside the Orleans Community Plan Area (CPA) is proposed to be redesignated as Timber as this area is currently zoned AE or TPZ and used primarily for timber production, except for approximately 257 acres which has been acquired by Redwood National Park and is proposed to be redesignated to P. The Orleans CPA does not contain Framework General Plan land use designations. A portion of the area within the Orleans CPA is planned for agricultural uses and through the General Plan Update process AG was applied to this area as the appropriate equivalent land use type. The area within the Orleans CPA is proposed to be redesignated to RA 5-20. The proposed change to RA reflects the use to which this land is currently put, dispersed rural residential development. In addition, almost all of this land is already developed with single-family homes and is projected to have little to no additional development potential.

Changes from AE. Table 3.2-7 indicates that there are approximately 23 acres designated AE in the Framework General Plan. As with the AG land use designation, these lands are a part of the Northern Humboldt General Plan that underwent a "lumping" exercise of land use designations. The General Plan Update utilized the soils map and air photos to determine land use for identifying prime agricultural lands. Because of this action, an increase of approximately 37 acres to AE is proposed primarily in the Orleans area along Highway 96.

Changes from T. Approximately 127,810 acres of this water shed is planned T, most of it located between the Yurok Reservation and the Six River National Forest to the north, and the Yurok Reservation and Redwood National Park to the south Approximately 212 acres is proposed to be redesignated to other land uses. Most of this is in the upper Pine Creek drainage west of the Hoopa Reservation along Bair Road and is owned by the BLM, and approximately 2.5 acres is in Orleans that has been purchased by the Karuk Tribe and is proposed to be redesignated P. Approximately 85 acres that is served by community water within the Orleans CPA is proposed to be redesignated RE1-5. The remaining changes either reflect proposed changes to CF to reflect Klamath River floodway areas or changes to PF to reflect existing public facilities.

South Fork Trinity

The South Fork Trinity Watershed is the boundary between Trinity and Humboldt Counties for approximately 12 miles. Approximately 72 percent of the land within the watershed is part of Six Rivers National Forest. Less than one percent of land within the watershed is used for residential purposes, most of which is located near State Route 299, and the remainder is used for timber production.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-8. South Fork Trinity River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	19,799	422	19,638	383
AE	79	4	10	1
AG	17	0	146	0
Total	***19,895***	***426***	***19,794***	***384***
Note: 39 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There are approximately 17 acres planned AG within the South Fork Trinity watershed located near Stapp Road all of which is proposed to remain in resource production related uses.

Changes from AE. There are 79 acres planned AE within the South Fork Trinity planning watershed located at the confluence with the Middle Fork Trinity. The General Plan Update proposes to retain most of this land in resource production related land uses, with the exception of a parcel that has been acquired by the Six Rivers National Forest and is proposed to be redesignated to P just upstream from the confluence with the Middle Fork Trinity and approximately 17 acres that contain the river bottom that are proposed to be redesignated CF.

Changes from T. Approximately 19,799 acres of this watershed is planned T, the majority of which is proposed to be retained in resource production related uses as part of the General Plan Update. Approximately 161 acres owned by the Six Rivers National Forest in two remote locations within the watershed is proposed to be redesignated to P.

Lower Trinity

The Lower Trinity watershed begins at the junction of the South and Middle Forks of the Trinity at the Humboldt County line and includes the remainder of the Trinity River watershed to its confluence with the Klamath River. The Lower Trinity watershed includes the town of Willow Creek and Hoopa on the Hoopa Reservation.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-9. Lower Trinity River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	20,810	414	21,041	356
AE	378	17	468	18
AG	0	0	170	16
Total	***21,188***	***431***	***21,680***	***390***
Note: No re-designation of prime agricultural lands is proposed from a resource designation to a non-resource land designation in the Lower Trinity River Watershed.				

Changes from AG. There are no lands currently planned AG within the Lower Trinity watershed. Lands currently planned rural residential have been re-designated to AG for agriculture based upon the current use and zoning.

Changes from AE. There are approximately 378 acres planned AE within the Lower Trinity planning watershed, all of which is proposed to be retained in resource production related uses. No re-designation of prime agricultural lands is proposed from a resource designation to a non-resource land designation in the Lower Trinity River Watershed.

Changes from T. Approximately 20,810 acres of this water shed are planned T, most of which is located west of Willow Creek adjacent to Six Rivers National Forest land. These lands are proposed to be retained in a T designation.

Van Duzen

The Van Duzen River watershed is comprised of 60 percent timberland, with grazing, open space, parks, and rural residential land uses making up the remainder. The Van Duzen watershed includes the communities of Dinsmore, Bridgeville, Carlotta, and Hydesville.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-10. Van Duzen River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	109,259	2,459	112,170	2,512
AE	8,505	353	8,389	342
AG	72,167	3,357	68,527	3,132
Total	***189,931***	***6,169***	**189,086**	***390***
Note: 30 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There are approximately 72,167 acres of land currently planned AG within the Van Duzen watershed. Of this land, all but approximately 1,767 acres is proposed to remain as AG, AE or T. Approximately 1,692 acres are proposed to be redesignated to RA, including approximately 1,257 acres west of the Kneeland Airport that is proposed to be redesignated to RA20-160 ranging from approximately 2.0 to 90 acres, and 267 acres that west and south of Bridgeville ranging from approximately 2.0 to 70 acres.

Changes from AE. There are 8,505 acres of land currently planned AE within the Van Duzen watershed. Approximately 116 acres (net) is proposed to be redesignated to other uses, including: approximately 105 acres on the southwest side of the Dinsmore Airport that is proposed to be redesignated to CF and 33 acres in the same area containing parcels ranging in size from less than one acres to 14 acres that is proposed to be redesignated to RR5-20; approximately 270 acres comprised of parcels 40 acres or less in size located between Bridgeville and Dinsmore to RR40-160. In addition, approximately 49 acres east of Carlotta that is owned by Humboldt County is proposed to be redesignated to P; and approximately 30 acres northeast of Hydesville that is proposed to be redesignated to IG.

Changes from T. There are 109,259 acres of land currently planned T within the Van Duzen watershed, of which most will be retained with the General Plan Update. Some lands currently planned AG will be redesignated to T. There is some acreage that will be redesignated to P to reflect land acquired by BLM located south of the Kneeland Airport, and land acquired by State Parks near Grizzly Creek State Park. Approximately 24 acres

on the northwest edge of Hydesville is proposed to be redesignated to RE, which consists of parcels from less than one acre to 12 acres.

Redwood Creek

The Redwood Creek Watershed extends from near the County's center to its far northwestern edge, approximately 45 percent of which is Redwood National Park and other public land. Lands designated T comprise another 48 percent, and rural residential and the town of Orick makes up the remainder.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-11. Redwood Creek Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	77,642	1,654	72,690	1,591
AE	575	10	918	28
AG	21,902	898	21,349	884
Total	***100,119***	***2,562***	**94,957**	**2,503**
Note: 97 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There are approximately 21,902 acres of land currently planned AG within the Redwood Creek watershed. Most of the 553 acres proposed to be changed are going to P, reflecting Redwood National Park land acquisitions. The remaining changes to PF reflect purchases of land by Caltrans for improvements to S.R. 299 and the Humboldt County Redwood Creek solid waste container site.

Changes from AE. There are 575 acres planned AE within the Redwood Creek planning watershed, all of which are located in the Orick area. The proposed General Plan Update plans to retain these lands in resource production related uses, except for 97 acres located at the intersection of U.S. 101 and Davidson Road, which were acquired by Redwood National Park.

Changes from T. Approximately 77,642 acres of this watershed are planned T, both outside and within the Coastal Zone. The General Plan Update proposes to retain most of this land in T, but proposes to change property to P to reflect ownership by the federal government, largely in the Bair Road area. Approximately 100 acres is proposed to be redesignated to RA40 or RA40-160 in the Titlow Hill area.

Cape Mendocino

The Cape Mendocino watershed is dominated by timber production and grazing lands which make up over 60 percent of the area, while the King's Range National Conservation Area

occupies approximately 22 percent. The watershed contains the communities of Shelter Cove, Whitethorn, Ettersburg, Honeydew, and Petrolia.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-12. Cape Mendocino Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	103,051	2,071	100,074	1,932
AE	838	24	9,188	110
AG	101,011	4,226	92,516	4,155
Total	***204,900***	***6,321***	***201,779***	***6,197***
Note: 358 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There is approximately 101,011 acres currently planned AG within the Cape Mendocino watershed, approximately 7,280 acres of which is proposed to be redesignated to non-resource related land uses. These changes included the perfecting of the RCC land use designation boundary for Petrolia and Honeydew communities, and redesignation of lands outside of Petrolia and along the Mattole Road, in the Prosper Ridge area, and along Chamber and French Ranch Road to RA. Land containing the Ettersburg School is proposed to be redesignated to PF. State and federal land acquired as part of the King Range National Conservation Area totaling approximately 5,438 acres is proposed to be redesignated to P.

Changes from AE. There are 838 acres currently planned AE in the Cape Mendocino watershed, approximately 97 acres of in the Dutyville area along the Mattole River is proposed to be changed to RA 40, all of which is currently comprised of parcels 50 acres and less.

Changes from T. There is approximately 103,051 acres currently planned T within the Cape Mendocino watershed. The majority of this will remain T; however, a mixture of lands currently planned AG and T will be re-designated to P to reflect lands contained within the King Range National Conservation Area that have been acquired by BLM. Approximately 18 acres containing the County operated Whitethorn container site is proposed to be redesignated to PF.

Trinidad

The Trinidad watershed is a coastal watershed that includes Westhaven, the City of Trinidad, Big Lagoon, and rural residential development which is scattered along the coast between Moonstone Beach and Patrick's Point State Park.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-13. Trinidad Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	71,878	1,515	57,928	1,396
AE	1,293	16	1,165	21
AG	242	0	364	18
Total	***73,413***	***1,531***	***59,458***	***1,435***
Note: 38 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There are approximately 242 acres planned AG within the Trinidad watershed, all of which are proposed to be redesignated to PR and RA. Land proposed to be redesignated to PR is located between Stone and Big Lagoons and is owned by California State Parks. Land proposed to be redesignated to RA is also located between Stone and Big Lagoons along Kane Ridge and McDonald Creek Roads and contains parcels that range in size from 2 to 60 acres. About half of the parcels are developed with rural residential type development.

Changes from AE. There are 1,293 acres planned AE within the Trinidad planning watershed located adjacent to Dry Lagoon and in Crannell. The proposed General Plan Update proposes to retain the most of this in the AE land use designation. Approximately 100 acres owned by California State Parks adjacent to Dry Lagoon would be redesignated to PR. The remainder would remain unchanged.

Changes from T. Approximately 71,878 acres of this watershed is planned T, both inside and outside the Coastal Zone. The General Plan Update proposes to change approximately 1,026 acres between Big Lagoon and Freshwater Lagoon now owned by State Parks to PR. Approximately 42 acres proposed to be changed to RE are located on the east side of Big Lagoon and another 172 acres are located east of Trinidad along Stumptown Road, Westhaven Drive, and Adams Foxfarm Road. The remaining 145 acres is located east of Westhaven. Areas proposed to be redesigned to RA are also located on the east side of Westhaven. With few exceptions, the areas proposed to be redesignated to RE and RA are already subdivided to the minimum parcel size and in many cases are developed with single-family residential development.

Mad River

The Mad River planning watershed is comprised of 85% forested areas and includes the City of Blue Lake and the unincorporated communities of Fieldbrook, Glendale, and McKinleyville.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-14. Mad River Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	120,380	2,901	128,925	2,860
AE	1,686	60	42,733	161
AG	39,712	1,746	38,408	1,765
Total	***161,778***	***4,707***	***171,659***	***4,786***
Note: 156 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There is approximately 39,712 acres planned AG within the Mad River watershed, approximately 106 acres of which are proposed to be re-designated, P, which includes pockets of BLM land in the upper Mad River watershed.

Changes from AE. There are 1,686 acres planned AE within the Mad River planning watershed. The General Plan Update proposes to retain the AE land use designation for almost all of this land, and redesignate some lands to PF, IG, CF and various residential designations (RL, RE, and RA). Land to be redesignated to PF is comprised of the S.R. 299 right of way near Giuntoli Lane. The area to be redesignated to IG contains the existing Boyd Road and West End Road industrial areas, also located near Giuntoli Lane. The area proposed to be redesignated to RE is located at the end of Archer Road within the boundaries of the McKinleyville CSD or located along Warren Creek Road and is mostly subdivided into parcels ranging in size from less than one to 2.5 acres, with two parcels between 6 and 10 acres. Land proposed to be redesignated to RL is primarily located along Fieldbrook Road. Land proposed to be redesignated RA is located east of Blue Lake and along West End Road.

Changes from T. Approximately 120,380 acres of this watershed is currently planned T. The General Plan Update includes proposed changes from T to CF, P, PF, and RA. The proposed change to CF is comprised of the land containing the Mad River near Blue Lake. The proposed change to P is comprised of state owned land in the upper watershed. Approximately six acres containing a mobile home park near Glendale is proposed to be redesignated to RM.

Eureka Plain

The Eureka Plain or Humboldt Bay watershed is the most developed of the Humboldt County watershed areas and includes the cities of Eureka and Arcata and numerous unincorporated communities including Manila, Jacoby Creek, Myrtletown, Cutten/Ridgewood, King Salmon and Fields Landing.

The General Plan Update proposes to make changes from agricultural and timber related land use designation to other non-resource production related land use designations as shown in the table below and described in the paragraphs that follow.

Table 3.2-15. Eureka Plain Planning Watershed Resource Land.

Land Use Designation	Framework General Plan		Proposed General Plan Update	
	Acres	Max Buildout (Units)	Acres	Max Buildout (Units)
T	74,107	1,596	63,453	1,476
AE	12,730	369	14,753	408
AG	2,711	56	1,487	40
Total	***89,548***	***2,021***	**79,693**	1,924
Note: 19 acres considered prime agricultural lands is proposed to be changed from a resource designation to a non-resource land designation.				

Changes from AG. There is approximately 2,711 acres planned AG within the Eureka Plain watershed, approximately 361 acres of which are proposed to be redesignated to PF and RA, including the radio communications facilities in Kneeland which is proposed to be re-designated to PF.

Changes from AE. There are 12,730 acres planned AE within the Eureka Plain planning watershed. The General Plan Update proposes to retain the AE land use designation for almost all of this land, and redesignate approximately 1 acre to PF, approximately 55 acres to NR, approximately 88 acres to RA10, 4 acres to RE2.5-5, and 13 acres to RM. Land to be redesignated to PF is comprised of the U.S. 101 rights of way. The area to be redesignated to PF contains bay and tide lands within the right of way. The area proposed to be redesignated to RA10 is comprised of one large parcel located within the Elk River area. The area proposed to be redesignated to RE is comprised of small parcels in the Humboldt Hill area. The area proposed to be changed to RM is currently developed with a mobile home park and is located off of South Broadway in the Humboldt Hill area.

Changes from T. Approximately 74,107 acres of this watershed is currently planned Timber Production. The General Plan Update includes proposed changes from T to P, RL, RE, and RA. The proposed 8,238 acre change from T to P is comprised of the BLM Headwaters Forest Reserve and the City of Arcata community forest.

Conversion as a result of increased parcelization and subsequent development

Maintaining parcels in large, minimum sizes no longer protects resource lands as effectively as in the past, as such parcels have become attractive places to live for an increasing number of people. These parcels are acquired primarily for residential purposes. The development of high value residential estates on resource lands drives the cost of land ownership up, beyond the revenues that agricultural and timber operations can generate. While in some cases land may be leased for agricultural or timber operations, factors such as small parcel size or high transition costs may stand in the way. Parcelization can thus result in residential use being the primary use of the land, which can create land use conflicts with surrounding properties still in resource production. These conflicts increase the cost of production on adjoining parcels and create a

disincentive to continue agricultural and timber operations and increase the incentive to pursue residential development.

Although general plans provide density standards to guide development and subdivisions in planning areas, underlying legal lots may not conform to those standards. These lots often existed long before the County started a land use planning program. The State Subdivision Map Act provides a process to recognize these lots without going through a public hearing or rigorous review process required for subdivisions. The County has witnessed the increased use of recognizing legal parcels, in particular land patents, on resource lands as a tool to break up and sell off smaller parcels independently of the Subdivision Map Act procedures that would typically ensure conformity with the General Plan.

As stated previously, over 18,000 patent parcels have been issued in Humboldt County; however, many of these have been altered by subdivision, lot line adjustments, and mergers, and do not retain their original status. The County has mapped over 17,000 of these parcels from the BLM master plats. The parcels ranged from a fraction of an acre to over 11,000 acres, with an average size of 153 acres. Within TPZ, 7,304 original patents were mapped, with sizes ranging from five to 2,227 acres, with a mean size of 136.5 acres. Although a complete review has not been conducted on these patent parcels, many of these retain their historic rights.

Often, these parcels do not conform to the prescribed density range as designated in the General Plan. Development criteria (e.g., adequate roads, water availability, wastewater capabilities, and natural hazards) may or may not be taken into consideration in determining whether the parcel must be recognized. Full build out of patent parcels may jeopardize the open space and resource values of the land.

Other changes that could result in Conversion of Farmland or Forestland

Appendix G of the CEQA Guidelines provides that the General Plan Update would have a significant impact if it would involve changes in the existing environment other than those specifically listed under Section II. Agriculture and Forestry Resources of Appendix G, which due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forestland to non-forest use.

A potentially significant indirect impact to agricultural and timber resources would occur if proposed land uses under the General Plan Update would result in compatibility conflicts with existing agricultural activities and timber operations. Urban and resource land interface issues often arise due to dust, noise, liability concerns, trespassing, theft, competition for water, traffic, pest introduction, agricultural and timber operations related traffic, and conflicts with pesticide use. The type of resource use and the sensitivity of the nearby land uses would be important considerations in determining compatibility. As an example, orchard crops would be more likely to be compatible with surrounding residential uses than a confined animal operation. In addition, if a sensitive use, such as multifamily housing, schools, day care, or other use involving a concentration of people is proposed near an existing agricultural operation, conflicts could increase. If these conflicts would result in the conversion of agricultural resources to a non-agricultural uses, then a potentially significant impact would occur.

Certain land uses proposed near active agricultural and timber operations have the potential to cause the conversion of the existing resource use to a non-resource use because of the potential incompatibility between the proposed use and existing activities. The potential adverse effects that could arise from incompatible development near agricultural and timber

uses would include, but would not be limited to: farm and timber practice complaints; pesticide use limitations; liability concerns; economic instability caused by urbanization and changing land values; trespassing, theft, and vandalism; damage to equipment, crops, and livestock; introduction of urban use pollutants entering farm water sources; competition for water; development affecting recharge of groundwater; soil erosion and storm water runoff emanating from urban use; shading of crops from inappropriate buffering; importation of pests and weeds from urban areas or introduced pest populations from un-maintained landscaping; increased traffic; and effects of nighttime lighting on growth patterns of greenhouse crops.

Buildout of the General Plan Update could create increased pressures to convert agricultural land uses to non-agricultural uses. However, the General Plan Update and Area Plan policies emphasize the long-term preservation of agriculture in Humboldt County and would ensure that such pressures are avoided to the maximum extent feasible. Moreover, these policies emphasize compatibility between land uses and discourage the introduction of incompatible uses adjacent to existing agricultural and forest resource land uses. This is expected to minimize the adverse spillover effects of urban development on agricultural and timber land (e.g., light and glare, urban runoff, litter, trespassing, etc.) to the maximum extent practicable.

Conflicts between timber operations and surrounding land uses (most often, residences) often occur, and can cause a disruption in harvest and ultimate conversion of timberlands to other uses. Managing timber harvest practices is primarily the domain of the state. Given California's regulatory framework, the County's role in timberlands management lies largely in ensuring a continuing stable land base, limiting incompatible uses, and managing land uses along the interface between timberlands and residences. General Plan policy-development issues include topics regarding harvest plan dispute resolution, public notice of resource production, subdivision design, and wildfire risk reduction programs.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes various policies, standards and implementation measures aimed at maintaining resource production lands in agricultural and timber use. These measures will not completely eliminate the non-agricultural dependent development of the County's resource production lands, but would substantially reduce it. Land Use Element, Agricultural Resources Policy AG-P5, Conservation of Agricultural Lands, requires that agricultural land be conserved (which includes prime agricultural lands) and that conflicts be minimized through various means including: promoting infill, minimizing land use conflicts through proper zoning and infrastructure planning; and only allowing lot line adjustments on agricultural lands when planned densities are met and there is not increase in the number of building sites. In particular, Policy AG-P5 requires the establishment of stable zoning boundaries and buffer areas that separate urban and rural areas by developing lands within Urban Development Areas prior to the conversion of agricultural resource production lands in the Urban Expansion Areas.

As indicated above, the General Plan Update would only allow conversions of agricultural and resource lands in specified urban development and expansion areas after other non-resource lands have been developed. In order to lessen the effects of potential future conversions of prime agricultural lands, the General Plan Update includes Policy AG-P6, Agricultural Land Conversion – No Net Loss, which requires that land planned AE or AG shall not be converted to non-agricultural uses unless it can be found that there are no feasible alternatives that would prevent or minimize conversion' there is an overriding public interest in the conversion supported by facts; and for lands outside of Urban Development Boundaries, sufficient off-setting mitigation has been provided to prevent a net reduction in the agricultural land base and agricultural production. AG-Pxx, Protect Productive Agricultural Soils, minimizes the placement of any

buildings and impermeable surfaces on prime agricultural lands for those lands planned for agriculture. AG-S1, Subdivision of Planned Agricultural Exclusive (AE) Lands, reduces the current allowable subdivision on AE lands (those containing prime agricultural lands) from 20 acres to 60 acres. AG-S2, Agricultural Grazing (AG) Land, specifies the minimum parcel size for parcels designated AG is 160 acres, and specifies findings that must be made for rezoning these properties to as small as 40 acres that demonstrate that the protection of agricultural operations will be ensured, maintained or enhanced. Further, Policy AG-P7, Agricultural Production in Conservation Areas, lessens the effects of potential agricultural land conversions by requiring the County to support continued agricultural production on lands placed into conservation easements or acquired by public agencies for conservation purposes through the use of enforceable provisions contained in the terms of the sale, lease or deed restriction that shall require the continued management for agriculture production.

However, the loss of any prime agricultural land cannot be mitigated to a level of insignificance once it is permanently converted to non-agricultural land use. Since the proposed General Plan Update will likely result in the conversion of prime agricultural lands to non-agricultural uses, this is considered potentially significant impact of the proposed General Plan Update.

The General Plan Update also protects against the conversion of agricultural land by improving the viability of farm operations. Policies AG-P2, Support Voluntary Purchase of Development Rights, and AG-P3, Support the Williamson Act Property Tax Incentive Program, require the County's continued support for these existing programs that lessen the cost of owning and operating farms and limit the intrusion of residential development into agricultural lands. These policies are further strengthened by Policy AG-P10, Support to Land Trusts, which supports non-profit organizations that implement land conservation programs. In addition, Policy AG-P4, Supplemental Farm Income, requires the County to support an array of activities on agricultural land that may increase revenue available to farmers.

The General Plan Update also supports a series of programs to foster continued agricultural operations. Policy AG-P8, Right to Farm or Harvest, uses the Right to Farm or Harvest Ordinance to notice adjacent residential uses of the nature of farm and/or timber operations. Policies AG-P9, Predator Control, and AG-P11, Support Vegetative Management Programs, support agricultural management techniques essential to farm operations when it is found that they improve the availability and quality of rangeland for livestock and wildlife, reduce the hazard of disastrous wildfires, and increase water quality and quantity.

Growth Planning Policy GP-P10, Conversion of Resource Lands, specifies that lands less suitable for resource related uses should be converted prior to the conversion of higher quality resource lands. Rural Lands Policy RL-P1, Compatible with Resource Production, requires that rural residential development adjacent to agricultural and timberlands shall be compatible with agriculture and timber production. Standard RL-S1, Compatibility with Timber and Agricultural Production, further reinforces this requirement by conditioning subdivisions to minimize constraints on resource production activities and implementing the right to farm and right to harvest ordinance provisions. Finally, AG-Px, Compliance with Regulations, requires the County to place a priority on the abatement of violations that result in the conversion of agricultural lands or loss of agricultural productivity, and AG-IMx, Compliance with Regulations, , requires the County to maintain an agricultural protection compliance program to enforce land use and building regulations on.

Like the Agricultural Resources policies, the Forest Resources policies discourage uses adjacent to timberland that would conflict with timber production activities. Land Use Element, Policy FR-

P16, Planned Compatible Uses, directs that the County should plan land adjacent to Timberlands for uses compatible with timber management, including timber harvesting

There were approximately 596,000 acres of Timber Site Quality III or higher in Humboldt County zoned TPZ in 2008, according to CAL FIRE. Forest Resource Chapter Policy FR-P8, Protection of High Quality Timberlands, directs that timberlands planned and zoned for timber production should be retained for such use, and reclassification of TPZ shall be done in accordance with statutory requirements.

The Forest Resources Chapter also includes measures to support the continued viability of timber harvest operations. Policy FR-P3, Timber Management Regulations, supports fewer, more effective and lower-cost timber management regulations as a strategy to maintain timber production as the primary use of forestlands. Policies FR-P4, Broader Use of Long Term timber management plan(s) (NTMP), FR-P5, Forest and Rangeland Improvement Programs, and FR-P6, Tax Incentive Programs, support state and local incentive and management programs to facilitate continued timber harvest activities. In addition, FR-P12, Timberland Ownership, requires that the County provide incentives to maintain large-scale land ownerships for commercial timber production and to prodect forest ecosystem services. Policy FR-P15, Conservation Easements, directs that the County support voluntary easement programs that combine conservation management with sustainable timber production.

Development timing policies within the Growth Planning Chapter of the Land Use Element are intended to focus and facilitate growth in the urban development areas and away from resource production lands. This includes Policy GP-P10, Conversion of Resource Lands, which discourages the inclusion of high quality timberlands and prime agricultural lands into Urban Expansion Areas unless the County makes a finding that there are no alternatives to increasing the Urban Expansion Areas on lands less suitable for resource production. However, Policies GP-P8 Urban Expansion Areas, and GP-P9, Urban Expansion Area Review, specify that the designation of lands as Urban Expansion indicates that lands are appropriate to be provided with water and sewer and developed at urban densities during the General Plan planning period. These areas are to remain fixed until modified through a General Plan Amendment. Through CO-P1x, Transfer of Development Rights, the Plan also proposes that the County research and develop, if feasible, a voluntary transfer of development rights program as a method of protecting re source lands and open space based on community input. This program could not be initiated without analysis of the potentially significant impacts of increased density in the urban development areas where the development right transfers could be utilized.

The analysis above also indicates that some land planned for agriculture and timber related uses is proposed to be changed to other land uses as part of the General Plan Update. The majority of the changes relate to land that has been acquired by public agencies and integrated into public facilities, parks, and preserves. There are also some changes from agriculture to rural residential. These redesignations are intended to reflect the current land use and do not represent a change in policies intended to protect agricultural or timberlands.

Although there is little the County can do to prevent acquisition of resource lands by public agencies, the General Plan Update provides policy language in the Public Lands section of the Land Use Element that discourages the acquisition of resource lands. Policy PL-P1, Management Plans, encourages public land agencies to prepare management plans that ensure consistency with the General Plan and promote and protect adjacent private resource production lands from conversion, while PL-P3, Acquisitions, specifies that full-fee acquisitions should only be supported by the County where the acquisition is a part of an adopted management plan, and

is within the management boundaries of the public lands, or is for the consolidation of management units, among other requirements. PL-P4, Resource Production Lands, discourages the acquisition and conversion of resource production lands to other uses by, but if acquisition does happen, this policy encourages lease-back options and deed requirements for continued agricultural and timber operations. Finally, through PL-P5, Eminent Domain, the County would only support public acquisitions through the eminent domain process, when it is the last option, is in the interest of the public health, safety, and welfare, is required to protect public rights, or is necessary to national security.

Conclusion

The policies and programs of the General Plan Update would direct future land uses and development primarily into urban development and water service areas within community planning areas and away from prime agricultural lands. Policies and programs of the General Plan Update would continue to promote the economic viability of agriculture and timber production in the County. As a result of the planned growth pattern and the policies described in the Land Use Element, substantial agricultural and timber resource areas will be protected in unincorporated Humboldt County. However, conversion of resource lands to other uses may still occur.

As discussed above, implementation of the General Plan Update would result in the re-designation of approximately 1,037 acres of prime agricultural lands in the unincorporated area from an agricultural and timberland use designation to a non-agricultural or timber designation. As previously described, nearly all of the changes to these lands would be to recognize existing parks and open space use or habitat protection, primarily due to state and federal ownership of these lands as part of their respective park and recreational areas. While the General Plan Update does not directly call for conversion of these lands to a non-agricultural designation, and measures to reduce or avoid this conversion are beyond the County's jurisdiction, such conversion would still represent a significant effect.

The Board considered but rejected a Ranchlands (AGR) land use designation as an additional designation proposed for the large ranches currently protected under a Williamson Act Contract. The minimum parcel size was set at 160 acres. The use of the Ranchlands designation reduces the maximum buildout numbers by 70% from approximately 17,000 units to approximately 5,000 units for lands planned Agriculture Grazing (see table 4.1 of this EIR).

While the implementation of the General Plan Update policies, standards and implementation measures would ensure that further conversion of agricultural and timberland is minimized, it does not fully mitigate the loss of these lands from direct conversion to other uses. Plan policies partially mitigate the loss of agricultural lands by identifying policies and programs to help protect and preserve these lands. However, the loss of agricultural lands cannot be mitigated to a level of insignificance once land is permanently converted to non-agricultural land use, and therefore, is **a significant unavoidable impact** of the General Plan Update.

The Plan also does not fully protect against the loss of timber lands from increased parcelization. Current County Code contains a Merger Ordinance that directs the County to merge substandard parcels zoned TPZ into those that meet density requirements; however, this ordinance was never fully implemented. The proposed Plan recommends revising this section of the code to remove the merger requirement because it was not implemented. This will allow a higher density development on lands planned T and cause conversion of timberlands to rural residential uses. Therefore, the loss of timber lands cannot be mitigated to a level of

insignificance once these lands are converted to a non-timber land use, and therefore **is a significant unavoidable impact** of the General Plan Update.

The Plan also does not fully protect against the loss of resource production lands from conversion to rural residential. Limiting housing on lands managed for industrial timberlands may prevent the conversion of resource production lands to other uses, but this policy option is not considered feasible because it could significantly diminish the economic value of those lands. Therefore, the loss of timber lands cannot be mitigated to a level of insignificance once these lands are converted to a non-timber land use, and therefore, **is a significant unavoidable impact** of the General Plan Update.

Impact 3.2.3.2 Conflict with Agricultural Zoning, Williamson Act contracts, or Timberland Production Zoning

Implementation of the General Plan Update could result in changes in land use designations or could include new policies that could result in conflicts with existing zoning that supports agriculture of timber operations or a Williamson Act contract, or could result in rezoning of farmland or timberland.

This impact analysis addresses items "b" and "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.2.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract.
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).

The General Plan Update land use map maintains existing or equivalent agricultural or timber production land use designations for lands under Williamson Act Contract or lands zoned T. As analyzed above, policies, standards and implementation measures proposed as part of the General Plan Update support the continued operation of agriculture preserves and timber production, and would not conflict with Williamson Act contracts or TPZ. Policies, standards, and implementation measures include establishing incentives for agricultural use (including Williamson Act participation) and review of development projects to ensure they do not conflict with agricultural uses.

Analysis of Relevant General Plan Update Policies

In addition to the policies described in 3.2.3.1 above, the General Plan Update would support the continuation and enhancement of the Williamson Act through Policy AG-P3, Support the Williamson Act Property Tax Incentive Program and CO-P2, Support for Working Lands, which requires the County to support policies that maintain profitable resource production on timber and agricultural lands as a means to secure long-term protection and sustainability of open space lands through programs such as the Williamson Act and TPZ. In addition, the General Plan Update would establish a new program, AG-IM2, Manage an Agricultural Conservation Program, to support an agricultural conservation program associated with the Williamson Act.

Regarding Timberlands and TPZ zoning, FR-P6, Tax Incentive Programs, supports the continued use of the Timber Production Zone program and other tax incentive programs that maintain or increase the economic viability of timber production, and supports tax policies that provide benefits to timberland owners for conservation easements. Policy FR-P8, Protection of High Quality Timberlands, described in 3.2.3.1 above discourages planning that would result in uses other than timber production as the primary use for timberlands that are planned and zoned for timber production.

The Forest Resources Chapter also provides policy direction that discourages uses adjacent to timber land that would conflict with timber production activities. Policy FR-P16, Planned Compatible Uses, plans land adjacent to timberlands with uses compatible with timber management, including timber harvesting.

Conclusion

The policies, programs, and implementation measures of the General Plan Update would be consistent with the Williamson Act Property Tax Incentive Program and the TPZ regulations. Therefore, potential impacts to the Williamson Act and/or TPZ program would be **less than significant**.

Mitigation

None required.

3.3 Utilities and Service Systems

This section provides background information regarding utilities and service systems within the County, including water, wastewater, and solid waste management services, as well as related regulations and programs, and an assessment of the potential impacts of implementing the proposed General Plan Update. Other utilities and services are addressed in other chapters of this EIR. Specifically, drainage systems are considered in Section 3.7, Hydrology and Water Quality; power (electricity and gas) supply and distribution and telecommunications in Section 3.9, Mineral and Energy Resources; hazardous waste disposal in Section 7, Hazards and Hazardous Materials; and schools, police, fire protection, and other public services in Section 3.4, Public Services.

The General Plan Update addresses development in the unincorporated areas of the County and this EIR focuses on impacts related to that development. However, water supply and wastewater treatment systems are interrelated in many instances and some unincorporated areas of the County may be served by providers that also serve cities. Therefore, this EIR discusses utilities and service systems in both the unincorporated County and in cities where it is useful for understanding the existing setting, available capacity, or other potential limitations to development.

Existing utilities and service systems conditions are described in the *Community Infrastructure and Services Technical Report, 2008* (Appendix Q), the *Water Resources Technical Report, 2007* (Appendix P), which include discussions of water and wastewater system condition and capacity. These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours or for download at http://www.humboldtgov.org/571/Background-Reports, are incorporated herein by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.3.1 Utilities and Service Systems - Environmental and Regulatory Setting

Municipal Water and Wastewater Service

This section summarizes existing conditions for municipal water supply and wastewater systems in the County. The water supply discussion addresses the availability of water, capacity for treatment and storage of raw water, and the infrastructure for delivery. A comprehensive study of the condition of water and wastewater service in the County was made as part of the *Community Infrastructure and Services Technical Report* (Winzler & Kelly, 2008), and the *Water Resources Technical Report* (Winzler & Kelly, 2007), which are incorporated by reference into this EIR. These reports provide a snapshot of the condition and capacity of the public water and wastewater systems in the County. The reports indicate that there are constraints on new development due to water and wastewater capacity limitations in some portions of the unincorporated area. This EIR also contains new information that has become available since these technical reports were prepared.

Most water and wastewater systems in the County were constructed using grants funds in the 1950s and 1960s. In general, the systems are quite old, and are deteriorating and in need of improvement. Without exception, all service providers face the need to invest in maintenance and upgrades necessary to keep their systems in compliance with state standards. Almost all service providers lack the funding to make needed improvements. In addition, many of the service providers in small communities have limited managerial, financial, or technical resources to draw from.

Table 3.3.1 displays information regarding each of the water service providers that serve the unincorporated area. Information includes the number of existing connections or "services," water system capacity based on the amount of water that the system can produce (the water "supply"), treat, and store, and the amount of water used expressed as peak day demand and the average amount each connection uses per day. Water supply estimates, also referred to as source capacity, were made using the criteria contained in the California Waterworks Standards, Permits Requirements, which can be found in Sections 64552 through 64558 of the California Code of Regulations. The table also estimates the number of available connections based on system capacity and usage and includes comments regarding system capacity and condition. This information is derived from Section 6, Water Service, of the *Community Infrastructure and Services* and *Water Resources Technical Report*, with supplemental information provided by system operators or state regulators, to reflect changes that have occurred since completion of the Technical Report.

Table 3.3-1. Summary of Municipal Water Service Providers.

	Connections		Capacity			Usage	
			(MGD)		(MG)	(MGD)	Gal/Day/
Provider	Existing	Estimated Available	Supply	Treatment	Storage	Peak Day	Connection
1-South Fork Eel River Planning Watershed							
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
2-Lower Eel River Planning Watershed							
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

Provider	Connections		Capacity			Usage	
			(MGD)		(MG)	(MGD)	Gal/Day/
	Existing	Estimated Available	Supply	Treatment	Storage	Peak Day	Connection
3-Middle Main Eel River Planning Watershed							
Alderpoint CWD	79	66	0.432	0.130	0.160	0.063	800
4-Lower Klamath River Planning Watershed							
Orleans CSD	150	0	Unknown but sufficient[5]	0.495	0.1	0.513	3,443
5-South Fork Trinity River Planning Watershed (no Municipal Water Service Providers in this area)							
6-Lower Trinity River Planning Watershed							
Willow Creek CSD	976	609	3.76	2.953	1.08	1.8	1,861
7-Van Duzen River Planning Watershed							
Hydesville CWD	457	319	0.518	Not required[3]	0.6	0.28	622
8-Redwood Creek River Planning Watershed							
Orick CSD	140	37	0.274	Not required[3]	0.2	0.216	1,543
9-Cape Mendocino Planning Watershed							
RID (Shelter Cove)	470	520	0.36	0.462	2.1	0.331	727
10-Trinidad Planning Watershed							
Big Lagoon CSD	36	0	0.07	Not required[3]	0.023	0.012	343
Westhaven CSD	233	0	0.058	0.115	0.1	0.066	283
11-Mad River Planning Watershed							
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

Provider	Connections		Capacity			Usage	
	Existing	Estimated Available	(MGD) Supply	(MGD) Treatment	(MG) Storage	(MGD) Peak Day	Gal/Day/ Connection
12-Eureka Plain Planning Watershed							
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]	---		

[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.

Wastewater 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, one sanitary district, one resort improvement district, and one private company that acquired a company town. In addition, three community services districts operate wastewater collection systems that have contracts with nearby wastewater treatment plant operators. The remainder of the County is served by individual septic systems. Septic systems are discussed in detail in Chapter 6, Geology and Soils.

A number of cities and smaller districts are at or near their capacity for sewer service and will require facility improvements if there is a significant increase in the number of connections. A number of wastewater treatment plants in Humboldt County are currently not meeting North Coast Regional Water Quality Control Board (NCRWQCB) permit requirements for wastewater treatment and disposal. Regarding the existing permit violations, the NCRWQCB has issued orders that contain programs and timelines for permit compliance, and monitors the efforts of operators to meet NCRWQCB requirements. The discussion below notes permit violations that were described in the Technical Reports.

A useful measurement in gauging the adequacy of a wastewater treatment system is its peaking factor. The peaking factor is a comparison between the volume of flow in the wastewater collection system during average dry weather conditions and the volume of

flow during peak wet weather conditions. The peaking factor is affected by inflow and infiltration (also referenced as "I&I)". This is the flow of rainwater into a wastewater system from the surface (Inflow) through manhole covers and rainwater downspouts, or below the surface (infiltration) through cracks in the collection pipe or faulty joints. Well-performing collection systems have a peaking factor of three or less, which indicates that peak wet weather flows are at most three times the average dry weather flows. The McKinleyville CSD collection system has a peaking factor of approximately 2.1 (this peaking factor is based on data provided by the McKinleyville CSD and is not directly correlated with peak event storm recurrence intervals or the duration). Some other systems in the County have peaking factors approaching ten. I&I decreases collection system capacity for additional wastewater and increases the likelihood of sanitary sewer overflows (untreated wastewater reaching surface waters through manholes or overflowing wet wells at pump stations). In addition, wastewater treatment plants are required to treat rainwater that enters the collection system to wastewater standards.

Table 3.3-2 displays information regarding each of the wastewater service providers that serve the unincorporated area. Information includes the number of existing connections or "services," wastewater system capacity based on the permit from the Regional Water Quality Control Board, dry weather and peak wet weather wastewater flows, and an estimate of the I&I peaking factor described in the previous paragraph. The table also estimates the number of available connections based on the permitted capacity and wastewater flows and includes comments regarding system capacity and condition. This information is derived from Section 7, Wastewater Service, of the *Community Infrastructure and Services* and *Water Resources Technical Report* and updated information from other sources.

Table 3.3-2. Summary of Municipal Wastewater Service Providers.

Provider	Connections		(MGD) Permitted Capacity		Flows (MGD)		I&I Peaking Factor
	Existing	Available	Dry Weather	Wet Weather	Existing Dry Weather	Peak Wet Weather	
1-South Fork Eel River Planning Watershed							
Garberville SD	353	180	0.162	0.235	0.059	0.55	4
Miranda CSD	110	59	0.046	not applicable[1]	0.03	0.1	3 – 4
Redway CSD	735	0	0.186	0.58	0.104	0.578	3
Weott CSD	134	151	0.03	not applicable[1]	0.014	0.03	2
2-Lower Eel River Planning Watershed							
Loleta CSD	260	0	0.1	not applicable[1]	0.06	0.6	10
Palmer Creek CSD	154	0			.002	0.03	
Scotia CSD	295	0	---	not applicable[1]	0.178	1.4	7 – 8
3-Middle Main Eel River Planning Watershed							
Wastewater service is available through onsite septic systems only							
4-Lower Klamath River Planning Watershed							
Wastewater service is available through onsite septic systems only							
5-South Fork Trinity River Planning Watershed							
Wastewater service is available through onsite septic systems only							
6-Lower Trinity River Planning Watershed							

Provider	Connections		(MGD) Permitted Capacity		Flows (MGD)		I&I Peaking Factor
	Existing	Available	Dry Weather	Wet Weather	Existing Dry Weather	Peak Wet Weather	
Wastewater service is available through onsite septic systems only							
7-Van Duzen River Planning Watershed							
Wastewater service is available through onsite septic systems only							
8-Redwood Creek Planning Watershed							
Wastewater service is available through onsite septic systems only							
9-Cape Mendocino Planning Watershed							
RID (Shelter Cove)	430	273	0.17	not applicable[1]	0.1	0.5	5
10-Trinidad Planning Watershed							
Wastewater service is available through onsite septic systems only							
11-Mad River Planning Watershed							
Fieldbrook Glendale CSD	166	80-100	---	not applicable[1]	0.037	0.075	2
McKinleyville CSD	5,267	781	1.61	3.3	0.9	2.0	2
12-Eureka Plain Planning Watershed							
Humboldt CSD	6,285	2,689	---	not applicable[1]	0.97	Estimated at 6 – 9	3.3 – 10
Manila CSD	449	495	0.14	not applicable[1]	0.066	0.21	3

[1]Permit only establishes standards for maximum peak dry weather flows.

The following summaries are excerpted from Community Infrastructure and Services Technical Report and include updates, as appropriate, that have been provided by the individual service providers and state regulators. Information presented includes the quantity of water supply and demand (or wastewater flows), volumes of treatment and storage, a condition assessment, and a listing of proposed improvements and projected completion dates, if known. Summaries have been organized by study area; however, where a provider serves more than one study area the summaries are organized by service provider.

ALDERPOINT COUNTY WATER DISTRICT

Water Supply. The Alderpoint County Water District (CWD) provides water service to approximately 79 service connections. The Alderpoint CWD has a permit to divert 0.25 cubic feet per second (112 gallons per minute), up to a maximum of 166 acre feet (54.1 million gallons) per year, from an infiltration gallery located in the Middle Fork Eel River and maintains approximately 160,000 gallons of storage. The Alderpoint CWD produced approximately 23 million gallons of drinking water in 2011, according to the Alderpoint County Water District Capacity Study; LACO, 2016. Average daily use is estimated at 0.032 MGD (million gallons per day), and peak daily use was reported as approximately 0.063 MGD in 2016. Water supply capacity ranges from 0.216 MGD to 0.320 MGD, which is well in excess of the current demands and production.

The Alderpoint CWD recently installed a water filtration system to bring the water quality into compliance with State of California regulations. In 2014, Alderpoint CWD replaced a leaking 100,000-gallon redwood tank with a new 160,000-gallon steel tank, which reduced the amount of water withdrawn from the Eel River by at least 50 percent.

BENBOW WATER COMPANY

Water Supply. Water service in Benbow is provided to approximately 134 existing service connections by the Benbow Water Company, a private water system regulated by the California Public Utilities Commission (CPUC). The Benbow Water Company diverts water from the East Branch of South Fork Eel River through an infiltration gallery located within the river bed. The Benbow Water Company produced approximately 31 million gallons of drinking water in 2005 (2006 California Department of Public Health, now the State Water Resources Control Board Division of Drinking Water (DDW), Annual Inspection Report). Average daily use is estimated at 0.085 MGD, and peak daily use was reported as 0.382 MGD. The Benbow State Recreation Area is also connected to the system and accommodates large special events in the summer (3000+ people), and a campground (400+ maximum). There is also a golf course/RV park that sees seasonal variation in its use. On some occasions in the summer there can be up to 3500+ additional people served by the system per day. In July 2016, the Del Oro Water Company, which operates the water system that serves the City of Ferndale and surrounding area, applied to the CPUC for authorization to purchase the Benbow Water Company.

Source capacity was identified as a serious problem for this system and pumping capacity was less than maximum day capacity (Winzler and Kelly, 2008, Page 6-91). The Benbow Water Company completed a project to increase filter capacity by installing an additional filter bank. The original filters had a surface area of 39 sq. ft., and were increased to a total surface area of 78 sq. ft. (Personal communication, Troy Hubner, Del Oro Water Company, February 8, 2017). The Benbow Water Company reports that it is operating at approximately 40 percent of its claimed water right (Personal Communication, Winston Benbow, 2010), and is planning to accommodate an additional 20 to 50 new water connections in the next 20 years.

BIG LAGOON COMMUNITY SERVICES DISTRICT

Water Supply. The Big Lagoon CSD was established in 1998 and acquired the water system one year later from a private owner. The Big Lagoon CSD system has approximately 36 existing service connections and produced approximately 1.7 million gallons of drinking water in 2005, according to the 2007 DDW annual inspection report. Average daily use is estimated at approximately 4,650 gpd, and peak daily use was reported as 11,650 gpd. In 2016, the Chairperson of the CSD Board reported that the system has an "untested theoretical limit of 30,000 gallons per day, if the well runs constantly. This is different from the 70,000 gallons reported (by the Community Infrastructure and Services Technical Report)." (Personal Communication with Valen Castellano, Big Lagoon CSD, April 29, 2016). The system operates with only 10,000 gallons of storage. The Chairperson further stated, "The BLCSD has discussed more water storage, but we are a long way away from realizing the project. Many believe we are at capacity now and could only service one or at most, two new connections. We will review and consider each individual proposal on its particular merits. Further development inland would require serious study and possible expansion of our service area beyond our current 23 acres. An Engineering Study must be done on our current system before we could competently evaluate our current conditions and any room for expanding services." (Personal Communication with Valen Castellano, Big Lagoon CSD, April 29, 2016)

BRICELAND COMMUNITY SERVICES DISTRICT

Water Supply. The Briceland Community Services District (CSD) provides domestic water from a spring located on private property to approximately 26 existing service connections. The District, through agreement with the owner and formal deeding, receives 90% of the spring's flow. The spring's flow is variable and dependent on rainfall. However, in the summertime, the spring output is five to seven gallons per minute, or between 7,200 and 10,080 gallons per day. The

Briceland CSD produced approximately 3.88 million gallons of drinking water in 2005. Average daily use is estimated at 10,630 gallons per day, and peak daily use was reported as 40,000 gallons per day (DDW Annual Inspection Report).

The Briceland CSD water system is in poor condition, source capacity is unable to meet current maximum day demands, the treatment system is unable to meet turbidity performance standards during winter months, and storage capacity is barely able to meet even one day of maximum day demands. Briceland is currently operating under a moratorium for new connections. There are currently at least four homes within the District that have submitted requests for service connections; the oldest request is over 16 years old. The Briceland CSD anticipates installing a new roughing filter and a solar powered hypo chlorination unit in the near future.

PALMER CREEK COMMUNITY SERVICES DISTRICT

Water Supply. The Palmer Creek CSD provides water service from its own source and wastewater collection services to the northern portion of the Fortuna CPA. The Palmer Creek CSD water distribution system was constructed in 1997. Palmer Creek CSD produced more than 11 million gallons of drinking water in 2003. Average daily use is estimated at approximately 0.031 MGD, and peak daily use is reported at approximately 0.084 MGD. The District has approximately 128 metered water service connections.

The water system was designed to serve 187 residential connections. Based on present and projected water use levels, Palmer Creek CSD has the ability to meet the water demands of development of the remaining lots in the District without the need to supplement supplies or storage and delivery systems. (Humboldt LAFCo - Palmer Creek CSD Municipal Service Review, 2007)

Wastewater Capacity. The 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. There are 154 existing residential wastewater connections within the Palmer Creek CSD generating an average dry weather flow of 20,000 gpd (gallons per day) and wet weather flows of 30,000 gpd (Humboldt LAFCo - Palmer Creek CSD Municipal Service Review, 2007). The Palmer Creek CSD reports that it is currently at its contracted limit for wastewater flows. The contract with the City would need to be amended to allow additional development within the District. Discussions regarding the wastewater agreement between the City and the District are ongoing.

The City of Fortuna's wastewater system is in good condition overall, and was expanded in 2006 to improve capacity and performance. The City's wastewater facilities are permitted to treat up to 1.5 MGD mean daily dry weather flow averaged over a period of one calendar month. Existing dry weather flows are currently 0.95 MGD. Therefore, the treatment facility is operating at approximately 63% of its dry weather flow capacity. However, wet weather flows continue to pose a problem for the City.

FIELDBROOK-GLENDALE COMMUNITY SERVICES DISTRICT

Fieldbrook-Glendale CSD provides water service to Fieldbrook and water and wastewater service within the Glendale area. The Fieldbrook-Glendale CSD purchases treated water from Humboldt Bay Municipal Water District (HBMWD) for delivery to its customers. Fieldbrook-Glendale CSD's water system begins at a water meter just north of the intersection of Fieldbrook Road and Glendale Drive. The system contains approximately 13 miles of water mains, two booster pump stations, and one 400,000 gallon and one 20,000 gallon water tank. Water quality is representative of HBMWD's excellent water source, and meets or exceeds State standards.

According to 2005/2006 HBMWD records, Fieldbrook-Glendale CSD's average daily use was 0.166 MGD and peak daily use was 0.389 MGD. The Fieldbrook-Glendale CSD purchased approximately 57 million gallons of drinking water from HBMWD in 2015 (HBMWD Urban Water Management Plan (UWMP) 2015, Table 4-1). Fieldbrook-Glendale CSD services approximately 531 existing connections according to the State Water Resources Control Board, Division of Drinking Water Programs. Peak daily use of HBMWD water for the District (0.389 MGD in 2005/2006) was at about 90% of their peak rate allocation of 0.43 MGD set in contract with HBMWD on July 1, 2006.

GLENDALE AREA (Fieldbrook-Glendale CSD)
Water Supply. The Fieldbrook-Glendale Community Services District (CSD) provides water and wastewater service to this area. Water service within the Glendale area is generally very good, with the exception of some low pressure areas. The only major deficiency associated with the existing system and the existing development they serve is lower system pressure within some localized areas. The Glendale area does not have any storage in its service area and normally relies on the HBMWD water reservoirs, although the Fieldbrook reservoir can be used to back feed to this area in an emergency. The Blue Lake FPD Fire Chief, who has fire protection responsibility for most of Glendale, states that additional water storage is required within Glendale for fire suppression as well as domestic water needs (Personal Communication, January, 2017). Glendale will need to expand its water system infrastructure to serve additional growth. The Fieldbrook-Glendale CSD receives treated water through the HBMWD and is not limited by either source or treatment capacity with respect to its ability to serve new connections.

Wastewater Capacity. The Glendale area receives wastewater service from the Fieldbrook-Glendale CSD. Glendale's wastewater system is in very good condition overall and has approximately 166 connections. Flows currently range between 37,000 gpd during dry weather and 75,000 gpd during wet weather. The District has a contract to pump raw wastewater to the City of Arcata for treatment and disposal. The existing contract allows for up to 71,200 gpd average dry weather flow, indicating that the system has the capacity for approximately 80 to 100 more connections. Alternative solutions to treatment and disposal must be found to accommodate any development in excess of this. The City of Arcata has indicated it is not interested at this time in increasing the District's contract amount and has recommended the District consider other alternatives. The District has approached the City of Blue Lake and will participate in other related studies to evaluate alternatives and costs for potential interconnection.

FIELDBROOK AREA (Fieldbrook-Glendale CSD)
Water Supply. Fieldbrook area receives water from the Fieldbrook-Glendale CSD. The system is in good condition overall and available connections are not limited by either source or treatment capacity. The Fieldbrook-Glendale CSD's receives treated water through the HBMWD and is not limited by either source or treatment capacity with respect to its ability to serve new connections. The only major deficiency associated with the existing system and the existing development they serve is lower than desirable water pressure within some localized areas. In addition, a stand by generator is needed at the main (Lyman Rd) booster pump station and a new roof is needed on the redwood tank. The Fieldbrook-Glendale CSD may need to expand its water distribution system at some point to serve this additional growth.

GARBERVILLE SANITATION DISTRICT
Water Supply. The Garberville Sanitary District (SD) was originally formed in 1932 to provide sewer service to the town of Garberville, and in 2006 purchased the investor-owned Garberville Water Company (regulated by the CPUC), which provides water service to approximately 420

connections. The Garberville SD produced approximately 64 million gallons of drinking water in 2003 (DDW Annual Inspection Report). Average daily use is estimated at approximately 0.175 MGD, and peak daily use is estimated at approximately 0.310 MGD.

The District's main source of water is an infiltration gallery in the South Fork of the Eel River. A secondary groundwater source (a well) is also available; however, substantial draw down has been known to occur and the well has even been known to stop producing water during dry periods. The District is limited by their appropriative water rights, which allow for maximum diversions of 0.155 and 0.595 cubic feet per second, respectively, for a combined allowable extraction of 336 gallons per minute from the infiltration gallery.

The Garberville SD recently completed a water system improvement project that included: new submersible river intake pumps and emergency power supply; a new surface water treatment plant with new pressure filters, highly efficient chlorine contact chamber, and a backwash water recycling system; the retrofit of an existing booster pump station with new pumps, valving, and controls; over one mile of new water mains and distribution piping; and a new 750,000 gallon finished water storage tank. In addition, the Garberville SD recently annexed 84 Assessor's Parcels already served by the District, into the district boundary. According to the Local Agency Formation Commission (LAFCo) staff report for the annexation, "The District has been actively planning and constructing water and wastewater facility improvements to address system deficiencies and to provide sufficient capacity to meet current and future service demands."

Wastewater Capacity. The Garberville SD wastewater system consists of a collection system with lift stations to convey wastewater to a central treatment facility. In 2011, the District completed a major treatment plant upgrade to address capacity limitation and a RWQCB cease and desist order. The $3.5 million project included: three oxidation ponds, four wetland treatment ponds, chlorination via an onsite chlorine generation system, improved percolation ponds, and an onsite operation and maintenance building. The first primary oxidation pond was constructed at a new location. The other oxidation ponds and the wetland treatment ponds were created by modifying the existing treatment ponds and recharge basin. Improvements to the percolation ponds consisted of cleaning and re-grading each basin.

In November 2011, the Water Quality Control Board rescinded the cease and desist order and issued a new Waste Discharge Permit (ID# 1B831200HUM) for the treatment plant. This waste discharge permit contains guidelines for an average dry weather flow of 162,000 gpd and a peak wet weather flow of 235,000 gpd. The treatment plant is currently operating at 38.88% of the capacity during dry weather flows.

HUMBOLDT COMMUNITY SERVICES DISTRICT

The Humboldt Community Services District (CSD) provides water, wastewater, and street lighting services to the unincorporated areas surrounding the City of Eureka. The District extends southwest from the Freshwater Valley nearly to College of the Redwoods to the south. Humboldt Bay and the City of Eureka form the district's western boundary and the eastern edge of the Freshwater Creek valley forms the eastern boundary. Included within or adjacent to the boundaries of the district are the following general services areas, each of which will be analyzed in detail below:

- Freshwater (includes the Freshwater and Mitchell Heights areas) and only water service is provided by HCSD within this area
- Humboldt Hill (includes Fields Landing, Humboldt Hill, and King Salmon,)
- Myrtletown

- South Eureka (includes the Bayview, Cutten, Pine Hill, Rosewood, and Ridgewood areas)

Humboldt CSD Water Supply. The Humboldt CSD water system is not limited by either water source or treatment capacity with respect to its availability of connections. Water for the Humboldt CSD system is provided by the Humboldt Bay Municipal Water District (HBMWD) and three wells located in the Humboldt Hill area. HBMWD has sufficient water supply to meet the demands of Humboldt CSD and its other municipal customers, and Humboldt CSD has extensive available capacity within District wells.

Humboldt CSD supplies water to 7,698 active connections (HCSD 2015 SWRCB Annual Report), approximately 97% of which are residential. In 2015, a total of 740.2 million gallons of water was distributed to the customers within the District. Average daily use for Humboldt CSD customers is estimated at 2.03 MGD (2015), and peak daily use estimated at 3.6 MGD (HCSD, 2016).

Humboldt CSD receives approximately 74% of their water from HBMWD and the City of Eureka. Humboldt CSD also maintains three water supply wells (two active and one active backup) that supplement their water supply, with a rated capacity of 1,580 gpm (2.28 MGD). Humboldt CSD's active connection with the City of Eureka has a capacity of 800 gpm, or 1.15 MGD. Their contract with the HBMWD allows for a peak rate allocation of 2.9 MGD. Therefore, the combined source capacity is estimated at 6.33 MGD.

Unlike the other zones within the Humboldt CSD service area, Humboldt Hill's water system is served almost exclusively by Humboldt CSD well water sources, although HBMWD water can also be supplied to this part of the system. Reservoirs serving Humboldt Hill include the 1.0 MG Blue Spruce tank and the 0.5 MG Donna Drive tank, for a total storage capacity of 1.5 MG.

Humboldt CSD's distribution system extends from Freshwater in the north to College of the Redwoods in the south and contains approximately 87 miles of pipe. The District has approximately 5.0 MG of storage capacity within ten storage tanks ranging in size between 0.12 MG and 1.0 MG. The District serves over 20 pressure zones. Water quality meets or exceeds State standards.

There are no significant deficiencies within Humboldt CSD's water system, although some storage and fire flow improvements are anticipated. Water service within Humboldt CSD is generally very good. Peak daily use of HBMWD water for the District (2.32 MGD in 2005/2006) was below their peak rate allocation of 2.90 MGD set in contract with HBMWD on July 1, 2006 (Winzler and Kelly, 2008). Overall peak daily use is approximately 71% of existing source capacity. The Humboldt Hill area's main water source is the District's wells. Current peak day demands within Humboldt Hill are estimated at 40% of total capacity Humboldt CSD's well's serving that area.

The Humboldt CSD reliability of supply analysis uses information from the HBMWD Urban Water Management Plan (UWMP) 2015, which shows that the Mad River and Ruth Lake can provide sufficient water supply to its seven retail water suppliers including Humboldt CSD, HBMWD retail customers, and system losses during normal, single dry, and multiple dry years between now and 2030. The Humboldt CSD also operates water wells in the Humboldt Hill area. The Humboldt CSD UWMP indicates that water depths in the wells (installed in 1988) are not influenced by climatic variation and not susceptible to drought conditions (Humboldt CSD UWMP 2015, Page 14).

Humboldt CSD Wastewater Capacity. Humboldt CSD operates a wastewater collection system that interconnects with the City of Eureka collection system and the City's Elk River Wastewater

Treatment Plant (WWTP). The City and Humboldt CSD are under a contractual agreement to convey wastewater through several points of interconnection between Humboldt CSD's and Eureka's collection system, and share treatment capacity at the Elk River WWTP.

Wastewater is collected from approximately 6,285 connections within the Humboldt CSD service areas. Average dry weather flows for the District were approximately 0.93 MGD in 2008 based on flow data collected on a daily basis. The permitted average dry weather flow (ADWF) at the Elk River WWTP is 5.24 million gallons per day (MGD). The Humboldt CSD share of this capacity is 30.5 % (1.598 MGD) and the City of Eureka share is 69.5 % (3.642 MGD). Based on a 2008 analysis of ADWF at the treatment plant and corrected for District growth through 2015, the Humboldt CSD has WWTP capacity that can accommodate about 2,689 additional equivalent dwelling unit (EDU) connections, and the City of Eureka has WWTP capacity for about 2,457 additional EDU's.

The City is conducting a study of the Elk River WWTP infrastructure to identify hydraulic and process "bottlenecks" and proposes cost effective improvements to increase capacity, rather than construct a total plant expansion. The City expects that this strategy will allow step-wise increases in WWTP capacity that keep pace with development within the Humboldt CSD and the City of Eureka over the next 20 years.

Portions of the Humboldt CSD and City of Eureka collection systems experience inflow and infiltration (I&I) of rainwater and are near or at capacity in a number of locations during significant rain events. Although extreme wet weather flows approach the design capacity of the WWTP, the plant is designed to treat all flows that the collection system conveys in its current configuration and with the current peaking factor.

The City of Eureka and Humboldt CSD cooperatively worked on the Martin Slough Interceptor Project to address the collection system capacity issues. The Martin Slough project is multi-purpose in function, including reducing wastewater overflows that degrade the environment, eliminating existing City and Humboldt CSD wastewater lift stations (by conversion to gravity service), improve energy conservation, and provide capacity for planned development. The Martin Slough Interceptor was put in service in November of 2014.

The Martin Slough project boundaries include areas within the City of Eureka that will gravity flow into the proposed interceptor, and portions of the unincorporated area surrounding Eureka that can utilize the interceptor based on proximity and topography located within the urban limit line established by the Eureka Community Plan and the Humboldt Bay Area Plan. Portions of the South Eureka area which include Bayview, Pine Hill, Rosewood, Cutten and Ridgewood are not within the Martin Slough project boundaries. Wastewater within these areas drains to portions of the City of Eureka collection system other than the Martin Slough Interceptor.

The following is a general discussion of water and wastewater service within each of the areas served by Humboldt CSD.

FRESHWATER (Humboldt CSD)
Water Supply. Freshwater is located within a valley east of Humboldt Bay. Residents of the Freshwater Valley originally received drinking water through private, individual wells and several private water companies. In 1992, the residents requested that Humboldt CSD annex this area and create the Freshwater Assessment District to provide high quality public water to correct a long-standing water quality problem.

Humboldt CSD's water system in Freshwater is in good condition overall. There are no major infrastructure deficiencies associated with the existing system. To the extent that development occurs where existing facilities are available, no major improvements will be needed. However, where development is not adjacent to an existing water main, an extension of service will be needed.

HUMBOLDT HILL (Humboldt CSD)
Water Supply. Most of Humboldt Hill was added to Humboldt CSD boundaries in the 1980's with the purchase of the Pialorsi Private Water System, and with the consolidation with County Service Area 3 (CSA 3) Sewer System, which was established in 1972 through the merger of three sanitation districts serving Fields Landing, King Salmon, and Humboldt Hill.

Following the purchase of the Pialorsi Water System, the District drilled three municipal water wells to further serve Humboldt Hill. Reservoirs serving Humboldt Hill include the 1.0 MG Blue Spruce tank and the 0.5 MG Donna Drive tank, for a total storage capacity of 1.5 MG.

Water service within Humboldt Hill is generally very good. The District has an ongoing program for upsizing undersized water mains installed to improve fire protection. The Humboldt Hill main water source is the District's wells. Current peak day demands within the study area are estimated at 40% of the wells' total capacity. Humboldt CSD anticipates adding an additional 1.0 million gallons of water storage to support planned development, provide fire protection, and to serve the higher elevation zones in the Humboldt Hill area.

Wastewater Capacity. All proposed development within the Humboldt Hill would receive wastewater service from the Humboldt CSD. Humboldt Hill's wastewater collection system was originally part of the now dissolved CSA No. 3, and was taken over by Humboldt CSD in 1982. Wastewater is collected from residences throughout the area and flows by gravity to the South Broadway pump station, where it is then pumped through a 14-inch force main to the Elk River WWTP.

Development within Humboldt Hill is not constrained by capacity limitations in the City of Eureka's collection system, but new growth in Humboldt Hill may trigger the need for increased pumping capacity at the South Broadway pump station.

MYRTLETOWN AREA (Humboldt CSD)
Water Supply. Myrtletown is located just east of the City of Eureka along Myrtle Avenue. Myrtletown's water system is in good condition overall. There are no major infrastructure deficiencies associated with the existing system. Humboldt CSD is replacing older steel pipe in the distribution system as funding is available.

Wastewater Capacity. The District maintains a collection system in this area that was originally installed in 1965. Myrtletown's wastewater collection system is generally in good condition, although some improvements are needed to reduce I&I. Myrtletown is located within the Hoover Street Sewer Drainage Basin, which pumps wastewater from the Humboldt CSD Hoover St. Pump Station to the City of Eureka Hill St. Pump Station. Wastewater is then pumped from Hill Street to the Elk River Treatment Plant.

SOUTH EUREKA AREA (Humboldt CSD)
Water Supply. South Eureka contains the Bayview, Pine Hill, Rosewood, Cutten, and Ridgewood areas. Humboldt CSD's South Eureka water system is in good condition overall. There are no major infrastructure deficiencies associated with the existing water system. Some older steel pipe

in the distribution system is currently being replaced and additional water storage capacity is planned to support planned growth and improve fire protection

Wastewater Capacity. Wastewater that is generated by existing development within South Eureka is collected within the following sewage drainage basins:

Table 3.3-3. South Eureka Sewage Drainage Basin.

Area	Sewage Drainage Basin
Bayview/Pine Hill/Rosewood	Pound Road McCullens Street Martin Slough
Campton Road (North)	Martin Slough
Campton Road (South)	Martin Slough
Cutten (North)	Hill Street
Cutten (South)/Ridgewood	Martin Slough

The completion of the Martin Slough Interceptor Project in 2014 is intended to provide adequate wastewater collection capacity for this area

HYDESVILLE COUNTY WATER DISTRICT

Water Supply. Water service in the Hydesville area is provided by the Hydesville County Water District (CWD). The Hydesville CWD has approximately 457 existing connections and produces approximately 38 million gallons of drinking water per year. Average daily use for the District is estimated at approximately 0.104 MGD, and peak daily use was reported as 0.28 MGD. The District's water supply is obtained from two wells located on District owned land near Yager Creek that have a rated pumping capacity of 360 gpm, or 0.52 MGD. Hydesville CWD storage tanks have a total storage capacity of 0.6 MG and the distribution system consists of approximately 14 miles of steel, AC, and PVC pipe.

Water service within Hydesville is generally good. The District is at approximately 60% of its source capacity during peak usage periods. In some areas located in the northern part of the District (Quail Hill subdivision area), the 4-inch mainline is inadequate in size to maintain the fire flow requirements and topography is a constraint on service area expansion utilizing the existing gravity fed system. The District is planning to increase the size of distribution lines in the Quail Hill subdivision, and install an additional well and 500,000 gallons storage, as funds become available.

JACOBY CREEK COUNTY WATER DISTRICT

Water Supply. Jacoby Creek receives water service from the Jacoby Creek County Water District (CWD), although portions of this area rely on private wells, springs, or surface water intakes generally of poor quality. The Jacoby Creek CWD serves approximately 569 existing connections and receives its water by contract with the City of Arcata through the City's wholesale relationship from HBMWD. The City of Arcata also operates and maintains the Jacoby Creek CWD water system.

The Jacoby Creek CWD purchased 21 MG of water in 2015 (Arcata UWMP, 2015). Average daily use is estimated to be 0.057 MGD. Jacoby Creek's water system is in good condition. The biggest deficiency with the existing system is lack of adequate storage capacity. The study area has only about 27% of maximum day demand in storage capacity (Winzler and Kelly, 2008). In addition, some distribution piping within the system is fewer than six inches in diameter and unable to provide adequate fire flows.

LOLETA COMMUNITY SERVICES DISTRICT

Water Supply. Loleta receives water and wastewater service from the Loleta Community Services District (CSD). The water system has approximately 258 existing connections, of which approximately 235 are residential connections and the remaining 13 are non-residential connections serving 11 businesses and 2 industrial uses including the Loleta Cheese Factory and the non-operational Humboldt Creamery. Roughly 25% of water demands are associated with the commercial and industrial users (Markus Drumm, 2007), and residential maximum day usage is estimated to be 0.158 MGD (697 gpd/connection).

Due to poor water quality, the Loleta CSD received funding from USDA as well as American Recovery and Reinvestment Act funding, to construct an improvement project that included a new well, transmission line, and treatment plant. The water system improvements are on-line and are sized to serve existing development and currently planned development. According to the LAFCo Municipal Services Review (2008) "the Loleta water system is at 26 percent capacity on the highest use day of the year. However, these numbers do not take fire suppression into consideration, and they are based on the assumption that the facilities are in perfect running order. The District believes that they can supply an additional 60-70 (40 to 50 based on Building Permit data as of 2016) homes."

Wastewater Capacity. Approximately 260 connections within Loleta receive wastewater service from the Loleta CSD, of which most are residential connections except for the two industrial connections identified above. The system currently has flows that range between 0.06 MGD during dry weather and 0.6 MGD during wet weather. The facility has an average dry weather flow design capacity of 0.1 MGD, and is operating at approximately 62% of its capacity.

The District currently relies on percolation ponds for the disposal of treated effluent. This form of disposal is becoming increasingly difficult to permit due to stringent regulations governing disposal to the Eel River during the discharge prohibition period. Other communities such as Rio Dell and Ferndale are being required by the NCRWQCB to find alternative methods of disposal. The District has significant problems with I&I within their collection system, and is operating its wastewater system under a cease and desist order (R1-2015-008) due primarily to excessive I&I. The cease and desist order prohibits additional influent from new or increased connections by the Loleta CSD, except from building permits approved before March 12, 2015. Where the peaking factor has been reduced to 5.5, the Loleta CSD may request to connect additional new or expansion of existing connections provided the additional flows are off-set by a reduction of I&I by at least 2:1 to the collection system. The Loleta CSD is required to complete repairs and upgrades to the system to address this problem by 2019. The Loleta CSD submitted a notice of exemption to the State Clearing House (SCH 2016118314) in November of 2016 for a project to rehabilitate approximately 4,000 feet of sewer main, lateral connections, and a man hole to reduce peak wastewater flows and improve treatment efficiency.

MANILA COMMUNITY SERVICES DISTRICT

Water Supply. The Manila Community Services District (CSD) provides water (the District is a wholesale customer of HBMWD) and wastewater service to Manila. According to 2005/2006 HBMWD records, Manila CSD's average daily use was 0.119 MGD and peak daily use was 0.157 MGD. Peak daily use of HBMWD water for the Manila CSD is currently less than their peak rate allocation of 0.21 MGD. The District purchased approximately 38.5 million gallons of water in 2015 (HBMWD UWMP, 2015). The District has approximately 347 active connections, of which 341 are residential connections. Non-residential connections include Sierra Pacific Industries (the mill closed in 2016), Redwood Coast Trucking, Manila Community Center and Park, an RV park, and the former Manila Market.

Manila's water system is in good condition. The only major deficiencies associated with the existing system are some undersized water mains and inadequate storage capacity. The District has no major plans for system upgrades at this time. The Manila CSD is planning to carry out minor upgrades, such as replacing valves, installing new fire hydrants, and replacing the storage tank roof in the near future. The District is also applying for grants to increase water storage capacity.

Wastewater Capacity. The Manila CSD wastewater system is in good condition overall. 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 free surface wetlands, two surface aerated facultative ponds, and four percolation ponds (rapid infiltration basins) for disposal. The system currently has approximately 444 connections, and flows currently range between 0.066 MGD during dry weather and 0.21 MGD during wet weather. The facility has an average dry weather flow design capacity of 0.14 MGD, and is operating at approximately 47% capacity.

The District's collection system and treatment system are in overall good condition. The system is in compliance with its waste discharge requirements and has sufficient capacity to serve forecasted potential future development without major improvements, although infrastructure extensions might be needed to serve a particular parcel.

MCKINLEYVILLE COMMUNITY SERVICES DISTRICT

Water Supply. The McKinleyville Community Services District (CSD) provides water and wastewater service to McKinleyville. (The McKinleyville CSD is a wholesale customer of the HBMWD). The McKinleyville CSD water system is in good condition overall. The McKinleyville CSD has approximately 5,517 existing municipal connections (Table 2.1, McKinleyville CSD UWMP, 2015). According to the McKinleyville CSD UWMP, the McKinleyville CSD average daily use was 1.51 MGD and peak daily use was 3.41 MGD. The District purchased 1,397 acre feet from the HBMWD (HBMWD UWMP, 2015) and delivered 1,334.7 acre feet of water in 2015 (Table 4-1, McKinleyville CSD UWMP, 2015).

The McKinleyville CSD provides water service to the residents within the Patrick Creek CSD. Originally, Patrick Creek CSD had its own water system. However, in 1973, the PCCSD transferred interest in the water distribution system to the McKinleyville CSD. All residents within the district individually purchase water from the McKinleyville Community Services District through a joint powers agreement established in 1973 (Patrick Creek CSD Municipal Service Review, Humboldt LAFCo, January 2008).

The District's current storage capacity for potable water is 5.25 million gallons in six storage tanks located on McCluski Hill (100,000 and 150,000 gallons), Cochran Road (1 million and 1.5 million gallons) and Norton Road (1 million and 1.5 million gallons). This can leave a 24-hour backup water supply for McKinleyville water customers at peak flow. Two new 3-million gallon tanks are also planned for construction on the District's Murray Road site. McKinleyville CSD is in the process of determining the viability of the Murray Road tank site due to seismic considerations. A cost analysis will be conducted to determine the feasibility of design at that site opposed to purchase of a site in a less sensitive location. New tanks would increase the District's storage capacity, enhance fire flows during peak summer usage, and provide additional system capacity for new growth. McKinleyville CSD has determined it would be more advantageous to initiate phased construction of two tanks at this location to spread the cost over a longer period of time, and to enhance the operational flexibility of the system by having two tanks to allow for maintenance and redundancy. (McKinleyville CSD UWMP, Modified April, 2013.)

"McKinleyville and the City of Arcata's water supply are vulnerable to natural disaster, therefore, an emergency intertie was constructed to allow for the flow of water to occur between both systems if necessary. This line remains stagnant when not in use, therefore, a 5/8-inch bypass was installed which allows the water within the intertie to turnover and maintain its chlorine residual. All water that passes through the bypass is metered and currently enters into the City of Arcata's water system from the McKinleyville system." (McKinleyville CSD UWMP, 2015: P 13)

The McKinleyville CSD UWMP 2015 water supply reliability analysis (see Section 7, Water Supply Reliability) uses information from the HBMWD UWMP 2015, which shows that the Mad River and Ruth Lake can provide sufficient water supply to the seven retail water suppliers, including McKinleyville CSD, HBMWD retail customers, industrial customers, and system losses (23,549 acre feet per year in 2030) during normal, single dry, and multiple dry years between now and 2035.

Wastewater Capacity. The McKinleyville CSD wastewater system currently has approximately 5,267 equivalent dwelling unit wastewater connections, and flows range between 0.9 MGD during dry weather and 2 MGD during wet weather. The facility has a biological treatment capacity of 1.6 MGD (State Water Resources Control Board, Order No. WQ 2011-0008-DWQ), and is operating at approximately 56 percent of dry weather capacity. The McKinleyville CSD collection system was installed in the mid 1980's and has been well maintained over the years.

The McKinleyville CSD wastewater management facilities consist of two primary oxidation ponds (11.2 acres total), two secondary oxidation ponds (5.5 acres total), two finishing treatment marshes (5.6 acres total), with a total pond area of 22.3 acres. Biological treatment capacity of the ponds is 1.18 mgd (1,180,000 gallons per day) and hydraulic capacity of disinfection facilities (chlorine contact chamber) is estimated at 3.3 mgd (2300 gpm) peak flow. Treated wastewater is discharged to the Mad River during winter months when the river flow rate surpasses 200 cfs (cubic feet per second). During summer months (May 15 through September 30) and low flow periods of the Mad River, treated wastewater is discharged into two percolation ponds located adjacent to the river and is irrigated on dairy pastures in southwest McKinleyville. (McKinleyville CSD website, Wastewater Management Facility-About the Facility, http://mckinleyvillecsd.com/wastewater-management-facility)

The McKinleyville CSD completed a 20 Year Wastewater Facilities Plan (WFP) in January 2012, which identified a series of upgrades to the existing wastewater treatment plant, including portions of the effluent disposal system. Projected 20-year flows for year 2030 were developed based on a 1.8% annual increase in population. The projected average dry weather flow for year 2030 is 1.4 MGD and the projected average wet weather flow is 1.7 MGD. The projected peak day flow for year 2030 is 3.1 MGD. Based on the Wastewater Facilities Plan, the improvements will address the needs for the facility through the year 2030. The WFP presented several treatment alternatives and recommended replacing the existing facultative lagoon system with an in-basin extended aeration system. Subsequently, two manufacturers of in-basin extended aeration systems, Bioworks and Parkson, were chosen as the preferred vendors for the extended aeration system. The proposed Wastewater Management Facility (WWMF) improvements include a new headworks facility; aeration basins; a blower/electrical/maintenance building; two new secondary clarifiers, including return activated sludge/waste activated sludge pumping; and a biosolids storage basin. The improvement project was initiated in January 2016, and is currently under way. (McKinleyville CSD website, Wastewater Treatment Plant Upgrade, http://mckinleyvillecsd.com/wastewater-management-facility)

In 2013, SHN Consulting Engineers and Geologists, Inc. (SHN) prepared a sewer capacity analysis for the McKinleyville CSD WWMF sanitary sewer collection system, with particular emphasis on

the remaining available capacity in the three gravity trunk lines (north, middle, south) that convey wastewater from the east side of U.S. 101 to west where the WWMF is located. The number of equivalent dwelling units that could be serviced with the remaining available capacity was estimated considering the rainfall-derived infiltration and inflow (RDII) of three different design storm events: 5-year, 24-hour; 25-year, 24-hour; and a 100-year, 24-hour event. The model results indicate that there is remaining capacity without considering RDII and that no additional capacity remains with 100-year RDII included. SHN recommends that McKinleyville CSD use the capacity results based on the 25-year RDII, which allows the development of additional units (a combined total of 781 total equivalent dwelling units, as of 2013) that utilize the middle and south U.S. 101 crossing locations under existing conditions.

MIRANDA COMMUNITY SERVICES DISTRICT

Water Supply. Miranda receives water and wastewater service from the Miranda Community Services District (CSD). The Miranda CSD conveys approximately 33 million gallons of drinking water per year to approximately 143 existing connections (2005 DDW Annual Inspection Report). Average daily use for the District is approximately 0.100 MGD and peak daily use is approximately 0.220 MGD. The District's water source comes is two wells with a total capacity of 0.338 MGD. The District has 0.2 MG of total storage, and the distribution system consists of one pressure zone which is gravity fed by the two tanks. Low pressures are known to occur, especially in the School Road area, due to small diameter (2-in.) mains. Miranda's water system is in fair to good condition. The primary deficiencies associated with the existing system are some undersized water mains and inadequate storage capacity.

Wastewater Capacity. The Miranda CSD wastewater system serves approximately 110 residential connections, which represents approximately 50% of homes within the district. Average dry weather flows are estimated at approximately 30,000 gpd (Miranda CSD, 2007). Peak wet weather flows are estimated at approximately 100,000 gpd. The Miranda CSD collection system consists of small diameter gravity sewer lines that collect effluent from individual septic tanks in the community. The system is a combined septic tank effluent gravity and pump system (STEG/STEP). The treatment plant has a dry weather design capacity of 46,000 gpd, as set forth in their waste discharge requirements.

The District's collection system and treatment system are in generally good condition. The District estimates the treatment system is currently operating at approximately 65% of its design capacity. The Miranda CSD uses percolation ponds for disposal. This form of disposal is becoming increasingly difficult to permit due to stringent regulations governing disposal to the South Fork Eel River during the discharge prohibition period from May 15th through September 30th. This discharge prohibition period extends to all wastewater dischargers on Eel River as covered by the Water Quality Control Plan for the North Coast Region. Other communities, such as Rio Dell and Ferndale, were required by the NCRWQCB to find alternative methods of treatment and disposal.

ORICK COMMUNITY SERVICES DISTRICT

Water Supply. The Orick Community Services District (CSD) provides water to Orick and is developing plans to provide wastewater service as well. The Orick CSD retailed approximately 17 million gallons of drinking water in 2003 (2007 DDW Annual Inspection Report). The District does not maintain average daily use and maximum daily use statistics. Average daily use for the entire District was approximately 0.047 MGD, and the District estimates peak daily use is approximately 0.216 MGD. The Orick CSD has approximately 140 existing connections, of which approximately 120 are residential.

The District maintains two active wells with a total production capacity of 0.274 MGD. The District maintains one pressure zone in its distribution system, serviced by approximately 6 miles of 4-inch through 8-inch PVC and AC pipe. The District's storage capacity includes two 100,000 gallon redwood storage tanks. This represents less than one day of needed storage.

Water service within Orick is generally good. Current peak water use is at approximately 79% of available production capacity. A significant deficiency of the current water system is its lack of proper storage, which is less than one day at maximum day demands.

Wastewater Capacity. Pollution from failing septic tanks has been found to be widespread and contaminating local groundwater sources. The Orick CSD applied to the Humboldt LAFCo to activate their latent powers to provide community wastewater services, with wastewater service to be limited to the commercial/residential areas of the Orick community along Hwy 101 on the north and south sides of Redwood Creek. LAFCo took action to authorize this additional power in May 2011.

The Orick CSD recently evaluated alternatives for a community wastewater system and completed an EIR (State Clearing House No. 2009082034) evaluating a Septic Tank Effluent Pump system where effluent would be pumped through collection piping to an advanced treatment system and then disinfected and discharged to subsurface disposal field(s). The system was intended to have a design buildout to serve 371 equivalent residential units, and flows are expected to range between an average dry weather flow of 43,041 gpd to a peak day average flow of 86,081 gpd (Draft Environmental Impact Report Orick Wastewater Project Orick CSD, October 2011). Following this effort, the Orick CSD received funding from the North Coast Resource Partnership to conduct a demonstration project to evaluate the feasibility of a decentralized community wastewater system. The Orick CSD will need ultimately to identify a preferred wastewater system, design and feasible project, and seek regulatory approval and adequate funding.

In the meantime, owners wishing to develop their land may do so using onsite sewage disposal systems. Site conditions may require that non-standard systems be used, such as Wisconsin Mounds or At-Grade systems that do not use subsurface leach lines for effluent disposal, which may require inspection and monitoring.

ORLEANS COMMUNITY SERVICES DISTRICT

Water Supply. Orleans is provided water service through the Orleans Community Services District (CSD). Orleans has approximately 150 active connections and 15 inactive connections. Orleans CSD water supply consists of an infiltration gallery within Pearch Creek with unknown but adequate capacity. Orleans CSD retailed approximately 26 million gallons of drinking water in 2005 (2005 DDW Annual Inspection Report). Average daily use for the entire District is estimated at 0.071 MGD, and peak daily use is estimated at approximately 0.513 MGD. Current peak water use is estimated at approximately 79% of available treatment capacity if DDW loading rates are used but 104% using recommended maximum loading rate specified by the manufacturer of the treatment system (according to the Community Infrastructure and Services Technical Report Condition Assessment, page 6-113). Source capacity is not an issue.

Orleans CSD currently uses inline filtration, which is no longer an accepted filtration technology in the State of California. As a result, the District has recently applied to fund a project which includes a fourth filter, turbidity meters, a second 100,000 gallon storage tank, and a new exit flow meter to replace the high flow turbine meter. Additionally, it has been proposed by the District to move the polymer and chlorine injection point further uphill from the current treatment point, which could provide the necessary flocculation time to change the system from inline to

direct filtration (NCRP Demonstration Project for Orleans Community Services District, January 2015).

The Orleans CSD received funding from the North Coast Resource Partnership to conduct a demonstration project to evaluate water demand, water storage, water rights, a water shortage plan, and develop strategies for addressing those needs.

PHILLIPSVILLE COMMUNITY SERVICES DISTRICT

Water Supply. The Phillipsville Community Services District (CSD) was formed in 1982 to assume responsibility for the Phillipsville Mutual Water Association water facilities. The Phillipsville CSD has approximately 65 active service connections. The District retailed an estimated 8.75 million gallons of drinking water in 2003. Average daily use for the entire District is estimated at 0.024 MGD, and peak daily use is estimated at approximately 0.085 MGD.

The Phillipsville CSD water system was in poor condition with inadequate storage capacity, a distribution system consisting of non-standard materials such as electrical conduit, limited source capacity, and lack of treatment. The District received American Recovery and Restoration Act funding through DDW and upgraded the water system infrastructure to resolve these issues. The project included the installation of a treatment plant on the spring source, the replacement of distribution pipes, and the installation of a 140,000 gallon storage tank. The project was completed in 2012. The improvements were designed to serve existing development plus ten percent additional capacity to accommodate some growth. The state DDW reports issues with the system remain relating to the turbidity of water that feeds a spring that serves the upper portion of the District and the need for additional storage. The drinking water system is adequate for current needs and does not have significant deficiencies (2014 Housing Element Attachment J, Detail of Infrastructure and Service Needs of Legacy Communities),

REDWAY COMMUNITY SERVICES DISTRICT

Water Supply. Redway receives water and wastewater services from the Redway Community Services District (CSD). According to the District, Redway CSD produces approximately 60 million gallons of drinking water per year. Average daily demand was approximately 0.208 MGD, and maximum day demand was approximately 0.494 MGD (based on monthly flow data from 2011 to 2014). Peak daily use was 0.394 MGD (Redway Community Services District Water and Wastewater Systems Capacity Analysis Waterworks Engineering, 2014). The District has approximately 735 existing service connections.

Redway CSD's water system consists of two water sources, an infiltration gallery in the South Fork of the Eel River and an unnamed spring, which is "inactive". The Redway CSD's total storage capacity is approximately 735,000 gallons in the residential area and 100,000 gallons in the Meadows Industrial Park. The District maintains approximately 25 miles of distribution piping, which is reported to have inadequate pressure in portions of the system during fire flows.

The Redway CSD completed a project to address water system deficiencies in 2009. The District received funding through DDW and upgraded piping and valving to improve the operation and performance of the water treatment system and rehabilitated the Eel River intake. According to WaterWorks Engineers (WWE), Redway CSD Water and Wastewater Systems Capacity Analysis, 2014, "(t)he water treatment plant is limited by the design flows of the water intake pumps and booster pumps, and the pretreatment system to a capacity of 450 gpm. At the current Maximum Day Demand of 494,000 gallons, the water plant has to run 18.3 hours per day at its full output of 450 gpm in order to provide this volume of water. This should be viewed as essentially at capacity, because the plant is not staffed 24 hours per day, and while the bulk of the treatment process is automated, it is not designed for complete un-manned operation.

Depending on the demand of significant new connections to the water system, the (Water Treatment Plant) capacity would need to be increased." "It is the opinion of WWE that water treatment system is currently at capacity, and the water storage and distribution system is already struggling to meet the demands of existing connections. These issues should be addressed before substantial additional service connections are made."

Wastewater Capacity. The Redway CSD wastewater system currently has approximately 675 residential connections and approximately 60 commercial connections. Flows range between 0.104 MGD during dry weather and 0.578 MGD peak day wet weather flow. The facility has a permitted dry weather capacity of 0.186 MGD and wet weather capacity of 0.58 MGD. The WWTP is operating at approximately 55% capacity of dry weather and 100% wet weather capacities.

According to the Redway CSD Water and Wastewater Systems Capacity Analysis, WWE 2014, "(t)he most limiting facility at the treatment plant currently is the sludge dewatering process. Dewatering capacity is currently sufficient during the dry weather season, but not during the wet-weather season."

"The next item of concern is the peak hour wet weather flow hydraulic capacity of the piping downstream of the secondary clarifier overflow weir. Instantaneous flow above approximately 665 gpm will submerge the weir. This can be alleviated by upsizing the piping downstream of the clarifier from 8-inch to 10-inch, but this is not critical for short-term operation. "

"The last item of concern is the existing oxidation ditches apparent inability to denitrify at a level that will be necessary to achieve an anticipated future 10 mg/L nitrate limit. The existing WWTP may be able to meet this limit by closely monitoring immersion of the existing brush aerator and other process parameters, but it appears to be already close to its treatment capacity even if denitrification performance is optimized."

"Several options exists for improving the denitrification capacity of the plant, including 1) supplementing the existing oxidation ditch with a pre-anoxic basin and internal mixed liquor recycle pumping provisions, 2) installation of a new oxidation ditch in parallel to the existing oxidation ditch, or 3) installation of a new, stand-alone oxidation ditch and re-tasking of the existing oxidation ditch to an ancillary facility such as emergency overflow, aerobic digester, etc. However, all of the options would be costly, and would require procurement of funding assistance in order to implement."

In particular, the Redway CSD Water and Wastewater Systems Capacity Analysis concludes that "The existing wastewater treatment plant may not be capable of complying with what is believed to be a forthcoming effluent discharge limit for nitrate of 10 mg/L, at current wastewater flows and loads. It is very unlikely that it would be able to meet the 10 mg/L limit with increased flows and loads."

RIVERSIDE COMMUNITY SERVICES DISTRICT

Water Supply. The Riverside Community Services District (CSD) provides water service to the Port Kenyon, Meridian Road, and Centerville Road at Oeschger Road. The District's water source consists of three wells with a maximum production capacity of approximately 74,000 gallons of water a day. Riverside CSD produced 12.5 million gallons of drinking water in 2005 (DDW, 2005 Annual Inspection Report). Average daily use was approximately 0.034 MGD, and peak daily use was approximately 0.046 MGD. The District currently provides water service to 74 residential customers and 24 agricultural operations (dairies on the Ferndale bottoms).

Water service within the Riverside service area is generally good. Current peak water use is at approximately 62% of available production capacity. The District's deep well can only be used as an auxiliary well due to high manganese content. The District does not currently have any fire hydrants and is not capable of supporting fire suppression.

SCOTIA COMMUNITY SERVICES DISTRICT

Water Supply. The Scotia Community Services District (CSD) was officially formed in 2011 to provide water, wastewater, parks and recreation, street lighting, and fire protection services to the town of Scotia. Prior to the formation of the Scotia CSD, the Town of Scotia LLC assumed ownership of the town's domestic water system, the wastewater system, nearly all of the other utilities, and most of the town's real property from the Pacific Lumber Company following its bankruptcy in 2007. The Town of Scotia LLC is in the process of subdividing the town of Scotia, which was previously an industrial campus, so that most structures will be on their own lot.

The Scotia CSD water supply comes from an infiltration gallery in the Eel River that supplies separate domestic water and raw water fire systems. The domestic system is fed by a domestic booster pump station with a firm capacity of 1.728 MGD. Average day production at Scotia's water treatment facility was estimated at 0.412 MGD, with approximately 0.151 MGD used by Scotia's industrial customers and the remaining 0.261 MGD used by residential and commercial customers (Winzler & Kelly, 2006). Peak day flows in Scotia were estimated at 0.606 MGD (2006 DDW Annual Inspection Report). Assuming a similar percentage usage for industrial uses, the domestic water peak demand is estimated at 0.384 MGD. Scotia currently has approximately 280 residential connections, 15 commercial connections, and 20 industrial connections. Current peak water use is at approximately 22% of available production capacity.

In January 2016, the Scotia CSD adopted a resolution approving a letter of intent to accept all dedicated facilities and properties from the Town of Scotia, LLC, to provide utility and other services to the former mill town. The Scotia CSD has since adopted rates for water and sewer services and agreed to assume responsibility, accept the dedicated properties, and own and operate the systems thereafter. These rates include funding to carry out the necessary improvements to the water and wastewater systems, including a new water treatment plant above the 100-year flood elevation.

Wastewater Capacity. Approximately 295 connections within Scotia receive wastewater service from the Scotia CSD, 92% of which are residential connections. Average dry weather flows currently amount to approximately 0.178 MGD, while peak wet weather flows are estimated at approximately 1.4 MGD (Winzler & Kelly, 2006).

The Scotia CSD WWTP is located within the 100-year floodplain. The treatment capacities of multiple unit processes within the facility are exceeded even by average day maximum month flows (Winzler & Kelly, 2006). However, under current conditions the three treatment ponds at the WWTP provide the necessary treatment to meet current permit conditions (SHN, 2007). In 2006, there was concern that the facility would not meet the secondary treatment standards for treatment. PALCO requested the facility be placed under a cease and desist order that set forth a time schedule for compliance with permit requirements relating to treatment. The cease and desist order was rescinded in April 2012 and a new permit was issued (ORDER NO. R1-2012-0065). The new permit states that "(a) hydraulic study was conducted during the term of the permit and determined that the design average dry weather flow of the WWTF is 1.0 MGD. Annual average flows at the Facility are approximately 0.200 MGD."

The Scotia WWTP currently discharges to percolation ponds adjacent to the Eel River during the summertime discharge prohibition period. The town will likely have to find alternative methods

for summertime disposal, as percolation ponds on the Eel River are becoming more difficult to permit with time. As indicated above, the Scotia CSD has assumed responsibility for the wastewater system and is responsible for carrying out the LAFCo conditions of approval for the formation of the Scotia CSD, which specifies certain wastewater system improvements.

RESORT IMPROVEMENT DISTRICT NO. 1 (SHELTER COVE AREA)

Water Supply. Resort Improvement District (RID) No. 1 provides water and wastewater service to Shelter Cove and produced approximately 57.4 million gallons of drinking water in 2004 (2006 DDW Annual Inspection Report). Average daily use is estimated at 0.157 MGD, and peak daily use was reported as 0.331 MGD in 2004. The District has approximately 470 existing connections. The number of water connections available to the RID is limited by its permit to a total of 990 until such time that it identifies additional sources of water.

The RID water source consists of two active surface water spring intakes (Rick Spring and Upper Telegraph Creek), a seasonal standby surface water spring intake (Lower Telegraph Creek), and two standby wells. During summer months when demands are high, the District is required to maintain environmental flows within Telegraph Creek and is allowed to withdraw at Lower Telegraph Creek at a point prior to the water's infiltration into beach sands. The source capacity of the District is approximately 508 gpm (0.732 MGD), well over current maximum day demands (230 gpm). The treatment capacity of the plant is 350 gpm, or 0.504 MGD.

Water service within the RID is generally very good. Current peak water use is at approximately 45% of available production capacity. The District is in the process of locating additional source capacity. The RID has identified sites for new water wells, several of which have been approved by the state for service. The RID Board has approved funds for the exploration of five new well sites to be located in regions of the upper Cove where successful well sites have been established and geologic conditions are similar (Resort Improvement District #1 General Manager's Report, February 2012).

Wastewater Capacity. Approximately 408 residential connections and 22 commercial connections receive wastewater service within Shelter Cove (RID, 2007). Average dry weather flows currently amount to approximately 0.1 MGD, while peak wet weather flows are estimated at approximately 0.5 MGD (Luce, 2007). According to the District's discharge permit, the RID WWTP is designed for an average dry weather flow of 0.17 MGD, an average wet weather flow of 0.27 MGD, and a peak wet weather flow of 0.77 MGD.

Based on existing flows, the District is approximately at 59% of dry weather treatment capacity and approximately 78% wet weather capacity at its WWTP. The District is currently under an Administrative Civil Liability Order due to the District's inability to meet treatment requirements. In essence, the influent to the treatment plant is so diluted, it is virtually impossible to meet these requirements.

The District last developed a Master Plan Update for its wastewater treatment and disposal facilities in 1997, which outlines necessary improvements to meet different forecasted growth scenarios. The District also developed a ten-year capital improvement program in 2007 to address required maintenance and upgrades to their wastewater system. The District instituted an I&I rehabilitation program in February 2008 as a compliance project in response to Administrative Civil Liability Order No. R1-2007-0009. The District has continued to complete inspections and point repairs of the collection system, including improvements to manholes. According to the approved Waste Discharge Requirements/ Permit (R1-2015-0017), although the design peak daily wet weather flow was exceeded in 2012 (0.818 mgd), the facility remained below the design peak daily wet weather flow of 0.77 mgd for the most recent 4 years (0.568 mgd).

WEOTT COMMUNITY SERVICES DISTRICT

Water Supply. The approximately 144 existing, unmetered service connections in Weott receive water service from Weott Community Services District (CSD). Average daily use is estimated at approximately 0.052 MGD and peak daily use is estimated to be approximately 0.1 MGD. The Weott CSD is supplied by two surface water sources located across the Eel River from Weott that have a total rated capacity of approximately 0.202 MGD that flow through two separate treatment and distribution systems. Treatment capacity totals approximately 85.4 gpm (0.113 MGD if operated 22 hours per day) and is therefore more limiting than source capacity. According to the Weott CSD, the water system currently does not exceed maximum allowable filter rates/filter loading rates and generally has no issues meeting their customers' water demands/needs (personal communication, Gary Neumann, Operations Manager-Chief Plant Operator, Weott CSD, 2017).

Weott CSD's water system is in fair condition and has historically suffered supply problems during summer months. Estimated peak daily use is currently greater than available supply from the District's springs. Overall peak daily use is in excess of the springs' source capacity and the treatment plant's treatment capacity. Peak daily demands are approximately 50% of existing source capacity and 75% of existing treatment capacity. The District has installed meters on all service connections, addressed some severe leaks in the system, and adjusted filter operations, such that the treatment plant can operate within the regulatory constraints.

Wastewater Capacity. The Weott CSD is responsible for collection, treatment, and disposal of the community's wastewater. The following information is from the Weott CSD Municipal Service Review, 2012:

"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. Sludge is dewatered and transported to the Humboldt County solid waste transfer station for landfill disposal.

"The Weott CSD currently provides wastewater service to most areas within its service boundaries. The system currently has approximately 134 residential connections, and flows currently range between 14,000 gpd during dry weather and 30,000 gpd during wet weather. The facility has a permitted dry weather capacity of 30,000 gpd, and is therefore operating at approximately 47 percent of design capacity."

The wastewater treatment system was constructed between 1989 and 1991 and system improvements were made in 2000 under a USDA grant that included improvements to the lift station, chlorination/dechlorination equipment, and the gravel filter distribution piping. The system currently is operating well within its design capacity, and no system upgrades are planned other than typical maintenance.

WESTHAVEN COMMUNITY SERVICES DISTRICT

Water Supply. The Westhaven Community Services District (CSD) produced 14.3 million gallons of drinking water in 2004 and provides water service to 233 residential customers (2005 DDW Annual Inspection Report). Average daily use was approximately 0.039 MGD, and peak daily use was approximately 0.066 MGD. The system is supplied by three small, spring-fed tributaries of Two Creek and a well within the residential area. The creek source represents approximately 75%

of the total source capacity, with the well accounting for the remaining 25%. Source capacity varies between 40 – 60 gpm (0.058 – 0.086 MGD). Source capacity currently varies between 40 – 60 gpm, compared to a maximum day demand of 0.66 MGD, or approximately 46 gpm. The District has expended considerable resources in efforts to locate additional local water sources. An attempt by the District to develop a municipal well just outside the northeast boundary failed due to local political impasse. The District has installed meters on all residential connections recently, which has facilitated the District in identifying leaks and distribution system problems.

Aside from inadequate source capacity, no serious deficiencies were identified through the DDW inspection. The District plans on replacing the storage tank roof. Plans are also underway to upgrade the distribution system's undersized water mains, increase storage capacity, and further explore additional sources of water. Development that has occurred within Westhaven has benefited from previously approved connections to the Westhaven CSD water system or has been approved with the use of individual onsite water systems.

WILLOW CREEK COMMUNITY SERVICES DISTRICT

Water Supply. The Willow Creek area receives water service from the Willow Creek Community Services District (CSD) which has 976 water service connections. The District anticipates being able to accommodate 1,000 through 1,200 service connections before meeting capacity. The Willow Creek CSD produced approximately 244 million gallons of drinking water in 2003, according to the 2004 DDW annual inspection report. Average daily use is estimated at approximately 0.668 MGD, and peak daily use was reported as 1.80 MGD in 2004. The District's source of supply consists of six wells located in the mouth of Willow Creek. The Willow Creek CSD operates six production wells. Four wells draw water from infiltration galleries in the Willow Creek, which are believed to be under the influence of surface water, and two wells separate from the infiltration gallery, which may or may not be under the influence of surface water. A new water treatment plant was completed in 2007, and has a design capacity of 2,140 gpm. If run for 23 hours per day, treatment capacity is approximately 2.953 MGD. Total source capacity is 2,610 gpm, or 3.76 MGD.

Willow Creek CSD's water system is generally in good condition, although per capita demand is very high (1,861 gpd/cap) and may be the result of system leaks. Current peak water use is approximately 48% of available production capacity. The new water treatment plant has been designed for 2,140 gpm, approximately 40% greater than existing peak day demands. The District does not have adequate storage capacity and has plans to construct of a new 400,000 gallon storage tank above the new treatment plant and Brannan Mountain Road.

Wastewater Capacity. Willow Creek has been evaluating alternatives for a community wastewater system for a number of years. Willow Creek's business center along Highway 299 is in need of a centralized wastewater system due to existing disposal field problems which currently limit development. A preliminary engineering report was prepared for the system in 2008 and additional alternatives are under consideration. The ultimate type, location, and construction schedule for a Willow Creek wastewater treatment plant is dependent upon future funding availability and NCRWQCB permitting requirements. The Willow Creek CSD received a Planning/ Preliminary Design Grant for a community wastewater system for the downtown area of Willow Creek. This grant will allow the community of Willow Creek to determine if a wastewater system is a possibility for the downtown area and help determine more detailed estimated costs. A Draft Environmental Impact Report for the Willow Creek Community Services District Downtown Wastewater Development Project was prepared in June, 2015 (SCH #2015012014) and a Final EIR was certified by the District in September, 2015.

In the meantime, owners of land in the downtown area wishing to develop their land may do so using onsite sewage disposal systems. Site conditions may require that non-standard systems be used, such as Wisconsin Mounds or At-Grade systems that not use subsurface leach lines for effluent disposal), which may require inspection and monitoring.

Rural Areas

Outside of more urbanized areas, residents and businesses receive water through smaller water systems. The definition of public water systems includes municipal type systems listed in Table 3.3-1, Summary of Public Water Service Providers and small systems that may only serve one subdivision. The following is the State of California's definition of a community water system:

> A system, regardless of type of ownership, for the provision of piped water to the public for domestic use, if such a system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year. (CCR Title 22, Section 64400.10)

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. The systems are further divided into three categories, which are defined below:

- Community Water System (CWS) is a public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents. This category includes municipal water systems and mutual water associations
- Non-Transient, Non-Community Water System (NTNC) is a public water system that is not a community system and that regularly serves at least the same 25 persons over six months of the year. Such systems are typically associated with schools, restaurants, or other businesses.
- Transient, Non-Community Water System (TNC) is a public water system that is not a community water system and does not regularly serve at least 25 of the same persons over six months per year. Transient systems would likely include hotels, resorts, and campgrounds.

In some rural areas, nearby residents have come together to create small water systems to satisfy their domestic water needs. A State Small Water System is a public water system that has 5 to 14 service connections, and does not regularly serve potable water to more than 25 individuals for more than 60 days out of the year (see California Code of Regulations Title 22. Social Security, Division 4. Environmental Health, Article 3. State Small Water System). An example would be a small residential neighborhood with 10 homes that is served by a single water supply. State Small Water Systems are regulated by the Humboldt County Department of Environmental Health.

State Small Water Systems in Humboldt County are found in areas such as rural residential subdivisions in the Fickle Hill, Trinidad, and Garberville areas, and mobile home parks. There are approximately 25 Small State Small Water System operating in Humboldt County.

Table 3.3-4, Water Connections by Systems Type, provides an estimate of the number of housing units that are served by public water systems (municipal and other Small Public Water Systems as

defined above), served by State Small Water Systems, and those that are assumed to use onsite water systems. Approximately 40 percent of housing units in the unincorporated area are supplied water through onsite systems.

Table 3.3-4. Water Connections by Systems Type.

Planning Watershed	Public Systems*	State Small Water Systems	Onsite Systems**
1-South Fork Eel River	1,943	19	1,554
2-Lower Eel River	799	17	1,630
3-Middle Main Eel River	79	0	462
4-Lower Klamath River	150	10	479
5-South Fork Trinity River	0	0	14
6-Lower Trinity River	976	0	1,319
7-Van Duzen River	457	42	999
8-Redwood Creek	140	0	199
9-Cape Mendocino	470	0	1,202
10-Trinidad	269	29	1,167
11-Mad River	6,101	10	1,897
12-Eureka Plain	8,614	85	3,324
Total	**19,998**	**212**	**14,246**

*From Table 3.3--1 Summary of Municipal Water Service Providers.
**the number of onsite systems was derived by subtracting existing connections to community water systems from an estimate of year 2007 total housing units within each planning watershed.

A significant 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 significant 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. Additional information regarding Humboldt County groundwater basins, well yields, and well statistics can be found in Table 3.10-3 Humboldt County Ground Water Basins in Section 3.10 Hydrology and Water Quality.

Table 3.3-5 presents information from the Humboldt County Health and Human Services Department, Public Health Branch well permitting database, and illustrates the distribution of wells within Humboldt County Planning Watersheds. As previously stated, based on the number of onsite water systems shown in Table 3.3-4, Water Connections by Systems Type, there are likely many more domestic wells than are reflected in this database.

Table 3.3-5. Private Wells in the Humboldt County.

Planning Watershed	Wells
1-South Fork Eel	42
2-Lower Eel	106
3-Middle Main Eel	26
4-Lower Klamath	2
5-South Fork Trinity	1

Planning Watershed	Wells
6-Lower Trinity	14
7-Van Duzen	105
8-Redwood Creek	8
9-Cape Mendocino	25
10-Trinidad	60
11-Mad River	120
12-Eureka Plain	138
Total	**647**

Source: Humboldt County Health and Human Services Department, Public Health Branch, 2010.

Pursuant to California Water Code Section 1205 and Order Number WR 98 – 08, the State Water Resources Control Board has declared the Klamath, Trinity, Mad, Eel, and Van Duzen Rivers and Jacoby Creek as "fully appropriated." This declaration means that the supply of water in the stream system is being fully applied to beneficial uses where the previous water rights decisions have determined that no water remains available for appropriation.

State law specifies that the Department of Water Resources can only accept applications for water use for fully appropriated stream systems that are consistent Section 4.0 through 4.14 of Order WR 98-08, which are General Conditions Applicable to Appropriation or Diversion of Water from Fully Appropriated Streams. However, a permit is not required from riparian right holders, ground water users, users of purchased waters, or those who use water from a spring or standing pool lacking a natural outlet on the land they are located. As a result, diversions from streams and rivers would likely not be approved, but certain types of diversions and groundwater wells could be established within fully appropriated streams within the County.

The Mattole River is not identified as fully appropriated, but the Mattole Restoration Council found that "in recent years, summer flows in the Mattole River have declined dramatically. Every year since 1999, agency scientists and concerned citizens have observed depleted summer flows upstream of the Bridge Creek confluence with the main stem. Since 2000, thousands of juvenile salmonids have died due to low flows in the headwaters area. And Mattole residents have suffered from the lack of surface water for both domestic and agriculture purposes." (2005 Mattole Watershed Plan) This would indicate that there is little Mattole River water available for consumption by new development during the dry summer months.

A report prepared for the California State Water Resources Control Board for the Instream Flows Policy for Northern California Coastal Streams (which includes the Mattole watershed) entitled the *North Coast Instream Flow Policy Restrictions on Flow Diversions and Storage, Potential Indirect Impacts on Municipal, Industrial and Agricultural Water Use and Related Indirect Impacts on Other Environmental Resources* (Stetson Engineers Inc., 2007) found that "future diversion demand for small water agencies and self-supplied individuals (in the Mattole River watershed) are small, 30 acre-feet per annum". This report further states that "if application of the Policy to specific water right applications shows that surface water is not available for appropriation, groundwater and surface water diverted under riparian right are the most likely alternative water supplies and both are likely adequate to satisfy the future diversion demand." This report estimated that future demand would be two to three times the existing demand, or an additional 30 to 60 acre-feet per year from the watershed. The report concluded that "implementation of the Policy potentially may result in the increased development of groundwater or surface water under riparian right in Humboldt County" and that "any indirect environmental impacts resulting from this increased development are not likely to be substantial given the small future diversion demand in this area."

The Stetson Engineers report "defines future diversion demand as the quantity of surface water that has been requested in pending water right applications (pending diversion demand) or that may be requested in new water right applications (new diversion demand). Pending diversion demand is estimated based on information from the State Water Board's Water Rights Information Management System (WRIMS) database. New diversion demand is estimated based on information from the UWMPs filed in the Policy area and projected urban and agricultural growth rates from the California Water Plan 2030 Quantified Future Scenarios." (Section 4, Future Diversion Demand, Page 10)

Jacoby Creek within the Eureka Plain Planning Watershed is designated as a fully appropriated stream. Planning watersheds that are not designated as fully appropriated streams, other than Cape Mendocino which is described in terms of the Mattole watershed above, may also have water supply difficulties. The Trinidad Planning Watershed contains Luffenholtz Creek which has been recognized by the County as the City of Trinidad's "Critical Water Supply Area" per Section 3362 of the Humboldt County Framework General Plan. The Framework Plan defines these areas as those "used by a specific municipality or community for its water supply system, which is so limited in area that it is susceptible to a potential risk of contamination from development activities."

The California Department of Fish and Wildlife submitted a comment letter regarding the General Plan Update Notice of Preparation on July 17, 2007, which states that water use from permitted and unpermitted development in some rural areas of the County has resulted in "headwater streams being entirely dewatered or with significantly impaired flows resulting." (Comment Letter W-96, Department of Fish and Game, 2007, page 13). "Unpermitted homes, especially in southern areas of the County, combined with illegal stream diversions for marijuana growing and other agricultural uses, is a significant, yet difficult to quantify problem." DFG notes that although they do require the issuance of Lake and Streambed Alteration Agreements, "water diversions pursuant to riparian rights do not require a permit from the State and actual diversion rates are largely unregulated and unknown." (Comment Letter W-96, Department of Fish and Game, 2007, page 13) The Department of Fish and Game finds that "there are compelling reasons to believe that too much water is diverted from many headwater streams in the County. Furthermore, water diversions are likely to become an increasingly significant issue for fish, wildlife and rural residents during the life of the (General Plan Update), as water rights applications increase."(Comment Letter W-96, Department of Fish and Game, 2007, page 13)

Agricultural Water Systems.

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. Wells included in Table 3.3-5, Private Wells in the Humboldt County, likely include some agricultural wells. The discussion of wells and groundwater basins in Section 3.10, Hydrology and Water Quality, provides the best available information regarding agricultural water systems in Humboldt County. The discussion of groundwater conditions in Humboldt County includes Figure 3.10-1, Groundwater Basins in Humboldt County, which identifies the location of the 15 basins identified by the State of California. Table 3.10-3,

Humboldt County Ground Water Basins, displays information from the Department of Water Resources California's Groundwater, Bulletin 118, including groundwater basin area, rainfall, annual extraction volume, and in some cases estimated well yields.

Onsite Wastewater Treatment

Section 3.8, Geology and Soils, provides detailed background information and analysis of septic systems in Humboldt County. As indicated in that section, 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 onsite wastewater systems. 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.

The Humboldt County Code specifies that buildings that are within 300 feet of a public sewer shall be connected to the public system (Title VI, Water and Sewage, Division I, Sewage Disposal, Section 611-4). Outside of these areas, onsite wastewater systems are considered to be an appropriate means for sewage disposal. Onsite wastewater systems are used by more than 50 percent of households in Humboldt County. Requirements for onsite wastewater systems are specified by the County Public Health Branch and include setbacks for septic tanks and disposal fields from property lines, buildings, wells and water bodies, as well as cut and fill areas and unstable land forms. Setback distances vary depending upon whether the property has an individual water system or not. When soil conditions on a given property and setback distances are combined, parcels that would use onsite water and wastewater would need to be at least two acres. Where public water is available, minimum parcel size is typically one acre.

Table 3.3-6, Wastewater Service by System Type in Humboldt County, provides an estimate of the number of housing units that are served by municipal wastewater systems and those that are assumed to use onsite systems. Over half of all housing units in the unincorporated dispose of sewage using onsite wastewater systems.

Table 3.3-6. Wastewater Service by System Type in Humboldt County.

	Housing Units	
Planning Watershed	**Municipal Treatment**	**OnSite System**
1-South Fork Eel	1,332	2,184
2-Lower Eel	709	1,737
3-Middle Main Eel	0	541
4-Lower Klamath	0	639
5-South Fork Trinity	0	14
6-Lower Trinity	0	2,295
7-Van Duzen	0	1,498
8-Redwood Creek	0	339
9-Cape Mendocino	430	1,242
10-Trinidad	0	1,465
11-Mad River	5,433	2,575
12-Eureka Plain	6,734	5,289
Total	**14,638**	**19,818**

Solid Waste Disposal

This section summarizes existing conditions regarding the disposal of solid waste in the County. The following discussion addresses the structure of solid waste management in the County, the available methods of waste disposal, and landfill capacity. This analysis relies upon information from the Humboldt Waste Management Authority (HWMA); the 2014 and 2006 Five-Year Integrated Waste Management Review for Humboldt County; the 1995 Humboldt County Integrated Waste Management Plan; the 1993 Humboldt County Source Reduction and Recycling Element; and the 1993 Countywide Siting Element of the Humboldt County Integrated Waste Management Plan.

The California State Legislature established basic regulations for the formation of 'Garbage and Refuse Disposal Districts' for the management of solid wastes in 1927, and over the decades, expanded legislation to address the establishment and regulations for landfills, recycling and diversion of other related wastes. Due to concerns in the mid-1980s about statewide landfills reaching disposal capacity, the state legislature spurred the passage of AB 939 (Sher), "The Integrated Waste Management Act of 1989," which established a waste management hierarchy to guide local agencies in implementation of (1) source reduction, (2) recycling and composting, (3) environmentally safe transformation and land disposal, and (4) a 25% waste diversion mandate. Subsequent to the passage of AB 939, a number of state legislative bills continued to build on the diversion of specific materials from being landfilled and other waste diversion mandates. In 2010, the State legislature passed AB 341 (Chesbro) which set a statewide recycling goal of 75% by 2020 which is anticipated to be achieved through source reduction, recycling, and continued diversion of materials such as organic wastes.

The bulk of the legislative responsibilities for diversion activities falls primarily to solid waste generators; however, local jurisdictions are responsible for the enforcement and monitoring, and reporting data to CalRecycle on an annual basis.

Historically, incorporated and unincorporated communities in Humboldt County had localized areas where community refuse was disposed of. For several decades, refuse was open air burned with residual material pushed to the side. With the passage of the U.S. E.P.A's Clean Air Act in the late 1960's, the State of California banned open air burn dumps in 1969, as burning of solid waste was no longer an acceptable disposal method.

Throughout Humboldt County some of these former dump and burn sites were developed and permitted as landfills or paved over to serve as container sites. Most of these sites were small volume landfills or illegal dumpsites, and were in existence for less than two decades.

With the closing of most community dumps in the early 1970s, two landfills were permitted by the North Coast Regional Water Quality Control Board (NCRWQCB) and the County Health Department to accept municipal and solid waste for disposal from Humboldt County residents. With the permitting of the Table Bluff Landfill and the Cummings Road Landfill in the 1970s, most non-tribal solid waste generated in Humboldt County was disposed into these two local landfills.

Local Landfills

Cummings Road Landfill. Located two miles southeast of Eureka, the 33-acre Cummings Road Landfill was active as an open-air refuse disposal from 1933 to 1969. In 1972 the site was permitted as a Class III MSW (municipal solid waste) landfill, and operated by Eureka

Garbage Company. Municipal solid waste was received primarily from the communities of Arcata, Eureka, and surrounding unincorporated communities, until the closure of the Table Bluff Landfill in 1979. After 1979, municipal solid waste from Fortuna, Ferndale, Rio Dell and surrounding southern Humboldt communities was also transported and disposed at the Cummings Road Landfill.

Faced with diminishing capacity and a corrective action order by the NCRWQCB, the landfill was slated for closure in 1998. In 1999 the Humboldt Waste Management Authority (HWMA) was formed, and purchased the landfill to develop necessary engineering and design, perform the construction cap closure (the "cap" placed over the landfill site to keep water out and prevent the leaching of contaminants) and conduct 30 years of post-closure maintenance and monitoring. Construction closure of the Cummings Road Landfill was completed in October 2015, and closure certification is pending from the Humboldt County Local Enforcement Agency, State of California's CalRecycle and the NCRWQCB. The NCRWQCB issued MRP No. R1-2013-0014 "Monitoring and Reporting Program for HWMA Cummings Road Landfill".

Table Bluff Landfill. Located on property owned by the County of Humboldt along Hookton Road, Loleta near South Humboldt Bay, the Table Bluff Landfill operated from the 1930s as an informal gully dump, open dump, burn dump, sewage dump and landfill, and collected wastes from the communities of Loleta, Ferndale, Fortuna and surrounding communities until 1979. The site was capped and closed, and is regularly monitored as part of the post-closure monitoring activities performed by the Humboldt County Public Works Department. The NCRWQCB issued MRP No. 79-101 "Monitoring and Reporting Program for the County of Humboldt Table Bluff Solid Waste Disposal Site".

Replacement of the Cummings Road Landfill. With the closure of the Table Bluff Landfill, and pending closure of Cummings Road Landfill in the mid-1990s, community leaders began discussions in earnest to identify solid waste disposal options for Humboldt County and all its communities. The County of Humboldt formed a task force and conducted an extensive municipal landfill siting study in the mid-1990s to locate a replacement site for the Cummings Road Landfill. While the task force identified some potentially feasible sites for further study and potential expansion opportunities at the Cummings Road site, it determined that it was more cost effective to export waste to an established site.

In 1997 the Humboldt County Waste Management Authority (HCWMA), a Joint Powers Authority (JPA), was initially formed to provide a countywide and coordinated approach to the economical coordination of solid waste management and disposal services. Original JPA members included Humboldt County and the cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna and Rio Dell (Trinidad was not included for unknown reasons). The HCWMA was legally dissolved in June 1999 following the separation of the City of Fortuna from the organization, which then transferred HCWMA's assets to the newly formed Humboldt Waste Management Authority (HWMA). The new JPA members include Humboldt County and the cities of Arcata, Blue Lake, Eureka, Ferndale, Rio Dell, and Trinidad. HWMA manages contracts with solid waste disposal companies and coordinates the disposal of waste collected within the boundaries of member jurisdictions. In addition, HWMA manages waste reduction programs on behalf of Humboldt County.

HWMA owns and operates the Hawthorne Street Transfer Station (HSTS), the Eureka Recycling Center and the Cummings Road Landfill. Member agencies direct their respective franchise solid waste haulers to HSTS, or to one of HWMA's contracted satellite facilities, to dispose of the solid waste. HWMA manages contracts for the transportation and disposal of member

agency solid waste to out of the area landfill(s). In addition, HWMA manages waste reduction programs on behalf of its member agencies and operates a variety of collection and diversion programs.

However, not all solid waste generated in Humboldt County flows through the HSTS. Several smaller, privately owned transfer stations provide solid waste disposal for cities and the general public, or construction and demolition debris processing and transfer services for contractors and the general public. Solid waste received by these facilities is also transported to and disposed of at out-of-area landfills. Solid waste is collected by commercial curbside collection companies (not available in all areas), self-hauled by generators to rural container sites or transfer stations, or direct hauled to out-of-area landfills.

Franchise Haulers. 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
Garberville/Redway
Blue Lake/Fieldbrook
Greater Arcata Area
Greater Eureka Area
Holmes/Redcrest
McKinleyville
Weott/Meyers Flat
Willow Creek

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).

Self-Haul. Humboldt residents and businesses have the option to self-haul solid waste to permitted transfer stations and container sites located in several areas of Humboldt County.

Direct Haul. Some large volume contractors direct haul solid waste to out-of-area landfills, bypassing local transfer stations. Waste volume is reported to the originating jurisdiction by the receiving landfill.

Rural Container Sites. The County Public Works Department contracts for the operation of ten sites where residents in rural communities may dispose of household solid waste at noticed days and times. Material is disposed into 40-yard roll-off bins that are then hauled to a designated transfer station. Container sites include: Orleans-Willow Creek, Orick, Redwood Valley, Petrolia, Fruitland, Blocksburg, Shelter Cove, Whitethorn, and Alderpoint.

The Humboldt County Public Works Department contracts with companies to operate and maintain the rural container sites. Contracted operators include: Humboldt Sanitation (northern Humboldt) and Eel River Disposal (southern Humboldt).

Transfer Stations and Processing Facilities

Humboldt Waste Management Authority (Eureka). HWMA owns and operates the large volume HSTS. The Eureka Community Recycling Center exists at the same location.

HWMA is responsible for the transportation of approximately 80% 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 certified CA Redemption Value (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 CA Redemption Value (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 general 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 CA Redemption Value (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 general 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 (see below).

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.

Out-of-area landfills

Solid waste from Humboldt County is largely 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.

HWMA manages the transport of member agency solid waste from the 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. Kernen Construction uses the same hauler to take their residual waste to Potrero Hills.

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.

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.

Integrated Waste Management Plan

Pursuant to the California Integrated Waste Management Act of 1989, the State has mandated a 50 percent reduction in the rate of solid waste directed to the landfill by 2000 for all municipal solid waste, and established a statewide diversion 75% goal by 2020 for all municipal solid waste. To encourage the increase in diversion of solid waste from landfills, the California Integrated Waste Management Act also required that each jurisdiction prepare a local Integrated Waste Management Plan (IWMP) that evaluates recycling programs, purchasing of recycled products, and waste minimization.

The County has prepared and adopted an IWMP, consistent with the Integrated Waste Management Act. The IWMP addresses source reduction and recycling, household hazardous waste, and countywide landfill capacity needs. Solid waste generation in

Humboldt County has been reduced by over half between the years 1990 to 2014, decreasing from 168,575 to 75,467.33 annual tons. The unincorporated area disposed of approximately 33,570.18 tons of solid waste in 2014, approximately 2.6 pounds per person per day. The 2014 waste diversion rate for the unincorporated area of Humboldt County is 79%, according to the most recent Jurisdiction Profile published by the California Department of Resources Recycling and Recovery (CalRecycle).

Illegal Dumping

Illegal dumping occurs throughout Humboldt County. The County Public Health Branch and the Code Enforcement Unit respond to complaints regarding illegal dumping. Countywide dumping complaints range from approximately 100 to 200 per year and include nuisance roadside garbage dumps, illegal disposal sites, sharps/needle dumps, and abandoned appliances or vehicles on abandoned roadsides. Disposal costs for illegally dumped material is covered, in part, by a portion of HWMA's waste management fee (aka disposal fee) to off-set costs incurred by public agencies and non-profit organizations for cleaning up illegal dump sites. Humboldt County Code, Title V, Health and Safety, Division 2, Solid Waste and Source Separated Materials, establishes fines and possible jail time for dumping-related offenses.

3.3.2 Utilities and Service Systems - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on utilities and service systems if it would:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
b) 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.
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
d) Have insufficient water supplies available to serve the project from existing entitlements and resources.
e) 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.
f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
g) Not comply with federal, state, and local statutes and regulations related to solid waste.

Items "a", "b" (with respect to wastewater), and "e" are discussed together Impact 3.3.3.1, Wastewater Services. Items "b" (with respect to water supply) and "d" are discussed as Impact 3.3.3.2, Water Supply. Item "c" is discussed in Impact 3.3.3.3, New Storm Water Drainage Facilities as well as in Chapter 8, Hydrology, as part of Impact 4.8.2.4. Items "f" and "g" are discussed as part of Impact 3.3.3.4, Solid Waste Disposal.

3.3.3 Utilities and Services -Impacts and Mitigation Measures

Impact 3.3.3.1. Wastewater Services

Population growth during the General Plan Update planning period could exceed wastewater treatment requirements, result in a determination by the wastewater treatment provider that it has inadequate capacity, or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

This impact analysis addresses items "a," "b," and "e" of the significance standards listed Appendix G of the CEQA Guidelines as provided in Section 3.3.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
b) 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.
e) 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.

Wastewater disposal within urbanized areas is primarily accomplished by sewers and sewage treatment plants. In rural areas, wastewater is disposed of by individual onsite wastewater systems. Each of these systems of waste disposal present potential impacts to the environment, including potential health hazards to the population and possible water quality impacts. The use of septic systems resulting from implementation of the General Plan Update is analyzed in Impact 3.8.3.4, Septic Suitability, in the Geology and Soils section of this EIR.

Implementation of the proposed General Plan Update would result in additional development that would generate wastewater. The increased generation of wastewater could cause a need for additional wastewater collection and treatment capacity, the development of which would be required to be consistent with permits issued by the North Coast Regional Water Quality Control Board (NCRWQCB). Development of additional capacity is expected to have potentially significant impacts as discussed below.

The Community Infrastructure and Services Technical Report serves as the basis for the evaluation of wastewater capacity. The data presented in to Table ES-1, Summary of infrastructure capacity limitations within the County, and Section 7.0, Wastewater Systems, has been updated by the Humboldt County Planning and Building Department with input from service providers obtained in connection with the Humboldt County Housing Element Update and General Plan Update.

In instances where capacity related wastewater system improvement projects are known, the EIR describes those proposed projects. Where new development would exceed current capacity and there are no planned improvements, the following paragraphs provide a general discussion of the circumstances and the potential environmental effects that could result. In general, wastewater system improvement projects include the following components:

Wastewater projects are typically located at or adjacent to existing facilities. The acreage required for the projects varies depending on the type of treatment process, planned capacity

of the improvement, and the improvement type. Some projects may not require changes to a wastewater treatment plant footprint (e.g., City of Ferndale Wastewater Treatment Facility, State Clearinghouse No. 2006062115) while larger projects may be over 100 acres (e.g., City of Rio Dell Wastewater Reuse Project State Clearinghouse Number 2007062006).

Based on the EIRs for recently proposed wastewater treatment projects (see previous paragraph), potentially significant impacts may include: light and glare; visual character; loss of agricultural resources; construction related air quality impacts; disturbances to riparian vegetation; disturbances to threatened or endangered species; accidental disturbance of cultural resources; potential erosion; exposure to geologic hazards; release or disturbance of hazardous materials during construction; construction related traffic.

Potential environmental impacts will vary based on the type, size, and location of the wastewater treatment plant as well as the natural resources and population density in the area. While the effects of each improvement project will vary, the discussion above describes the general nature of impacts that can be expected and the likelihood that feasible mitigation measures will be available to reduce or avoid those impacts. The Garberville Sanitary District recently reconstructed its wastewater treatment plant and replaced some of its collection system (Garberville Sanitary District Treatment Plant Improvement, Mitigated Negative Declaration, 2005, SCH No. 2005062051), and was able to mitigate all environmental impacts to a less than significant level.

Table 3.3-7 identifies projected growth in housing units in 2028 and the existing and currently available connections for each wastewater system serving the unincorporated area, based on the Community Infrastructure and Services Technical Report, Section 7, Wastewater Service.

Table 3.3-7. Projected New Housing Units in 2028 by Wastewater Service Provider

Service Provider	*Connections*		*Housing Units 2028*
	Existing	*Currently Available*	
1-South Fork Eel River Planning Watershed			
Garberville SD	353	180	3
Miranda CSD	*110*	*59*	25
Redway CSD	*735*	*0*	74
Weott CSD	*134*	*151*	3
2-Lower Eel River Planning Watershed			
Loleta CSD	*260*	*0*	*10*
Palmer Creek CSD	*154*	*0*	*33*
Scotia CSD	*295*	*0*	*0*
9-Cape Mendocino Planning Watershed			
RID (Shelter Cove)	*430*	*273*	*131*
11-Mad River Planning Watershed			
Fieldbrook Glendale CSD	*166*	80-100	*71*
McKinleyville CSD	5,267	*781*	*229*
12-Eureka Plain Planning Watershed			
Humboldt CSD	6,285	2,689	*642*

Service Provider	Connections		Housing Units 2028
	Existing	Currently Available	
Manila CSD	*449*	*495*	*79*

Source: Community Infrastructure and Services Technical Report, 2008, Humboldt County Planning and Building, 2016.

The following is an analysis of the capacity of existing wastewater systems to accommodate projected growth at the peak of the General Plan Update planning period, the year 2028.

Impacts That Are Less Than Significant

Table 3.3-7. Projected New Housing Units in 2028 by Wastewater Service Provider summarizes the estimated wastewater treatment capacity for each system serving the unincorporated area (see Utilities and Service Systems -Environmental Setting, Municipal Water and Wastewater Service for detail regarding each system) and compares that capacity to the projected growth within the system service area at the peak of the General Plan Update planning period, the year 2028 For the following six wastewater service providers, projected growth during the planning period would not exceed wastewater treatment capacity or requirements or result in significant environmental effects associated with the construction of new wastewater treatment facilities or expansion of existing facilities.

Miranda CSD. Approximately 25 housing units are projected to be developed within Miranda by 2028, which is less than half of the 59 additional connections that are estimated to be available.

Garberville SD. Approximately three housing units are projected to be developed within Garberville by 2028, which is fraction of the 180 additional connections that are estimated to be available.

Weott CSD. The Weott CSD is estimated to have the capacity for up to 151 additional sewer connections. Approximately three additional housing units are projected to be developed within the Weott CSD service area during General Plan Update planning period.

RID No. 1 (Shelter Cove). The RID No. 1 is estimated to have the capacity for approximately 286 additional sewer connections. Approximately 131 additional housing units are projected to be developed within the RID No. 1 sewer service area during General Plan Update planning period.

Humboldt CSD. Humboldt CSD's share of the Elk River WWTP capacity is about 2,689 additional equivalent dwelling units. Approximately 642 additional housing units are projected to be developed within the Humboldt HCSD sewer service area during General Plan Update planning period.

Manila CSD. The Manila CSD is estimated to have the capacity for approximately 485 additional sewer connections. Approximately 79 additional housing units are projected to be developed within Manila CSD during General Plan Update planning period. Given that projected housing growth is less than 20 percent of available sewer capacity, wastewater treatment requirements would not be exceeded and new wastewater treatment facilities or expansion of existing facilities would likely not be required.

Impacts That Are Potentially Significant

For the following six wastewater service providers, projected growth during the planning period would likely exceed wastewater treatment requirements and may result in significant

environmental effects associated with the construction of new wastewater treatment facilities or expansion of existing facilities.

Fieldbrook-Glendale CSD (Glendale Area). The Fieldbrook Glendale CSD contract with the City of Arcata could accommodate approximately 80 to 100 additional housing units in the Glendale area, based on metered wastewater flow. Approximately 71 additional housing units are projected to be developed within the Glendale area during General Plan Update planning period. The projected housing growth is less than the available wastewater capacity based on the equivalent dwelling unit range of 80-100 additional units of capacity. However, the remaining contract capacity is based on flow and there is no guarantee that the projected growth of 71 units can be accommodated under the current contract with the City of Arcata. As a result, wastewater treatment requirements may be exceeded and new wastewater treatment facilities or expansion of existing facilities may be required.

McKinleyville CSD. Growth of approximately 229 additional housing units is projected to occur within the McKinleyville CSD at the population peak of General Plan Update planning period, 2028. The McKinleyville CSD is carrying out upgrades to its wastewater treatment plant that are intended to address the needs for the facility through the year 2030. Collection system capacity is limited to a combined total of 781 total equivalent dwelling units by three gravity trunk lines (north, middle, south) that convey wastewater from the east side of U.S. 101 to west where the WWMF is located. Given that projected housing growth is approximately one third of the constrained capacity of the sewer collection system available sewer capacity, wastewater treatment requirements would not likely be exceeded and new wastewater treatment facilities or expansion of existing facilities would likely not be required. However, the capacity of the wastewater system varies by location with McKinleyville and it is possible that growth during the General Plan Update planning period would trigger the need for significant collection system improvements. Recommended improvements to the collection system network include installing parallel pipe networks adjacent to each main line in these areas. Additional improvements are recommended at the system lift stations. Total costs for the proposed collection system upgrades were estimated to be $3.4M. The central gravity main that crosses Highway 101 is planned for upgrade within the next 5 years, but as of yet no funding is appropriated. The southern gravity main is not planned for improvement at this time and no funding is available. As a result, new wastewater treatment facilities or expansion of existing facilities may be required.

Loleta CSD. The Loleta CSD is operating under a cease and desist order, which prohibits additional influent from new or increased connections. Therefore, the ten new housing units that are projected to be developed in Loleta during the planning period would exceed wastewater treatment requirements and may result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Palmer Creek CSD. The Palmer Creek CSD is at or near its contracted limit for wastewater flows with the City of Fortuna. This contract may need to be amended to allow additional development within the District. Approximately 33 additional housing units are projected to be developed within the Palmer Creek CSD service area during General Plan Update planning period. Therefore, the projected growth during the planning period may exceed wastewater treatment requirements and may result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Redway CSD. The Redway CSD wastewater collection and treatment system is at or near capacity according to the Redway CSD Water and Wastewater Systems Capacity Analysis,

WWE 2014, and thus any new growth that would result in connections to the Redway CSD wastewater system could result in potentially significant impacts. Approximately 74 housing units are projected to be developed within Redway by 2028. Therefore, the projected level of development during the planning period may exceed wastewater treatment requirements, or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Scotia CSD. No new additional housing units are projected to be developed within the Scotia CSD sewer service area during General Plan Update planning period; however, given the extensive commercial and industrial land available within the District, other development may occur during the General Plan Update planning period that could generate wastewater. The precise capacity of the wastewater treatment plant is unknown and available information indicates that substantial improvements to the plant may be required to reduce flood hazards as well as to meet current and anticipated treatment standards. Therefore, potential development during the planning period may exceed wastewater treatment requirements, or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Analysis of Relevant General Plan Update Policies

The Community Infrastructure and Services Element of the General Plan Update was developed to provide policies and programs to ensure service capacity, including wastewater capacity, keeps pace with development. If it is not feasible to increase capacity, several policies summarized below would ensure that approved development is limited to available permitted capacity.

Policy IS-P1, Coordination with Service Providers, requires that the County cooperate with service providers, including wastewater system operators, to identify system needs and service limitations, secure funding, and implement infrastructure and public service projects consistent with the General Plan Update and capital improvement plans. Policy IS-P4, Requirements for Discretionary Development, requires that the County assess service needs associated with discretionary development greater than a single family home and/or second unit relative to local standards as well as state and federal regulations and only approve development where service can be adequately provided, or evidence in the record supports a finding that approval will not adversely impacts health, welfare, and safety or plans to provide infrastructure or services to the community. Policies IS-P8, Infrastructure and Services Capacity, and IS-P9, Capacity of Facilities and Land Use Decisions, require that the County monitor wastewater service capacity in coordination with service providers. These policies direct the County evaluate wastewater capacity and in order to determine adequacy for land uses. IS-P19, Water and Wastewater System Capital Improvement Programs, indicates that the County would support the efforts of service providers to develop and maintain capital improvement programs for construction of water and wastewater systems

Standard IS-S2, Service Inadequacies and Development Limitations, requires the County to request formal notices of capacity limitations within Urban Development Areas (areas served by public wastewater systems) and to reflect such limitations in land use and permitting decisions. Standard IS-S6, Water and Wastewater Service Commitment for Proposed Development, would require that the County receive written approval from the service provider prior to final discretionary development approval. In addition, Land Use Element Growth Planning Standard GP-S7, Required Findings for Urban Expansion, requires that the expansion of Urban Development Areas include the evaluation of sewer availability and include a finding that sewer systems demonstrate current or expansion capacity to serve the proposed addition.

The analysis above indicates that six wastewater systems could accommodate development projected to occur during the General Plan planning period, and six would need improved to expanded capacity or to meet wastewater treatment requirements. As a result, the proposed General Plan would result in the need, or facilitate the need, for additional wastewater collection, treatment, and disposal facilities.

Provision of adequate wastewater system capacity is the responsibility of service providers that are not under the jurisdiction of the County. These agencies are organized in various ways and generally operate to maintain their systems and facilities to serve existing users in a manner consistent with their permit from the NCRWQCB, and to accommodate planned development consistent with the General Plan within their jurisdictional boundaries when feasible. Although many providers are planning future improvements and expansions to accommodate growth projected as a result of the General Plan, the feasibility of providing service will be affected by the cost of improvements required, funding limitations, permitting, and environmental considerations.

Wastewater improvement projects would be carried out by the appropriate service provider, which would also conduct the required project-specific environmental analysis. If the wastewater improvement project could have potentially significant environmental effects that could not feasibly be mitigated to a less than significant level, an EIR would be prepared. The above-listed General Plan Update policies would direct the County to work cooperatively with the service provider to plan and implement the project in conformance with this plan.

The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded wastewater facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new discretionary development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Conservation and Open Space Element, Biological Resources Section of the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects with a federal nexus to avoid impacts to critical habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites; WR-P8, Erosion and Sediment Discharge; and WR-P36, Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize

Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8, Short-Term Noise Performance Standards (Lmax)).

- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).
- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measures during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

Buildout of the General Plan Update would exceed the capacity of some wastewater service providers. However, Policies IS-P8, Infrastructure and Services Capacity, and IS-P9, Capacity of Facilities and Land Use Decisions, require that the County coordinate with service providers and monitor wastewater service capacity in order to determine adequacy for land uses, and Standard IS-S2, Service Inadequacies and Development Limitations, requires the County to request formal notices of capacity limitations within areas served by public wastewater systems and to reflect such limitations in land use and permitting decisions. In combination with the other General Plan Update policies and measures referenced above, these policies would reduce potential impacts relating to exceedances of wastewater capacity to a less than significant level.

The nature and location of any potential new or expanded wastewater facilities, such as collection, treatment, and disposal facilities, that could be constructed by a service provider and that do not trigger a County land use approval by the County is not known. As a result, the potential impacts of these facilities are too speculative for evaluation in this first tier programmatic EIR. If potential new or expanded wastewater facilities are within the responsibility and jurisdiction of other public agencies, and not the County, appropriate mitigation can and should be adopted by such other agency, or other findings made after certification of an EIR in accordance with CEQA.

If the new or expanded wastewater were to be constructed as part of a subdivision map approval or other process requiring County discretionary land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through appropriate site-specific mitigation measures and the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, impacts relating to new wastewater treatment facilities or expansion of existing facilities triggered by the General Plan would be **less than significant**.

Mitigation

None required.

Impact 3.3.3.2. Water Supply

Population growth during the General Plan Update planning period could result in insufficient water supplies from existing entitlements and resources, or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

This impact analysis addresses items "b", and "d" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.3.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

b) 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.
d) Have insufficient water supplies available to serve the project from existing entitlements and resources.

Demand for water would continue to increase with the population and job growth projected to occur during the General Plan Update planning period, and the need for additional water supply, treatment, and distribution facilities would also increase. Future residential development is encouraged within Urban Development and Community Plan Areas, and such development would obtain water services from special districts or public utilities providing service to each respective area. Areas outside of such boundaries would require individual onsite water sources.

Areas served by the Humboldt Bay Municipal Water District (HBMWD) include the Fieldbrook-Glendale, Humboldt, Manila, and McKinleyville Community Service Districts, the Jacoby Creek County Water District (through the City of Arcata), the Town of Samoa, and the cities of Arcata, Blue Lake, and Eureka. A significant portion of planned development is expected to be concentrated in existing urban areas that are supplied by the HBMWD. HBMWD can deliver up to 20 million gallons daily. Growth projected to occur by 2040 in areas served by HBMWD is not expected to require significant expansion of existing water supply facilities.

Table 3.3-8, Projected Housing Units (2028) by Water Service Provider, lists the existing and available water connection for each of the municipal water provides in the County and the housing units that are projected to be developed within the service boundaries of each provider at the DOF projected population peak in 2028.

Table 3.3-8. Projected Housing Units (2028) by Water Service Provider.

Provider	*Connections*		*Housing Units 2028*
	Existing	*Currently Available*	
1-South Fork Eel River Planning Watershed			
Benbow Water Company	134	50	17
Briceland CSD	26	0	0
Garberville SD	396	25	3
Miranda CSD	143	77	25
Phillipsville CSD	65	0	0
Redway CSD	735	0	74
Weott CSD	140	Unknown	3

Provider	Connections		Housing Units 2028
	Existing	Currently Available	
2-Lower Eel River Planning Watershed			
Loleta CSD	258	56	10
Palmer Creek CSD	128	59	33
Riverside CSD	98	60	0
Scotia CSD	315	1,117	0
3-Middle Main Eel River Planning Watershed			
Alderpoint CWD	79	66	0
4-Lower Klamath River Planning Watershed			
Orleans CSD	150	0	2
6-Lower Trinity River Planning Watershed			
Willow Creek CSD	976	609	10
7-Van Duzen River Planning Watershed			
Hydesville CWD	457	319	37
8-Redwood Creek River Planning Watershed			
Orick CSD	140	37	3
9-Cape Mendocino Planning Watershed			
RID (Shelter Cove)	470	520	133
10-Trinidad Planning Watershed			
Big Lagoon CSD	36	0	0
Westhaven CSD	233	0	0
11-Mad River Planning Watershed			
Fieldbrook Glendale CSD	584	Not limiting (HBMWD)	76
McKinleyville CSD	5,517	Not limiting (HBMWD)	229
12-Eureka Plain Planning Watershed			
Humboldt CSD	7,698	Not limiting (HBMWD)	649
Jacoby Creek CWD	569	Not limiting (HBMWD)	1
Manila CSD	347	Not limiting (HBMWD)	79

Source: Community Infrastructure and Services Technical Report, 2008; Humboldt County Planning and Building, 2016.

The following is a discussion of each of the public water systems in Humboldt County and its ability to accommodate projected peak housing development during the General Plan Update planning period. It is assumed that each of the systems would need to make necessary improvements to distribution and storage facilities to serve new development. The discussion below focuses on the degree to which projected peak housing development during the General Plan Update planning period would trigger the need for capacity related improvements such as new treatment facilities or additional water supplies.

In instances where capacity related water improvement projects are known, this EIR describes those proposed projects in the discussion of each provider. Where projected peak housing development during the General Plan Update planning period would exceed current capacity

and there are no planned improvements, the paragraphs below provide a general discussion of the circumstances and the potential environmental effects that could result from projects to increase capacity. In general, facilities required to serve projected population growth and development could include additional wells or infiltration galleries, water treatment systems, pipelines, pumps, tanks or other reservoirs, and distribution facilities. As water reuse increases, facilities that recycle used water may also be appropriate, depending on the needs and circumstances of each water service provider. The site-specific impacts of these facilities cannot be determined until such facilities are proposed.

Capacity related water infrastructure projects are typically located at or adjacent to existing facilities. The acreage required for the projects varies depending on the type and capacity of water system and the specific improvement. Some projects may be as small as a few hundred square feet (e.g., a new pump shed or expanding a filter facility) while larger projects may be several acres (e.g., a completely new treatment facility or infiltration gallery.

Based on CEQA environmental review documents prepared for recently proposed water improvement projects (in particular, the Initial Study and Environmental Checklist for Garberville Sanitary District Water System Improvement Project Mitigated Negative Declaration, State Clearing House Number 2009122069), potentially significant impacts may include impacts to scenic vistas, visual character of the site and its surroundings, light and glare; air quality impacts such as construction related PM10 emissions, and exposure of sensitive receptors to substantial pollutant concentrations; adverse effects on candidate, sensitive, or special status species or migratory fish or wildlife species or migratory wildlife corridors, or impacts to riparian habitat, federally protected wetlands or other sensitive natural community; substantial adverse changes in the significance of a cultural resource or disturbances to human remains; substantial soil erosion or the loss of topsoil; substantially alter existing drainage patterns or contribute to excessive runoff; and substantial temporary or periodic increase in ambient noise levels. For these recent projects the environmental review identified feasible mitigation measures for all impacts, and identified no significant and unavoidable impacts. While the effects of each improvement project will vary, the discussion above describes the general nature of impacts that can be expected and the likelihood that feasible mitigation measures will be available to reduce or avoid those impacts.

The following is an analysis of the capacity of existing water systems to accommodate projected growth at the peak of the General Plan Update planning period, 2028.

Impacts That Are Less Than Significant

For the following 14 water service providers, projected growth during the planning period would not result in insufficient water supplies available to serve planned development from existing entitlements and resources or require or result in the construction of new water treatment facilities or expansion of existing facilities.

Benbow Water Company. The Benbow Water Company recently made water treatment improvements and states that system designs were intended to accommodate the existing population plus an additional 50 connections. Approximately 17 new housing units are projected to be constructed within the Benbow Water Company service area by the projected 2028 population peak of the General Plan planning period. This level of development is would consume approximately 34 percent of the remaining capacity of the water system. Therefore, because the Benbow Water Company water system has capacity to accommodate the projected level of growth, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Garberville SD. The Garberville SD recently completed water intake and treatment related improvements. Approximately three new housing units are projected to be constructed within the Garberville SD service area by the projected 2028 population peak of the General Plan planning period. This level of development could be accommodated by the current capacity of the water system. Therefore, because the Garberville SD water system has capacity to accommodate the projected level of growth, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Miranda CSD. The Miranda CSD is estimated to have the capacity for approximately 77 additional water service connections. Approximately 25 additional housing units are projected to be developed within the Miranda CSD service area during General Plan Update planning period. This level of development is would consume approximately 30 percent of the remaining capacity of the water system. Therefore, because the Miranda CSD water system has capacity to accommodate the projected level of growth, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Phillipsville CSD. A recent grant-funded improvement project brought the Phillipsville CSD water system into compliance with safe drinking water regulations and was sized to adequately serve existing development and expected increases in demand. However, no new growth is projected to occur within the Phillipsville CSD service area during the General Plan Update planning period. Therefore, because the General Plan Update is not projected to trigger the need for additional water supply entitlements or the construction of new treatment facilities, impacts would be less than significant.

Weott CSD. Approximately three additional housing units are projected to be developed within the Weott CSD service area during General Plan Update planning period. Weott CSD evaluated the capacity of the water system to accommodate three additional housing units and found that "given that (the Weott CSD is) currently only use 50% of our projected available source water and 75% of our estimated treatment plant production capacity, even during the times of maximum demand, I think it safe to infer that WCSD would therefore be able to supply adequate water to the community even with the edition of three new residences." Therefore, , impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Loleta CSD. The Loleta CSD water system improvements were sized serve existing development and current planned development. Approximately 10 additional housing units are projected to be developed within the Loleta CSD service area during General Plan Update planning period, Given the water system was sized to serve current planned development and 10 additional units represents a modest increase in development of the next 20 years, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Scotia CSD. The new Scotia CSD is estimated to have the equivalent capacity of 1,117 available residential water connections. No new residential units are projected to be developed within Scotia during the General Plan Update planning period, although reuse of industrial land could result in additional water demand. Therefore, because the General Plan Update is not projected to trigger the need for additional water supply entitlements or the construction of new treatment facilities, impacts would be less than significant.

Alderpoint CWD. Based on Alderpoint CWD Water Capacity Study (LACO, 2016), the ACWD can provide service to the entire community at buildout (66 new housing units)." No additional housing units are projected to be developed in Alderpoint at the projected population peak in

2028. Therefore, because the Alderpoint CWD water system has capacity to accommodate additional development and no additional development is projected to occur, impacts relating to water supply and the construction of new treatment facilities would be less than significant.

Willow Creek CSD. The Willow Creek CSD is estimated to have the capacity for approximately 609 additional water service connections. Approximately 10 additional housing units are projected to be developed within the Willow Creek CSD service area during General Plan Update planning period. Given the water system was sized to serve many times the number of units projected to be developed during the planning period, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Hydesville CWD. The Hydesville CWD is estimated to have the capacity for approximately 319 additional water service connections. Approximately 37 additional housing units are projected to be developed within the Hydesville CWD service area during General Plan Update planning period. Given the water system was sized to serve approximately ten times the number of units, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Orick CSD. The Orick CSD has the capacity for approximately 37 additional dwelling units. Approximately three additional housing units are projected to be developed within the Orick CSD service area during General Plan Update planning period. Given the water system has current capacity to serve approximately ten times the number of units, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

RID No. 1 (Shelter Cove Area). RID No. 1 has approximately 520 units of remaining capacity, until such time that it identifies and develops additional sources of water. Approximately 133 additional housing units are projected to be developed within the RID No. 1 service area during General Plan Update planning period. Given the water system was sized to serve approximately four times the number of units, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant.

Riverside CSD. The Riverside CSD is estimated to have the capacity for approximately 60 additional water service connections. No additional housing units are projected to be developed in the area served by the Riverside CSD at the projected population peak in 2028. Therefore, because the Riverside CSD water system has capacity to accommodate additional development and no additional development is projected to occur, impacts relating to water supply and the construction of new treatment facilities would be less than significant.

Humboldt Bay Municipal Water District Service Area. Approximately 1,021 additional housing units are projected to be developed within the HBMWD service area during General Plan Update planning period (housing growth within the Fieldbrook-Glendale CSD, Humboldt CSD, Jacoby Creek CWD, Manila CSD, and the McKinleyville CSD). According to Table 4-2 of the HBMWD's 2015 UWMP (2015 UWMP), average domestic demand for water is expected to rise to 12,490 acre feet per year in the year 2035. Serving all of its customers (seven wholesale customers and approximately 200 retail customers) will require less than 15 percent of its 84,000 acre feet per year entitlement in 20 years. Section 7.2 of the HBMWD UWMP 2010 also shows that the Mad River and Ruth Lake can provide sufficient water supply to the seven retail water suppliers, HBMWD retail customers, industrial customers, and system losses during normal, single dry, and multiple dry years between now and 2035

As indicated above, the HBMWD has adequate supply to support development that is projected to occur during the planning period of the General Plan Update. Maintenance and improvements to production, treatment, and transmission facilities will likely be required, but the scope and scale of such improvements are not known at this time. Therefore, impacts relating to additional water supply entitlements or the construction of new treatment facilities would be less than significant

Impacts That Are Potentially Significant

For the following five water service providers, projected growth during the planning period would likely exceed water supplies available to serve planned development from existing entitlements and resources or require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Briceland CSD. Due to issues relating to water supply, the treatment system, and storage capacity, any new growth that would result in connections to the Briceland CSD water system would result in potentially significant impacts. No new growth is projected to occur within the Briceland CSD service area during the General Plan Update planning period. However, even though the General Plan Update is not projected to trigger the need for additional water supply entitlements or the construction of new treatment facilities, any new residential or commercial development consistent with the General Plan during the planning period could result in impacts. Therefore, impacts are considered potentially significant.

Big Lagoon CSD. The Big Lagoon 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 could competently evaluate. No new growth is projected to occur within the Big Lagoon CSD service area during the General Plan Update planning period. However, even though the General Plan Update is not projected to trigger the need for additional water supply entitlements or the construction of new treatment facilities, any new residential or commercial development consistent with the General Plan during the planning period could result in impacts. Therefore, impacts are considered potentially significant.

Redway CSD. According to the Water and Wastewater Capacity Analysis (Water Works Engineers, 2014), the water treatment system is currently at capacity, and the water storage and distribution system is already struggling to meet the demands of existing connections. These issues should be addressed before substantial additional service connections are made.

Approximately 74 additional housing units are projected to be developed within the Redway CSD service area during General Plan Update planning period, which significantly exceeds the currently available water system capacity. Therefore, the proposed General Plan Update would allow development levels in excess of water capacity. The Redway CSD does not have specific plans or funding to expand the capacity of its water system, beyond the current project. To the extent that proposed future development would exceed the water supply available to the Redway CSD, additional water rights would need to be secured.

The Water Resources Control Board has declared the Eel River as a "fully appropriated" stream system, finding that the supply of water in the stream system is being fully applied to existing beneficial uses and no water remains available for appropriation. If additional water entitlements are required it is not likely that new surface water rights could be secured within the Eel River system. Additional water supply capacity for Redway would need to be derived from groundwater supplies that are not hydraulically connected with surface water or through

conservation by existing users. The Redway CSD would need to manage its system to reduce consumption or install groundwater wells as there is no indication that water would be available for diversion. Therefore, because the General Plan Update would potentially trigger the need for additional water supply entitlements and the construction of new treatment facilities for the Redway CSD, impacts would be potentially significant.

Orleans CSD. Due to issues relating to the Orleans water treatment system, any new growth that would result in new connections to the Orleans CSD water system would result in potentially significant impacts. Approximately three additional housing units are projected to be developed within the Orleans CSD service area during General Plan Update planning period, which would exceed water treatment capacity. The Orleans CSD does not have specific plans or funding to expand the capacity of its water system. Therefore, impacts relating to additional water supply entitlements or the construction of new treatment facilities are considered potentially significant.

Westhaven CSD. There are no available water connections in Westhaven due to inadequate water supply. No new growth is projected to occur within the Westhaven CSD service area during the General Plan Update planning period. However, even though the General Plan Update is not projected to trigger the need for additional water supply entitlements or the construction of new treatment facilities, any new residential or commercial development consistent with the General Plan during the planning period could result in impacts. Therefore, impacts are considered potentially significant.

Rural Water Use. Existing development outside of Urban Development Areas and Water Service Areas uses wells and surface water diversions and onsite treatment for domestic water and irrigation purposes. In most cases, new development in such areas, whether discretionary or ministerial, would be responsible for establishing individual onsite water systems using wells permitted by the Environmental Health Branch, Land Use Program or surface water diversions, which would require Lake and Streambed Alteration Agreements from the State Department of Fish and Wildlife.

Table 3.3-9, Projected Growth (2028) by Type of Water Service, identifies the number of new housing units within each planning watershed that would be expected to use onsite water systems or would be expected to connect to public water systems.

Table 3.3-9, Projected Growth (2028) by Type of Water Service

	Water System Type		
Planning Watershed	Public	On Site	Total
1-South Fork Eel	122	29	151
2-Lower Eel	43	11	54
3-Middle Main Eel	0	16	16
4-Lower Klamath	2	10	12
5-South Fork Trinity	0	1	1
6-Lower Trinity	10	1	11
7-Van Duzen	37	24	61
8-Redwood Creek	3	7	10
9-Cape Mendocino	133	19	151
10-Trinidad	1	8	8

Planning Watershed	Water System Type		
	Public	On Site	Total
11-Mad River	304	34	339
12-Eureka Plain	730	176	906
Total	**1,384**	**337**	**1,721**

Approximately 337 housing units are projected to be constructed in areas outside of the boundaries of water service providers during the General Plan Update planning period. Housing units in these areas would be expected to use onsite water systems: either wells or new surface water diversions. Approximately 40 percent of these units are projected to be located within the Eel, Klamath, Mad, Trinity, Van Duzen River systems, which are fully appropriated.

New rural development, except those with riparian rights, would not be permitted to take water from fully appropriated streams. New rural development in these areas would need to establish wells from groundwater sources that are not hydraulically connected to surface water, or take water from a spring or stream that flows within the property and is not hydraulically connected to the downstream system.

Housing unit growth projected to occur in areas outside of the boundaries of water service providers during the General Plan Update planning period would result in increased demand for water. The fully appropriated stream systems identified above may have insufficient supplies to meet that demand. Although detailed analyses of water availability have not been completed, it is assumed that other stream systems and groundwater basins may also have insufficient supplies to meet future demand from rural development at the maximum allowable density. Therefore, impacts relating to additional water supply entitlements are considered potentially significant.

Analysis of Relevant General Plan Update Policies

The Community Infrastructure and Services Element of the General Plan Update was developed to provide policies and programs to ensure service capacity, including water supply and system capacity, keeps pace with development. If it is not feasible to increase capacity, several policies summarized below would ensure that approved development is limited to available permitted capacity.

Policy IS-P1, Coordination with Service Providers, requires that the County cooperate with service providers, including water system operators, to establish standards and identify system needs consistent with the General Plan Update. Policy IS-P4, Requirements for Discretionary Development, requires that the County assess service needs associated with discretionary development relative to local standards as well as state and federal regulations and only approve development where service can be adequately provided. Policies IS-P8, Infrastructure and Services Capacity, and IS-P9, Capacity of Facilities and Land Use Decisions, require that the County monitor water system capacity in coordination with service providers. These policies limit the likelihood that development consistent with the General Plan Update would not exceed water supply and treatment requirements of the California State Water Resources Control Board Division of Drinking Water. IS-P19, Water and Wastewater System Capital Improvement Programs, indicates that the County would support the efforts of service providers to develop and maintain capital improvement programs for construction of water systems

Policy IS-P9, Capacity of Facilities and Land Use Decisions, requires that the County coordinate with wastewater service providers to determine adequacy for proposed land uses and

discretionary development, and that the density, timing, and design of new development be consistent with service capacity. Standard IS-S2, Service Inadequacies and Development Limitations, requires that the County coordinate with service providers and limit development when infrastructure inadequacies dictate such actions. Standard IS-S6, Water and Wastewater Service Commitment for Proposed Development, would require that the County receive written approval from the service provider prior to final development approval. In addition, Land Use Element Growth Planning Standard GP-S7, Required Findings for Urban Expansion, requires that the expansion of Urban Development Areas include the evaluation of water availability and include a finding that water systems demonstrate current or expansion capacity to serve the proposed addition.

The Water Resources Element includes a number of policies, standards, and implementation measures to ensure that public water systems are able to provide adequate water supply to meet long-term community needs in a manner that protects other beneficial uses and the natural environment. Policy WR-P1, Sustainable Management, would ensure that land use decisions conserve, enhance, and manage water resources on a sustainable basis to assure sufficient clean water for beneficial uses and future generations. Policy WR-P2, Protection for Existing Surface and Groundwater Uses, would direct the County to consider and mitigate impacts to existing beneficial water uses during discretionary review of land use permits that are not served by municipal water supplies. Policies WR-P3, Proactive Protections, WR-P4, Critical Municipal Water Supply Areas, and WR-P5, Critical Watershed Areas, together focus land use planning and regulatory attention on watersheds where supply is limited and threats to water supply and quality could have significant effects on the availability of water or the environment. Policy WR-P4 would require that the Board designate Critical Water Supply Areas if cumulative impacts from land uses within the area have the potential to significantly impact the quality or quantity of municipal water supplies. Policy WR-P5, Critical Watershed Areas, would require that the Board designate watersheds as Critical Watersheds if cumulative impacts from land uses within the area have the potential to create significant environmental impacts to threatened or endangered species, including Coho salmon or steelhead habitat.

Regarding public water supplies, Policies WR-P21, Sufficient Water Supply; WR-P22, Critical Water Supply Areas; and WR-P23, Conservation and Re-use Strategy, would link the County and local water service providers in planning to provide water for development and the protection of critical water supply areas. Policy WR-P21, Sufficient Water Supply, direct the County to support the actions and facilities needed by public water systems to supply the water demands projected in this Plan. Policy WR-P22, Critical Water Supply Areas, would complement Policy WR-P4, and encourage the coordination between the County and public water systems in the designation and regulation of water resources in Critical Water Supply areas. Policy WR-P23, Conservation and Re-use Strategy, would encourage the County to promote the use of water conservation and re-use as a strategy to lower the cost, minimize energy consumption, and maximize the overall efficiency and capacity of public water systems.

The General Plan Update also contains policies intended to address water supply associated with rural development. For the zoning and subdivision of all areas designated for rural residential development, the Rural Land Chapter of the Land Use Element contains Rural Land (RL) Policy RL-P2, Water Withdrawal, which requires an assessment of the cumulative impacts of water withdrawal from surface and groundwater sources. Standard RL-S4, Subdivision Standards, establishes standards for rural subdivision, including the use of current standards of the Division of Environmental Health as proof of adequate water for domestic use.

Policy WR-P6, Subdivisions, would require that subdivision approvals are conditioned upon evidence of sufficient water supply during drought conditions to meet the projected demand

associated with the proposed subdivision. The Water Resources Element also contains Policy WR-Px1, Requirements for Water Storage in Flow Impaired Watersheds, which requires that new development not served by public water to install water storage tanks capable of providing 100 percent of the water storage volume and enter into a forbearance agreement eliminating water withdrawals during low-flow conditions. This policy would provide significant protections for streams during low flow periods

The analysis above indicates that, although a number of systems would accommodate development projected to occur development within the General Plan planning period, many water systems serving the unincorporated area would need to be expanded to serve the projected development during the planning period. As a result, the proposed General Plan would result in the need, or facilitate the need, for additional water supply, treatment, and distribution systems. Provision of adequate water system capacity in Urban Development Areas of Humboldt County is the responsibility of service providers that are not under the jurisdiction of the County. Although providers are planning future improvements and expansions to accommodate growth projected as a result of the General Plan, the feasibility of providing service to projected growth into the future due will be affected by the costs of improvements required, funding limitations, permitting, and environmental considerations.

The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded water facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports

consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).

- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

Residential, industrial, commercial and agricultural growth projected to occur during the General Plan Update planning period would place additional demands on Humboldt County's water resources. The General Plan Update seeks to focus growth in areas where it can be most easily accommodated. Communities and districts would need to plan for increased growth to accommodate additional housing allowed under the plan. Under the General Plan Update, system upgrades and infrastructure expansions required for new development would be the responsibility of new development and the local service provider. The construction of new or expanded facilities could result in potentially significant impacts. The above-listed General Plan Update policies direct the County to work cooperatively with water service providers to plan and implement infrastructure projects consistent with this plan.

The nature and location of potential new or expanded water treatment, storage, or transmission facilities that would be constructed by another agency and that do not trigger a County land use approval is not known. As a result, the potential impacts of these facilities are too speculative for evaluation. Such potential water-related facilities are within the responsibility and jurisdiction of other public agencies, and not the County, and appropriate mitigations can and should be adopted by such other agency.

If the new or expanded water-related facilities were to be constructed as part of a subdivision or other process requiring County land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, General Plan Update impacts relating to need for new or expanded water treatment, storage, or transmission facilities triggered by the General Plan would be less than significant.

However, growth projected to occur during the General Plan Update planning period could result in significant impacts to surface and groundwater supplies. To address this, the General Plan Update provides protections for critical watersheds and groundwater basins within them, and assesses potential cumulative impacts to water supply as part rural subdivisions and zone reclassifications. While the proposed General Plan Update policies and programs would reduce some of the adverse impacts effects to water resources from discretionary development, protections would be focused on critical watersheds and would not address ministerial development, which may not address all potential water supply impacts of the General Plan Update. Although most of the County's watersheds are listed on the 303(d) list of impaired water bodies, there is no guarantee that the full extent of each watershed will be designated as critical watersheds. Because the General Plan Update water supply protections are focused on designated critical watersheds, the impacts of ministerial permits to water supply may not be addressed. As a result, this would be a **potentially significant impact**.

Mitigation

Mitigation 3.3.3.2.a. The following implementation measure shall be added to the Water Resources Element to ensure that water supply and availability is fully characterized within each watershed where such information is not adequately known:

> ***WR-IMx. Water Supply Evaluation and Monitoring***. *Conduct watershed level evaluations within two years after the adoption of the General Plan Update to determine the long term surface and groundwater supply, including seasonal, average, dry year, and multiple dry year supplies, and beneficial uses of water to determine an estimate of the quantity of water available for future development. Work with water and wastewater related special districts, regulators, and other appropriate organizations to monitor watershed conditions.*

Level of Significance after Mitigation

Policies contained in the Community Infrastructure and Services Element, Water Resources Element and Land Use Element would limit development potential if it is found that it would exceed the available water supply and capacity of water systems and ensure that it is not approved. However, potential impacts could still result from the approval of ministerial development. The proposed mitigations would reduce cumulative water supply impacts that could result from development that does not trigger discretionary review.

The impacts to water supply and availability of planned development and the effectiveness of related mitigation cannot be definitively determined or tested at this time; therefore, with implementation of this mitigation measure, but not to a less-than-significant level. Therefore, this impact would remain **significant and unavoidable.**

Impact 3.3.3.3. New Storm Water Drainage Facilities

Development of impervious surfaces, relating to structures, roads, and other improvements to accommodate projected population growth during the General Plan Update planning period could result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

This impact analysis addresses item "c" of the significance standards listed Appendix G of the CEQA Guidelines as provided in Section 3.3.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

> c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Population growth during the General Plan Update planning period would result in the construction of additional rooftops, parking lots, roads, driveways, and compacted soils, which would increase the amount of impervious surfaces and thereby increase stormwater runoff. An increase in the amount of impervious surfaces could result in levels of runoff that would exceed the capacity of existing stormwater drainage systems, requiring the construction of new or expanded facilities. Such facilities may include surface and underground conveyance systems, and detention/retention facilities, etc.

A significant amount of development in the unincorporated area is located in rural areas and uses natural drainage courses rather than constructed stormwater drainage facilities. Urbanized areas such as the McKinleyville and Eureka Community Plan areas use a range of constructed stormwater drainage facilities that are managed by the County Public Works Department. Facilities include curbs, gutters, drop-inlets, culverts, underground drainage conduit, and detention basins. Development projects in the County must comply with the County subdivision regulations and applicable stormwater standards in order to receive project approval. Humboldt County Public Works requires that all discretionary projects demonstrate that they would provide stormwater facilities that are sized appropriately to accommodate runoff flows and comply with applicable standards.

Drainage facilities in the unincorporated area are usually developed as part of subdivision or roadway projects and analyzed pursuant to CEQA as part of the larger project. There have not been any improvement projects that consist solely of drainage facilities that have been constructed recently. As a result, there are no local drainage related CEQA documents that can be used for reference.

Storm drainage projects are typically located within or adjacent to roadways and stream channels. The area required for the projects varies depending on the type of drainage improvement, planned capacity of the improvement, and the improvement type. Some projects may require detention or retention facilities, which would significantly increase the area of the drainage improvement. The site specific impacts of these facilities cannot be determined until the time that the facilities are proposed. Typical impacts would likely include construction related noise, traffic, dust, grading and water pollution. Storm drainage infrastructure may be located near or discharge to streams, ditches, or other surface water channels, and could therefore cause impacts to wetlands, water resources, fish and wildlife, erosion, and stream flow may also occur.

In general, potential environmental impacts from drainage projects may include: loss of agricultural resources; construction related air quality impacts; disturbances to wetland areas and riparian vegetation; disturbances to threatened or endangered species; accidental disturbance of cultural resources potential erosion; exposure to geologic hazards; release or disturbance of hazardous materials during construction; and construction related traffic.

Analysis of Relevant General Plan Update Policies

General Plan Update policies require that projects be designed to minimize peak storm water runoff, encourage the use low impact development standards that employ techniques to minimize storm water runoff, and to utilize natural drainage ways. Community Infrastructure and Services Element Policy IS-P4, Requirements for Discretionary Development, requires that new development provide new facilities, such as storm drainage facilities, to meet service standards adopted by the Board of Supervisors, if existing facilities are not adequate. Policy IS-P 9, Capacity of Facilities and Land Use Decisions, further requires the County to evaluate the capacity of drainage facilities to determine adequacy for new development. IS-P16, Drainage and Flood Control, specifies that the County shall maintain a plan for drainage and flood control to guide capital improvements and maintenance. In addition, Implementation Measure IS-IM13, Drainage and Flood Control Plan, directs the County to prepare a countywide Drainage and Flood Control Plan that inventories existing facilities and prioritizes improvement needs.

Water Resources Element policies and standards specifically address alteration of existing drainage patterns through development which could result in flooding on or off site. Policy WR-P30, Natural Stormwater Drainage Courses, requires that natural drainage courses be retained

and protected from development impacts on flow rates or water quality. Policy WR-P31, Downstream Peak Flows, requires that post-development peak flow discharges mimic natural flows to watercourses and avoid impacts to Beneficial Uses of Water. Policy WR-P36, Erosion and Sediment Control Measures, requires that appropriate sediment control measures be incorporated into storm drainage design and improvements. Policy WR-P38, Storm Drainage Impact Reduction, requires that storm drainage development guidelines be developed with incentives to encourage the use of low-impact development standards to reduce the quantity and increase the quality of storm water runoff from new developments. The County's intent to develop and utilize low impact development standards is further echoed in Implementation Measure WR-IM26, Low Impact Development Methods, requires discretionary projects to utilize best management practices for Low Impact Development to meet surface water run-off standards.

The proposed General Plan would result in the need for additional stormwater drainage facilities. Provision of adequate stormwater system capacity in Urban Development Areas of Humboldt County is the responsibility of Humboldt County and several other service providers that are not under the jurisdiction of the County. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded storm drainage facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).

- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

The development of future land uses to accommodate growth during the General Plan Update planning period could exceed the capacity of storm drainage facilities and result in the need for the construction of new storm water drainage facilities or expansion of existing facilities. The proposed General Plan Update policies described above, lessen potential impacts from storm drainage facility construction and would require that new development mitigate impacts and be timed to match the capacity of storm drainage facilities. In particular, IS-P16, Drainage and Flood Control, specifies a countywide plan for drainage and flood improvements as well as maintenance, including the establishment of long term sustainable funding sources. Therefore General Plan Update impacts relating the exceedance of storm drainage facility capacity or the construction of new or the expansion of existing storm water drainage facilities would be **less than significant.**

Mitigation

None required

Impact 3.3.3.4. Solid Waste Disposal

Population and employment growth during the General Plan Update planning period would have a significant impact if it would generate levels of solid waste that would exceed permitted landfill capacity, or would not comply with federal, state, and local statutes and regulations related to solid waste.

This impact analysis addresses items "f" and "g" of the significance standards listed Appendix G of the CEQA Guidelines as provided in Section 3.3.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

f) Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
g) Not comply with federal, state, and local statutes and regulations related to solid waste.

The 1,721 new residential units and 2,440 commercial and industrial jobs that are projected to occur during the General Plan Update planning period would generate additional solid waste. The increased solid waste could create a need for new or expanded solid waste facilities such as transfer stations, materials recovery facilities, and landfill capacity. In addition, the increased generation of solid waste could result in non-compliance with State waste diversion requirements.

In 2015, households and businesses disposed of approximately 35,069.29 tons of solid waste. According to online CalRecycle Jurisdiction Reports (http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx) the Annual Per Capita Disposal Rate (PPD) Per Resident for the Humboldt County unincorporated area is 2.7 pounds per capita and 13.6 pounds per employee. The unincorporated area is projected to grow by

approximately 3,728 persons by 2028 (the projected population peak) and 2,440 employees by 2040 (projected peak employment growth during the planning period). Solid waste disposal would be expected to increase by 10,067 pounds per day or (3,728 x 2.700476 - 10,067 – note the per capita solid waste factor accounts for all waste generation) or over 1,800 tons per year (3.67 million pounds per year). This would result in an increase of just over 5% in waste disposal for the Humboldt County unincorporated area during the General Plan Update planning period.

The HWMA was created to provide economical coordination of solid waste management and disposal services and manages contracts for the transport of the solid waste for disposal at either the Anderson Landfill in Shasta County, or Dry Creek Landfill near Medford, Oregon. The Anderson Landfill has a daily permitted disposal of about 1,018 tons/day, and a remaining capacity of about eight million tons. The Anderson Landfill is not expected to reach capacity until 2036. The Dry Creek Landfill has a remaining capacity of about 50 million tons without additional site expansion. It is anticipated that the Dry Creek Landfill could provide disposal capacity for its current service area, including Humboldt County, for another 75 to 100 years.

The 2006 Humboldt County IWMP Five-Year Review states that there have been no changes in the permitted solid waste disposal capacity or in the quantities of waste disposed in the preceding five years that would warrant a revision to the IWMP Siting Element. The Five-Year Review indicates that jurisdictions within Humboldt County have either met their mandated diversion rate or are making a good faith effort to do so. In particular, the unincorporated area has met its mandated diversion rate. In addition, the Five-Year Review determined that the conclusions of the November 1993 siting study that was prepared pursuant to the IWMP Siting Element remain the same: the best option for the County long-term capacity assurance strategy remains the export of solid waste outside the County. The Five-year Review also found that the County continues to have greater than 15 years of solid waste disposal capacity.

Humboldt County has not identified the need for additional solid waste facilities and is therefore not planning for additional container sites or transfer stations to serve future development during the planning period of the General Plan Update, or the next 20 years. During the prior 20 years the County reduced the number of container sites in the rural areas and did not increase the number of transfer stations in the urban areas. However, in southern Humboldt County the volume of disposed solid waste has been steadily accelerating as evidenced by a significant spike in tonnages logged in by the Redway Transfer Station over the last five years. To address this, the County is currently designing a higher capacity facility to replace the existing Redway Transfer Station building. Humboldt Sanitation Company, which operates the transfer station in McKinleyville, plans to expand the capacity of its facility and make improvements to raise floor elevations above the 100-year floodplain. Humboldt County is working to make curbside recycling widely available within the unincorporated area and is beginning to plan relating a material recovery facility in order to further reduce solid waste intended for the landfill.

Projected levels of development during the General Plan planning period are not expected to result in the need for new transfer stations or container sites. However, some transfer stations may experience increases in use consistent with Department of Finance projected population growth, development within cities, or other factors resulting in the need for expanded or new facilities may be required. If new facilities were to be constructed they could result in potentially significant impacts. In general, potential environmental impacts from the construction of or expansion to existing solid waste facilities may include: loss of agricultural resources; construction related air quality impacts; disturbances to riparian vegetation; disturbances to threatened or endangered species; accidental disturbance of cultural resources potential erosion; exposure to geologic hazards; release or disturbance of hazardous materials during construction; construction related traffic. While the effects of each improvement project will vary, the

discussion above describes the general nature of impacts that can be expected and the likelihood that feasible mitigation measures will be available to reduce or avoid those impacts.

Analysis of Relevant General Plan Update Policies

The Waste Management Chapter of the Conservation and Open Space Element recognizes and supports a coordinated IWMP and Humboldt Waste Management Authority approach as well as waste reduction objectives and programs. The Waste Management Chapter also addresses new solid waste facility siting standards, in the event that it was determined that it was more advantageous than the current program of exporting.

The General Plan Update would remain consistent with the IWMP. Policy WM-P7, Countywide Integrated Waste Management Plan (IWMP), directs the County to abide by and participate in revisions to the IWMP. The General Plan Update further strengthens the County's commitment to local and state regulations relating to solid waste management through Implementation Measure WM-IM2, Solid Waste Management Authority, which requires the County to continue to participate in the Humboldt Waste Management Authority. Policy WM-Px, Support for Waste Diversion and Recycling Operations, recognizes the importance of siting waste diversion and recycling operations within the County to attain state mandated waste reduction goals and directs the County to balance this public interest with the health, safety and welfare of those living in the vicinity of proposed facilities.

The General Plan Update maintains successful solid waste reduction programs. Waste Management Chapter Policy WM-P1, Solid Waste Reduction Programs, encourages countywide waste reduction programs and establishes criteria for selecting and prioritizing waste reduction programs; however this policy does not establish a mandatory requirement and cannot be relied upon to fully lessen solid waste impacts. Policy WM-P2, Support Successful Programs, supports existing waste management and diversion programs that are successful and new programs that are established according to the criteria in WM-P1. Implementation Measure WM-IM4, Support for Waste Diversion and Recycling Operations, requires that the County provide technical and permitting assistance to waste diversion activities, particularly those that reduce illegal disposal activities; for example, junk yards and car recycling operations.

The General Plan Update encourages joint solid waste planning. Policies WM-P4, Information Sharing, and P5, Administrative Structure, favor unified and integrated waste management strategies coordinated between the County and cities. Policy WM-P3, Joint Facility Planning, encourages joint planning for solid waste facilities. Standards, WM S1, Solid Waste Facility Permit, WM-S2, Solid Waste Disposal Facility Conformance with Integrated Waste Management Plan (IWMP), WM-S3, Solid Waste Facility Consistency with State and Federal Laws, and WM-S4, Land Use Permits for Solid Waste Facilities, together require that the siting of a new solid waste facility occur consistent with all local, state, and federal regulations.

The proposed General Plan could result in the need for expanded or additional solid waste facilities, such as recycling centers, container sites, and transfer stations. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded storm drainage facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).

- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).
- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

These policies and their implementing programs would encourage a reduction in the amount of solid waste generated by land uses and development and encourage programs to achieve the maximum possible waste diversion rates and to reduce waste flows. Disposal capacity remains above the IWMP 15-year capacity siting requirements with an estimated 26 year capacity (as of 2010) at the Anderson Landfill and up to 100 years at the Dry Creek Landfill. Therefore, the projected peak population growth during the General Plan Update planning period would be served by a landfill with sufficient permitted capacity to accommodate solid waste disposal needs during and beyond the planning period. Therefore, the proposed County General Plan Update would be served by a landfill with sufficient permitted capacity to accommodate solid waste disposal needs during and beyond the planning period and resulting impacts would be **less than significant.**

Mitigation

None required

3.4 Public Services

This section addresses the provision of public services within the county, including fire protection, law enforcement, and education, and an assessment of the potential impacts to these services resulting from the implementation of the proposed General Plan Update land use diagram and policies. The analysis of water, wastewater and solid waste can be found in Section 3.3, Utilities and Services, and wildland fire prevention and suppression and hazardous materials handling and disposal are discussed in Section 3.7 Hazards and Hazardous Materials.

The General Plan Update covers development in the unincorporated areas of the County and the Environmental Impact Report (EIR) focuses on impacts related to that development. However, fire protection and school jurisdictional boundaries in many cases include cities and unincorporated areas. Therefore, this EIR discusses these public services in both the unincorporated County and in cities where it is useful for understanding the existing setting, school enrollment and service levels, or potential facility needs. Existing public services conditions are described in the *Community Infrastructure & Services Technical Report*, July 2008 (Appendix Q), and the *Building Communities Report*, 2002 (Appendix C). These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka or for download at http://humboldtgov.org/571/Background-Reports, are incorporated by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.4.1 Public Services - Environmental and Regulatory Setting

Fire Protection

Fire protection services include more than just fire suppression. 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 general public assistance responses. As a result, the General Plan Update defines fire protection to include all of the aforementioned services.

Local fire departments are formed specifically to provide community fire protection services within their jurisdictional boundaries or response area. 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 by all-volunteers. The smallest communities have the most limited resources, often relying on community contributions and used equipment to provide service.

There are 39 fire departments 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) that may be established pursuant to Sections 14825 through 14860 of the California Health and Safety Code.

Since the initiation of the General Plan Update process three volunteer fire companies have formed as fire protection districts. In addition, the Scotia Volunteer Fire Department is part of the new Scotia Community Services District, which was approved by the voters in 2011. For the purposes of this EIR, all of the fire department types listed above may be referred to together as "fire departments" or "fire service providers" and the various special district types that provide fire protection services may be referred to collectively as "districts" or "fire related districts." The City of Trinidad has its own fire department and there are four state, federal, or tribal fire departments that provide seasonal wildland fire protection that also work in cooperation with local fire departments.

In responding to emergencies, local fire departments work closely with law enforcement, public utilities, and ambulance service providers. Fire departments and ambulance companies are dispatched to medical calls simultaneously. In most cases, fire departments arrive on scene prior to the ambulance and are expected to stabilize the patient, gather vital signs, and prepare the patient for transport to the hospital.

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.

Ambulance service within Humboldt County is provided by the following:

- Arcata/ Mad River Ambulance. Serves the coastal area from Manila north to the Del Norte County line and east along S.R. 299 to Lord Ellis Summit (Service Area I).
- Hoopa Ambulance. Serves eastern portion of the County primarily north of S.R. 299 (Service Area II).
- City Ambulance, of Eureka. Serves the Eureka area and most of the area south of Eureka to the Mendocino County line and east to the Trinity County line (Service Areas III - V).
- Southern Trinity Area Rescue (STAR). STAR is a volunteer division of Southern Trinity Health Services, a non-profit community health center, and serves a portion the eastern County along S.R. 36 east of the Larabee area.

The California Department of Forestry and Fire Protection (CAL FIRE) has responsibilities for wildland fire protection and resource management. See Section 3.7, Hazards and Hazardous Materials, for a comprehensive discussion of wildland fire responsibilities within Humboldt County. CAL FIRE is responsible for suppressing wild land fires within the State Responsibility Area (SRA) (generally defined as areas classified by the State Board of Forestry containing forest and range habitat) and provides structural fire protection services only to CSA 4, Trinidad area, under contract to Humboldt County. 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. It is not the state's responsibility to provide fire protection services to any building or structure located within state responsibility area unless the Department of Forestry and Fire Protection has entered into a cooperative agreement with a local agency for those purposes

pursuant to Section 4142 of the Public Resources Code (Public Resources Code 4136). However, CAL FIRE may provide, when available and to the extent that it does not require additional funds, rescue, first aid, and other emergency services to the public in state responsibility areas (Public Resources Code 4114).

The following table (Table 3.4-1, Fire Protection Services in Humboldt County) contains information regarding each of the fire departments that provide service within Humboldt County.

Table 3.4-1. Geography of Fire Protection Services Delivery in Humboldt County.

Name of Organization	Local Govt. Agency	Department Type	Area in Square Miles		Number of Fire Stations	General Areas Protected
			District	Non-District Response Area		
Lower Klamath Planning Watershed						
Orleans Community Services District	No	Volunteer	0	30.7	1	Orleans/ Somes Bar
Yurok Volunteer Fire Company	No	Volunteer	N/A	33.6	2	Weitchpec, Johnsons
Lower Trinity Planning Watershed						
Hoopa Volunteer Fire Company	No	Volunteer	N/A	138	1	Hoopa
Willow Creek Fire Protection District	Yes	Volunteer	6.6	20	1	Willow Creek, S.R. 299
Redwood Creek Planning Watershed						
Orick Community Services District	Yes	Volunteer	2.3	121.5	1	Orick, Bald Hills, Johnson's Road
Trinidad Planning Watershed						
County Service Area No. 4 (Cal Fire)	Yes	Career	23.5	3.7	1	Westhaven, Big Lagoon, Freshwater Lagoon
Trinidad Fire Department	Yes	Volunteer	0.6	1.6	1	Trinidad
Westhaven Volunteer Fire Department	No	Volunteer	N/A	2.7	1	Westhaven
Mad River Planning Watershed						
Blue Lake Fire Protection District	Yes	Combination Career-Volunteer	13.6	107.5	1	Blue Lake, Glendale, S.R. 299

Name of Organization	Local Govt. Agency	Department Type	Area in Square Miles		Number of Fire Stations	General Areas Protected
			District	Non-District Response Area		
Fieldbrook-Glendale Community Services District	Yes	Volunteer	14.4	0	1	Fieldbrook
Ruth Lake Community Services District[1]	Yes	Volunteer	27.37	0	1	Dinsmore
Eureka Plain Planning Watershed						
Arcata Fire Protection District	Yes	Combination Career-Volunteer	62	5.9	3	Arcata, Essex, Jacoby Creek, Manila McKinleyville
Humboldt Bay Fire (Humboldt #1 Protection District and the City of Eureka Fire Department)	Yes	Career	55.8	1	5	Myrtletown, Bayview, Humboldt Hill, Cutten, Freshwater (plus the City of Eureka and College of the Redwoods)
Kneeland Fire Protection District	Yes	Volunteer	37.6	5.9	1	Kneeland, Butler Valley
Samoa Peninsula Fire Protection District	Yes	Volunteer	2.8	0.2	1	Samoa, Fairhaven
Van Duzen Planning Watershed						
Bridgeville Fire Protection District	Yes	Volunteer	193.3	0	1	Bridgeville, Dinsmore
Carlotta Community Services District	Yes	Volunteer	4.4	46.1	1	Carlotta

Name of Organization	Local Govt. Agency	Department Type	Area in Square Miles		Number of Fire Stations	General Areas Protected
			District	Non-District Response Area		
Lower Eel Planning Watershed						
Ferndale Fire Protection District	Yes	Volunteer	44.2	68.3	1	Ferndale, Port Kenyon, Grizzly Bluff, Centerville Wildcat Ridge
Fortuna Fire Protection District	Yes	Combination Career-Volunteer	29.4	0	3	Fortuna, Hydesville, Fernbridge, U.S. 101 from Rio Dell to Fernbridge
Loleta Fire Protection District	Yes	Volunteer	48.9	0	1	Loleta, Table Bluff, Fernbridge, U.S. 101 from CR to Fernbridge
Redcrest Volunteer Fire Company	No	Volunteer	N/A	26	1	Redcrest, Holmes, Pepperwood Avenue of the Giants
Rio Dell Fire Protection District	Yes	Volunteer	4.6	7.1	1	Rio Dell
Scotia Community Services District	Yes	Combination Career-Volunteer	0.75	0.95	1	Scotia, Stafford, Shively
Middle Main Eel Planning Watershed						
Alderpoint Volunteer Fire Company	No	Volunteer	N/A	196.1	1	Alderpoint. Fort Seward, Blocksburg
Fruitland Fire Protection District	Yes	Volunteer	19.8	4.9	1	Fruitland, Eel Rock
Palo Verde Volunteer Fire Company	No	Volunteer	N/A	49.9	1	Palo Verde
South Fork Eel Planning Watershed						
Briceland Volunteer Fire Department	No	Volunteer	43.9	0	1	Briceland

Name of Organization	Local Govt. Agency	Department Type	Area in Square Miles		Number of Fire Stations	General Areas Protected
			District	Non-District Response Area		
Garberville Fire Protection District	Yes	Volunteer	1.1	56.5	1	Garberville, Benbow
Miranda Community Services District	Yes	Volunteer	0.5	24.2	1	Miranda, Avenue of the Giants
Myers Flat Fire Protection District	Yes	Volunteer	0.7	1.5	1	Myers Flat, Avenue of the Giants
Phillipsville Volunteer Fire Company	No	Volunteer	N/A	4.4	1	Phillipsville, Avenue of the Giants
Redway Fire Protection District	Yes	Volunteer	1.1	2.2	1	Redway
Salmon Creek Volunteer Fire Company	No	Volunteer	N/A	31.1	1	Salmon Creek
Sprowel Creek Volunteer Fire Company	No	Volunteer	N/A	2.6	1	Sprowel Creek
Telegraph Ridge Fire Protection District	Yes	Volunteer	36.9	0	1	Ettersburg
Weott Community Services District	Yes	Volunteer	0.5	36.9	1	Weott, Avenue of the Giants
Cape Mendocino Planning Watershed						
Honeydew Volunteer Fire Company	No	Volunteer	N/A	66.5	2	Honeydew
Petrolia Fire Protection District	Yes	Volunteer	11.4	91.7	1	Petrolia, Ocean House
Resort Improvement District No. 1 (Shelter Cove)	Yes	Combination Career-Volunteer	4.8	1.7	1	Shelter Cove

Name of Organization	Local Govt. Agency	Department Type	Area in Square Miles		Number of Fire Stations	General Areas Protected
			District	Non-District Response Area		
Whale Gulch Volunteer Fire Company[3]	No	Volunteer	N/A	9.4	1	Whale Gulch
Whitethorn Fire Protection District	Yes	Volunteer	4.6	19.5	1[4]	Whitethorn, Thorne Junction

[1]The Southern Trinity Volunteer Fire Department is associated with the Ruth Lake Community Services District, which is located primarily in Trinity County with district boundaries that also extend into Humboldt County and include the Dinsmore area. The Southern Trinity VFD is dispatched by the Trinity County Sheriff's Office, including calls for service within the Dinsmore area.

[3]The Whale Gulch Volunteer Fire Company is based in Mendocino County and is dispatched through the Humboldt Fire Dispatch Cooperative to incidents in the southern Chemise Mountain Road area. This area is too far from Shelter Cove for the Resort Improvement District No. 1 supported Shelter Cove Volunteer Fire Department to serve and not accessible by the Whitethorn Fire Protection District.

The table above indicates that of the approximately 1,900 square miles served by local fire departments; nearly 40 percent is located within the jurisdictional boundaries of a local agency. The average response area outside district boundaries for a local agency is over eight times its jurisdictional boundary. Local agencies serve approximately 637 square miles outside of their district boundaries. Volunteer fire companies serve approximately 560 square miles.

Approximately 84 percent of the population of the unincorporated area resides within the boundaries of a fire related district. However, in the areas outside the greater Humboldt Bay area, Trinidad area, and Lower Eel River valley, significant portions of the population reside outside fire related district boundaries.

The importance of fire related districts has increased since the state legislature amended the State Subdivision Map Act in 2013 to require that all subdivisions of parcels located in the State Responsibility Area (SRA) be within the boundaries of a county, city, special district, political subdivision of the state, or another entity that is organized solely to provide fire protection services that is monitored and funded by a county or other public entity (Government Code Section 66474.02). There are approximately 340,000 acres of privately owned property in the County within the SRA that are not located within the boundaries of a fire related district. Consequently, parcels in these areas cannot be subdivided without the provision of structural fire protection services meeting the definition of the Government Code.

Law Enforcement

Law enforcement services within Humboldt County are provided by each of the seven cities within their jurisdictional boundaries, the Hoopa and Yurok Tribe within their respective tribal lands, and the Humboldt County Sheriff's Office provides a variety of public safety services countywide, including court and corrections services and law enforcement services for the unincorporated areas of the County. The California Highway Patrol is responsible for enforcing traffic laws on roadways within the unincorporated areas and on state highways throughout the County.

The Sheriff's Office Operations Bureau is made up of seven units under the command of the Undersheriff. The most visible of these units is the Patrol Unit. Sheriff's Deputies assigned to the Patrol Unit are responsible for responding to emergency calls for service, criminal investigations, and crime prevention through neighborhood and beat patrols. Patrol has one main station in Eureka, substations in Garberville, Willow Creek, and McKinleyville, and four resident deputy posts.

The Sheriff's Office has mutual aid agreements with cities and the California State Highway Patrol. Mutual aid is an agreement between agencies where the agency of jurisdiction can request manpower or resources from allied agencies or agencies within the surrounding areas. These agencies could be local or State agencies.

Response Times. While specific data on response times can be difficult to determine for rural or semi-rural areas, 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. Industry standards recommend five- to ten-minute response times. The cities of Eureka and Arcata have set a standard of a five-minute response to calls for service.

Table 3.4-2 below displays the communities or areas served by Sheriff's sub- stations and average response times for each. Based on anecdotal information provided by the Sheriff's Office, Deputies are capable of responding to calls for service in less than 10 minutes in over half the communities analyzed. In the more rural areas of the County, maximum response times may reach 50 minutes because of longer travel distances, varied topography, available resources, and the location of the Sheriff Deputy on patrol in relation to the incident.

Table 3.4-2. Sheriff's Office Sub-Station Areas Patrolled and Average Response Times.

Station *Maximum Response Times*	**Planning Watersheds and CPAs Patrolled**	**Communities with Response Times 10 Minutes or Less**	**Areas with Response Times Greater than 10 Minutes**
Main Station *30 Minutes Maximum Response Time*	Eureka Plain and Lower Eel and portion of Van Duzen Planning Watersheds Arcata, Avenue of the Giants, Eureka, Fortuna, Freshwater, Hydesville-Carlota, Jacoby Creek and Rio Dell Community Plans; Humboldt Bay, and Eel River Area Plans	Acata South Eureka Myrtletown Indiano la Jacoby Creek Manila Samoa	Bridgeville Fortuna Freshwater Hydesville-Carlotta Loleta Rio Dell Riverside Scotia Redcrest
Northern Area Command Station *40 Minutes Maximum Response Time*	Redwood Creek (Orick area); Trinidad; and Mad River Planning Watersheds Arcata, Blue Lake, McKinleyville, Trinidad-Westhaven Community Plans; Humboldt Bay, McKinleyville, Trinidad, and North Coast Area Plans	Blue Lake Fieldbrook Glendale McKinleyville Trinidad Westhaven	Big Lagoon Orick

Station *Maximum Response Times*	**Planning Watersheds and CPAs Patrolled**	**Communities with Response Times 10 Minutes or Less**	**Areas with Response Times Greater than 10 Minutes**
Garberville Station *50 Minutes Maximum Response Time*	South Fork Eel; Mendocino; Middle Fork Trinity Avenue of the Giants; Garberville-Alderpoint-Redway-Benbow Community Plans; Shelter Cove and South Coast Area Plans	Garberville Redway	Alderpoint Benbow Briceland Miranda Myers Flat Phillipsville Redcrest Shelter Cove Weott
Trinity River Station *45 Minutes Maximum Response Time*	Lower Klamath, Lower Trinity, South Fork Trinity, and eastern portion of Redwood Creek Planning Watersheds. Willow Creek and Orleans Community Planss	Willow Creek	Hoopa Valley Orleans Redwood Valley
Resident Deputy Posts *45 Minutes Maximum Response Time*	Bridgeville, Orick, Orleans, and Shelter Cove	Bridgeville Orick Orleans Shelter Cove	

Source: Community Infrastructure and Services Technical Report.

Public Education

Humboldt County communities are currently served by 32 public school districts. In addition, there are schools operated by the Humboldt County Office of Education and private schools. The largest district in the County in terms of enrollment is the Eureka City Unified School District, which has almost 4,000 students. There are four other districts with enrollments over 1,000 students. Average district enrollment in Humboldt County is approximately 550 students.

From the 1995 to 2010 academic years, California school enrollments rose by 18.5 percent, or 749,778 students. Overall enrollment in Humboldt County K-12 schools declined by 18 percent, or 4,028 students, between the 1995 and 2010 school years (California Department of Education, Educational Demographics Unit, 2008). Losses were equally distributed between kindergarten through eighth grade and high schools. Between 2010 and 2015 enrollment in Humboldt County grew by 437 students, with growth in enrollment concentrated around Humboldt Bay and Fortuna.

Declining enrollment has contributed to the closing of some school sites over the last ten to fifteen years. For example, within the Eureka Unified School District, Marshall Elementary School closed in 2001 and is currently used as part of the high school campus; Worthington Elementary School closed in 2003 and is used for adult education services; and Jefferson Elementary closed in 2006. The Osprey Learning Center in Garberville was closed and moved to the South Fork High School campus in Miranda. During this same period, nine schools opened in Humboldt County, including two new middle schools, one high school, and six other schools, including three community day schools. These school openings were

not triggered by increases in enrollment, but are the result of local preferences for charter schools or other school program needs. Table 3.4-3, School District Enrollment in Humboldt County, provides a listing of School Districts and total district enrollment:

Table 3.4-3. School District Enrollment in Humboldt County 1990-2015.

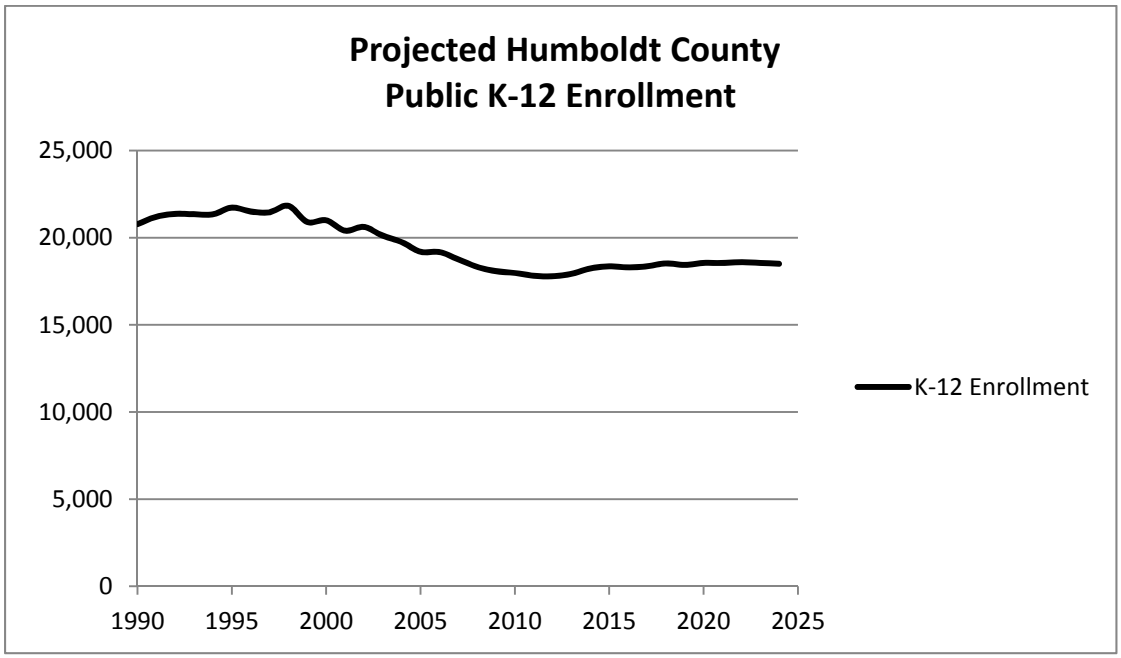
District	Enrollment				Avg. Annual Growth Rate
	1990	2000	2010	2015	
Arcata Elementary	910	899	956	1,067	0.64%
Big Lagoon Union Elementary	57	65	43	23	-3.57%
Blue Lake Union Elementary	355	217	162	175	-2.79%
Bridgeville Elementary	120	68	36	34	-4.92%
Cuddeback Union Elementary	132	137	133	120	-0.38%
Cutten Elementary	576	513	561	605	0.20%
Eureka City Unified	6,121	5,701	3,884	3734	-1.96%
Ferndale Unified	515	524	495	525	0.08%
Fieldbrook Elementary	183	104	127	147	-0.87%
Fortuna Elementary[1]	703	783	685	1374	2.72%
Fortuna Union High	1,417	1,825	1,773	1,134	-0.89%
Freshwater Elementary	333	300	333	318	-0.18%
Garfield Elementary	34	61	61	60	2.30%
Green Point Elementary	21	18	7	10	-2.92%
Humboldt County Schools	313	479	507	441	1.38%
Hydesville Elementary	215	157	155	197	-0.35%
Jacoby Creek Elementary	408	401	439	432	0.23%
Klamath-Trinity Joint Unified	1,257	1,153	1,033	1,073	-0.63%
Kneeland Elementary	51	32	34	25	-2.81%
Loleta Union Elementary	170	326	257	291	2.17%
Maple Creek Elementary	16	18	10	12	-1.14%
Mattole Unified	126	610	956	721	7.23%
McKinleyville Union Elementary	1,511	1,408	1,140	1,156	-1.07%
Northern Humboldt Union High	1,544	2,050	1,607	1,790	0.59%
Orick Elementary	105	57	24	16	-7.25%
Pacific Union Elementary	650	609	508	579	-0.46%
Peninsula Union Elementary	104	88	39	34	-4.37%
Rio Dell Elementary	377	313	311	325	-0.59%
Scotia Union Elementary	267	356	221	222	-0.74%
South Bay Union Elementary	638	526	641	933	1.53%
Southern Humboldt Joint Unified	1,589	1,277	790	800	-2.71%
Trinidad Union Elementary	254	120	185	177	-1.43%
Total	**21,072**	**21,195**	**18,113**	**18,550**	**-0.51%**

1. Includes Rohnerville Elementary District, which was consolidated with Fortuna Elementary District in 2012.
Source: California Department of Education, Humboldt County Office of Education, 2016.

The four largest districts in the County, Eureka City Unified, Northern Humboldt Union High, McKinleyville Union Elementary, and Fortuna Union High, enrolled 7,814 students, or 42 percent of the County's total enrollment, in 2015. The remainder is divided among 28 other school districts.

Figure 3.4-1, Public K–12 and High School Enrollment Projections, shows the California Department of Finance school enrollment projections for Humboldt County to the year 2025. The Department of Finance projects that public school enrollment will increase slightly from 18,355 in the 2015-2016 school year to 18,501 in school year 2024-2025, or a 0.09 percent average annual growth rate. Beyond the year 2025, the California Department of Finance projects that the number of school-age children (ages 5 to 19) in Humboldt County will decrease from 23,242 in 2025 to 21,201 in 2040, or a 9 percent reduction. Based on the expected decline in the number of students, school capacity will likely not be a constraint to future growth. This projection assumes no change in the public school enrollment rate.

Figure 3.4-1. Public K–12 and High School Enrollment Projections.



Source: State of California, Department of Finance, California Public K-12 Graded Enrollment and High School Graduate Projections by County, 2016 Series. Sacramento, California, December 2016.

Property owners and developers are often expected to fund a portion of the cost of new school facilities. The State of California School Facility Program allows K-12 School Districts to apply for funding to buy land, construct new buildings, and modernize or renovate existing buildings. The amount of funding available to a School District is based on a formula that considers the number of students a district expects to enroll that cannot be served in existing facility space. This program requires the State and School Districts to share the cost of facilities. For new construction projects, the cost is shared equally by the state and School Districts. For modernization projects, the state pays 60 percent and School Districts pay 40 percent of the cost. If a School District faces unusual circumstances, it may apply for "hardship" funding from the State to offset its local share of costs.

There are only a few sources of funding for local School Districts to fund their share of the cost of new construction or modernization projects: (1) school general funds or donations; (2) local general obligation bonds; (3) impact fees; or (4) Mello Roos Community Facilities District bond

funds. Aside from school revenue and donations, Humboldt County schools use general obligation bonds and impact fees to fund the local share of school facility projects.

There are six school districts that have implemented fee programs (Ferndale, Fortuna, Hydesville, McKinleyville Union, Pacific Union, and Rohnerville). Impact fees are imposed on new development within the district and are collected at the city and County building permit counters, on behalf of the School District. Other local school districts that require the development of buildings and facilities may need to implement fee programs.

3.4.2 Public Services - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G, Section a. The proposed General Plan Update results in a significant impact on public services if it would:

a) 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, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection, police protection, schools, or other public facilities.

This impact topic is discussed with respect to school facilities in Impact 3.4.3.1, Schools; fire protection facilities in Impact 3.4.3.2, Fire Protection; and law enforcement facilities in Impact 3.4.3.3, Law Enforcement.

3.4.3 Public Services - Impacts and Mitigation Measures

Impact 3.4.3.1. Schools

The proposed General Plan Update would have a significant effect if it would directly result in the need, or facilitates the need, for additional public school buildings, the construction of which could have a potentially significant effect on the environment.

This impact analysis addresses item "a" above, with respect to school facilities, of the significance criteria described in 3.4.2. Based on Appendix G of the CEQA Guidelines,

a) 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, in order to maintain acceptable service ratios or other performance objectives for schools.

Based on projected enrollment and population estimates by the State of California, new school facilities are not expected to be required during the planning period. Total K-12 public school enrollment is expected to increase by 204 students between 2016 and 2025, slightly more than one percent (California Public K–12 Graded Enrollment and High School Graduate Projections by County— 2016 Series, Department of Finance, December 2016). However, public school enrollment in the County declined by 2,701 students between 2000 and 2016, a 13 percent reduction.

The School Districts listed in Table 3.4-3 experienced either no appreciable enrollment growth, or enrollment decline, over the last 15 to 20 years and this trend is expected to continue during the planning period. Although state school enrollment projections are only made to 2025, the California Department of Finance is projecting that the number of school-age children in Humboldt County (ages 5 to 19) will steadily decline between the current year and 2040-a total reduction of 2,812 persons. These data would indicate that school enrollment levels are not likely to increase Countywide, even by 2040. However, some schools may experience increases in enrollment due to local increases in development activity, development within cities, or due to out of district transfers. Also, declines in enrollment or other school facility planning objectives may lead to school closures and result in increased enrollment within certain school facilities. Nonetheless, the slight increase in K-12 enrollment that is projected to occur during a portion of the planning period would likely be accommodated by existing school facilities.

Table 3.4-4, Projected Population Growth within Humboldt County Public School Districts displays the projected peak population within the General Plan Update planning period, projected to occur in 2028, within school district boundaries. Student population projections were calculated by multiplying projected peak population within each school district by the statewide average Student Yield Factors from the Enrollment Certification/ Projection School Facility Program form (SAB 50-01) from the California office of Public School Construction, which are as follows: elementary school district = 0.5 students per dwelling unit; high school district = 0.2 students per dwelling unit; and unified school district = 0.7 students per dwelling unit.

As stated above, the California Department of Finance is projecting that the number of school-age children in Humboldt County will steadily decline between 2000 and 2040. These data would indicate that school enrollment levels are not likely to increase Countywide. As a result, Student Yield Factors from the Enrollment Certification/ Projection School Facility Program form will likely overestimate future enrollment levels.

Table 3.4-4. Projected Peak Enrollment within Humboldt County Public School Districts, 2028.

School District	Projected HH Growth 2028	New K-8 Students	New 9-12 Students	Total New Students
South Bay Union School District	418	209	83	292
Southern Humboldt Joint Unified School District	311	155	62	217
McKinleyville Union School District	230	114	45	159
Cutten School District	225	112	44	156
Eureka Unified School District	158	79	31	110
Arcata School District	120	59	23	82
Blue Lake Union School District	59	29	11	40
Hydesville School District	38	19	7	26
Fortuna Union School District	34	17	6	23
Klamath-Trinity Joint Unified	23	11	4	15
Bridgeville School District	20	10	4	14
Peninsula Union School District	11	5	2	7
Loleta Union School District	11	5	2	7
Mattole Unified School District	7	3	1	4
Jacoby Creek School District	7	3	1	4
Maple Creek School District	7	3	1	4

School District	Projected HH Growth 2028	New K-8 Students	New 9-12 Students	Total New Students
Kneeland School District	5	2	1	3
Trinidad Union School District	5	2	1	3
Ferndale Unified School District	5	2	0	2
Garfield School District	4	2	0	2
Green Point School District	4	1	0	1
Big Lagoon School District	3	1	0	1
Orick School District	3	1	0	1
South Trinity Joint Unified School District	3	1	0	1
Cuddeback Union School District	3	1	0	1
Fieldbrook School District	3	1	0	1
Freshwater School District	2	1	0	1
Scotia Union School District	2	0	0	0
Rio Dell School District	1	0	0	0
Rohnerville School District	1	0	0	0
Pacific Union School District	1	0	0	0
Grand Total	**1,721**	**848**	**329**	**1,177**

Source: Humboldt County Planning and Building, January, 2017.

Projected levels of population growth during the General Plan planning would likely not trigger the need for additional public school facilities. However, some schools may experience increases in enrollment due to local increases in development activity consistent with Department of Finance projected population growth, development within cities, or due to out of district transfers. The precise locations and extent of additional school facilities that may be required at build out of the General Plan land use are not known at this time. Where the growth in enrollment related to population growth during the General Plan Update planning period exceeds current school capacity and there are no planned improvements, this EIR provides a general discussion of the circumstances and the potential environmental effects that could result.

School improvement projects are typically located at or adjacent to existing school facilities. The acreage required for the school expansion projects vary depending on the type of school facility required and the enrollment levels that the facility is projected to accommodate. The area affected by such projects may be as small as 5,000 to 10,000 square feet (e.g., a new classroom) while larger projects could be several acres in area (e.g., new school site). Additional site requirements may include new or expanding parking areas, utility extensions, roadway modifications, or improvements for athletic facilities.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains a series of policies that direct the County to proactively coordinate with service providers, monitor service capacity in relation to planned development, and encourage the establishment of funding mechanisms to provide the infrastructure needed to serve growth during the plan period. If the term "service provider" is interpreted broadly to include schools, the following polices would lessen and potential impact that growth during the plan period may have on school facilities. Policy C-P18, County Feedback to School Districts Regarding Transportation Planning, directs the County to provide feedback to school districts

regarding new school sites, opening closed school sites, and significant changes in attendance levels or hours of operation to give advice on mitigating traffic impacts and promoting multimodal school site access. Policy IS-P1, Coordination with Service Providers, requires the County to work cooperatively with service providers to plan and implement public service projects consistent with this plan. Policy IS-P8, Infrastructure and Services Capacity, requires the County to coordinate with service providers to monitor service and infrastructure capacities in relation to existing and planned demand. In particular Policy IS-P1, Coordination with Service Providers, directs the County to work with service providers to identify and secure funding to accommodate the development potential consistent with this plan.

Although the population of school-age children is declining in the County, there may be areas within the County where the implementation of the proposed General Plan may result in the need, or facilitate the need, for additional public school buildings. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded school facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).
- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of

mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

The State Department of Finance projects that school enrollment will increase by 204 students between 2016 and 2025, and separately projects that population growth within Humboldt County will peak in 2028, and then decline thereafter resulting in a decrease in the absolute number of school age population at the end of the General Plan Update planning period. Notwithstanding projected enrollment declines, Table 3.4-4, Buildout Projected Peak Enrollment Projections within Humboldt County Public School Districts- 2028, shows school enrollment projections during the General Plan Update planning period by school district that is based on a standard student yield factor per household. As a result, there may be areas within the County where the implementation of the proposed General Plan may result in the need, or facilitate the need, for additional public school buildings.

School development projects would be carried out by the school district, which would also conduct its own project-specific environmental assessment. The project would likely not require County land use approval, but would require General Plan conformance review by pursuant to Government Code Section 65402. If the school development project could have potentially significant environmental effects that could not feasibly be mitigated to a less than significant level, an EIR would be prepared. The above-listed General Plan Update policies would direct the County to work cooperatively with the service provider to plan and implement the project in conformance with this plan. The General Plan encourages public agencies to plan for facilities in areas with adequate road, pedestrian, and bicycle circulation and access to appropriate utility services and the County would provide advice on mitigating traffic impacts and promoting multimodal school site access.

The nature and location of any potential new or expanded school facilities that could be constructed by a school district and that do not trigger a County land use approval is not known. As a result, the potential impacts of these facilities are too speculative for evaluation in this first tier programmatic EIR. If potential new or expanded school facilities are within the responsibility and jurisdiction of other public agencies, and not the County, appropriate mitigations can and should be adopted by such other agency, or other findings made after certification of an EIR in accordance with CEQA.

If the new or expanded school facilities were to be constructed as part of a subdivision map approval or other process requiring County discretionary land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through appropriate site-specific mitigation measures and the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, General Plan Update impacts relating to need for new or expanded school facilities triggered by the General Plan would be **less than significant**

Mitigation

None required.

Impact 3.4.3.2. Fire Protection

The proposed General Plan Update would have a significant impact if it would result in the need for new or physically altered fire facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection.

This impact analysis addresses item "a" above, with respect to fire facilities, of the significance criteria described in 3.4.2. Based on Appendix G of the CEQA Guidelines,

a) 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, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection.

Implementation of the General Plan Update would accommodate additional residents, businesses, and other development, which would increase the need for fire protection and emergency services. Fire departments may require additional facilities, equipment, and staff in order to provide adequate levels of service.

Substantial portions of the unincorporated areas are outside of the boundaries of local agencies responsible for fire protection services and 20 to 25 percent of the County's population lives in such areas. Approximately 34 percent of fire related emergency dispatches by the Fortuna CAL FIRE Command Center to local fire departments, not including wildland fires, are for calls for service outside fire district boundaries. Fire related districts do not receive tax related revenue that would be used to support services from areas outside of district boundaries.

Projected growth during the General Plan Update planning period may occur outside of district boundaries, which would exacerbate service delivery and funding problems currently experienced by fire departments. To address this problem, the proposed General Plan Update contains a series of goals, policies, and programs to provide for orderly growth in order to ensure the provision of adequate infrastructure and services, such as fire protection.

As indicated, Humboldt County has established a program to work with fire departments to expand existing boundaries to incorporate all areas that are served by the department into their district boundaries and, where appropriate, to establish districts to facilitate improvements to the capacity of volunteer fire companies. This program is intended to address current district boundary deficiencies and to create a mechanism for departments to establish funding sources to support service levels.

It is estimated that 1,721 housing units will be needed to accommodate the peak population in the unincorporated area in 2028 and 3.1 million square feet of commercial and industrial building to accommodate projected new employment by 2040. Although new construction would be distributed across the unincorporated area, 89 percent of housing units and 92 percent of commercial and industrial square footage are projected to be developed within the more urbanized community plan and coastal zone areas. Almost 60 percent of new housing units are projected to be located within the communities around the Humboldt Bay, including the residential areas of Cutten, Ridgewood, and McKinleyville. Approximately 50 percent of commercial and industrial square footage is projected to be located within the communities around the Humboldt Bay, two-thirds of which would occur in the industrial areas along the Samoa Peninsula and Fields Landing.

Several fire departments are in the process of constructing or planning the construction of new fire facilities to better provide service. The following facilities intend to address current and future service needs.

- **Kneeland FPD.** In the process of constructing a community fire station in the northern part of the District at 6201 Greenwood Heights Drive that will replace a barn that has been used to house fire apparatus. The construction of this fire station would be completed only after the district has secured sufficient funding for new facilities and equipment.
- **Westhaven VFD**. Raising funds to expand its existing fire station to accommodate additional apparatus. The scope and timing of fire station improvements are dependent upon the success of fund raising efforts by the fire department.
- **Briceland VFD.** Acquired land in the center of Briceland to replace its station located east of Briceland. This fire station would be constructed only after the department has secured sufficient funding for new facilities and equipment.
- **Redway FPD.** Identified land within the Meadows Business Park for the development of a new fire station. This fire station would be constructed only after the district has secured sufficient funding for new facilities and equipment.
- **Garberville FPD.** Identified the need for fire stations in the Benbow area and near the Garberville Airport. Both areas are outside the boundaries of the Garberville FPD, but served by the department on a goodwill basis. These new fire stations would be constructed only after they are annexed to the district and the Garberville FPD has secured sufficient funding for new facilities and equipment.

The Ridgewood Village Draft EIR (SCH No. 2007012007) evaluated the potential environmental effects of the proposed fire station along with the other project elements. The Draft EIR identified potentially significant environmental effects associated with the following areas:

- Geology, Stability, and Failure Hazards
- Hydrology and Drainage
- Water Quality, Erosion and Drainage
- Air Quality
- Sensitive Flora and Fauna
- Streams, Wetlands and Riparian Areas
- Traffic, Circulation and Parking
- Utilities and Public Services
- Aesthetics
- Cultural Resources
- Population, Housing, and Employment
- Hazardous Materials
- Noise

The potential environmental effects of the proposed fire station were evaluated with the other Ridgewood Village project elements, such as housing, commercial structures, roads, drainage, and utility systems. Mitigation measures included in the Ridgewood Village Draft EIR reduces project related impacts to a less-than-significant-level for all impact topics except the following:

- **Air Quality.** The project conflicts with the adopted air quality plan, violates air quality standards, and would result in a cumulatively considerable increase of criteria air pollutants and expose sensitive receptors to substantial pollutant concentrations.

- **Traffic, Circulation and Parking.** The project individually, or cumulatively, exceeds the level of service standards.
- **Aesthetics.** The project substantially degrades visual character of project site and surroundings.
- **Population, Housing and Employment.** The project has potential growth- inducing impacts.
- **Noise.** The project results in a temporary and permanent noise sources in excess of General Plan standards.

Based on a comment letter on the Ridgewood Village Draft EIR by Ken Woods, Chief, Humboldt No. 1 FPD, the proposed location for the fire station contained in the Ridgewood Village project description may not be adequate. The Humboldt No. 1 FPD Chief states that a location near the intersection of Ridgewood Boulevard and Home Drive would provide improved fire protection to the project and to the existing areas of the fire district.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains a series of policies that direct the County to proactively coordinate with service providers, monitor service capacity in relation to planned development, and encourage the establishment of funding mechanisms to support services and provide the infrastructure needed to serve the development allowable under the Plan. The discussion in impact topic, Impact 3.4.3.1, above describes how Policy IS-P1, Coordination with Service Providers, and Policy IS P8, Infrastructure and Service Capacity, direct the County to coordinate with service providers, monitor service capacity in relation to planned development, and encourages the establishment of appropriate funding mechanisms to ensure that adequate infrastructure and services are available for new development. In addition, Policy IS-P13, District Boundaries, requires that district boundaries and planning boundaries be compatible with the General Plan and community plans and support the orderly development and timing of infrastructure and services.

Specific to fire protection, General Plan Update Policy IS-P18, Expanded Fire Protection Services, would encourage the expansion of existing special district boundaries, or the formation of a County Service Area with agreements to fund contract fire services, as a means to provide fire protection services to areas outside of fire district boundaries. This policy is intended to address the existing problem of development outside of fire related districts as well as support the implementation of the General Plan Update Land Use Diagram. Standards IS-S4, Subdivisions Outside of Fire District Boundaries, and IS-S5, Other Development Outside of Fire District Boundaries, would require that subdivisions outside of fire district boundaries shall be conditioned to ensure the findings required by Government Code Section 66474.02 can be made and that other development or that record an acknowledgment that no emergency response and fire suppression services are available and must implement required mitigation.

Implementation Measures IS-IM20, Fire Protection Levels of Service, would support the development of levels of service standards that could be used in land use planning and project review. IS-IM21, Standards of Fire Protection Response, would encourage fire departments to conduct standards of response coverage studies to identify and address service needs. IS-IM23, Fire Protection Municipal Service Review, would support the preparation of municipal service reviews by LAFCo to support the preparation of a comprehensive countywide fire protection municipal service review by the Humboldt LAFCo to determine the best approaches to improving levels of service countywide and expand service to areas outside existing fire-related district boundaries.

Safety Element Policies and Implementation Measures are also geared to build capacity and increase cooperation with fire departments. Policy S-P12, Joint Planning and Implementation, would require the County to plan collaboratively with local fire agencies and companies, CAL FIRE, and federal fire organizations on countywide fire prevention and response strategies. Policy S-P20, Fire Service Provider Support, would require the County to make information available to fire service organizations about creating districts, increasing organizational capacity, developing funding streams, and improving Insurance Services Office (ISO) ratings for reduced insurance costs.

Because FPDs may not be able to extend adequate levels of service to all areas planned for development, through IS-IM22, County Service Area-Fire Protection, the County would establish county service areas and adequate ongoing fire protection funding sources in areas with developed and developable land that cannot be served by existing fire-related districts and where new districts cannot feasibly be established.

The discussion above identifies several fire facilities, the need for which would be facilitated by the implementation of the proposed General Plan Update. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded fire facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility

and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).

- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

Implementation of the General Plan Update may result in the need for physical alterations and construction relating to the provision of fire protection services, the construction of which could result in significant environmental effects. Such new fire facilities would likely be constructed as part of a subdivision or require another County land use approval. In this case a project-specific environmental assessment under CEQA would be conducted. The construction of new fire facilities could also be carried out by fire-related districts on land Planned and Zoned in a manner that does not require a County land use approval. In such instances, the fire-related district would be required to seek General Plan conformance review by the County pursuant to Government Code Section 65402, and conduct its own project-specific environmental assessment. In either case, if the fire development project could have potentially significant environmental affects that could not feasibly be mitigated to a less than significant level, an EIR would be prepared. The above-listed General Plan Update policies would direct the County to work cooperatively with the service provider to plan and implement the project in conformance with this plan. In particular, the General Plan encourages public agencies to plan facilities in areas with adequate road, pedestrian, and access to appropriate utility services.

The nature and location of any potential new or expanded fire facilities that could be constructed by the County or another agency and that do not trigger a County land use approval is not known. As a result, the potential impacts of these facilities are too speculative for evaluation in this first tier programmatic EIR. If potential new or expanded fire facilities are within the responsibility and jurisdiction of other public agencies, and not the County, and appropriate mitigations can and should be adopted by such other agency, or other findings made after certification of an EIR in accordance with CEQA.

If the new or expanded facilities were to be constructed as part of a subdivision map approval or other process requiring County discretionary land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through appropriate site-specific mitigation measures and the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, General Plan Update impacts relating to need for new or expanded fire facilities triggered by the General Plan would be **less than significant**.

Mitigation

None required.

Impact 3.4.3.3. Law Enforcement

The proposed General Plan Update would have a significant impact if it would result in the need for new or physically altered law enforcement facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection.

This impact analysis addresses item "a" above, with respect to law enforcement facilities, of the significance criteria described in 3.4.2. Based on Appendix G of the CEQA Guidelines,

a) 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, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: law enforcement.

Projected population growth in Humboldt County during the planning period will require increasing the number of Sheriff's deputies and expanding Sheriff's office facilities, if existing levels of service are to be maintained. Major obstacles in maintaining existing levels of services are increasing operational and facility costs, which diminish local government's ability to meet these costs due to revenue constraints and competing budget priorities.

As part of the analysis for the Community Infrastructure and Services Technical Report, the Sheriff's office provided feedback regarding their existing personnel and facility levels and future needs, based on population projections available at that time. The Sheriff's office estimates that an additional 50 deputies will be required by 2027. This planning occurred in 2007, and 2027 represented a 20-year planning horizon at that time. This information is the best available information regarding future Sheriff's office staffing, and the year 2027 appropriately represents the 2028 projected population peak.

The following tables shows the number of existing sworn officers operating out of each patrol substation and the projected increase necessary to maintain an adequate level of service.

Table 3.4-5. Sheriff's Office Operations Staff - 2016 and Projected (2027).

Sub-Station Location	Sworn Staff		Percentage Increase (2007 to 2027)
	2016	Projected 2027	
Eureka	58	88	52%
McKinleyville	12	24	100%
Hoopa	8	16	100%
Garberville	8	16	100%
Resident Posts	4	6	50%
Total	**90**	**150**	**67%**

Source: Community Infrastructure and Services Technical Report, 2008.

In addition to personnel needs, the Sheriff's Office evaluated its current and future facility needs. The following is a listing of proposed improvements to the Sheriff's Office facilities and equipment:

Short-term Projects (5-10 years):

- Develop an enhanced communication system.
- Relocate Emergency Services and Emergency Communications Divisions
- Pursue other service and facility upgrades and expansions as needed.

Long-term Projects (10-20 years):

- Move or expand Main Office and other facilities (North Area Command and Garberville stations).
- Develop a dedicated training facility (could regionalize with partner agencies).
- Pursue technology updates and other services

The implementation of the General Plan Update would contribute to the need for the expansion of the main office and the North Area Command station and Garberville stations, other facility upgrades and expansions as needed, the development of a dedicated training facility, and the development of an enhanced communication system would be construction projects. These projects could result in potentially significant effects on the environment related to air quality and noise during construction, traffic, aesthetics and other impacts.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains a series of policies that direct the County to monitor service capacity in relation to planned development, and encourage the establishment of funding mechanisms to support services and provide the community service and infrastructure needed to serve the development allowable under the Plan. The General Plan Update Community Infrastructure and Services Element includes a number of policies to ensure that adequate utilities and services are available for the proposed development and that the development contributes adequate funding to support the increased public service needs, including law enforcement services.

Policy IS-P1, Coordination with Service Providers, directs the County to work cooperatively with service providers, including the County Sheriff, to identify needs, secure funding, and implement infrastructure and public service projects consistent with this Plan. Policy IS-P4, Requirements for Discretionary Development, specifies that the adequacy of service, such as law enforcement, to support new development shall be evaluated against standards and the development may not be approved unless such services are in place or there is a program to ensure that they will be in place. Policy IS-P17, Law Enforcement, would require the County to monitor law enforcement needs and coverage.

The Sheriff's Office has identified the need for future expansions to the North Area Command station and Garberville and stations, as well as other undefined improvements to maintain its level of service as development consistent with the General Plan Update occurs. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded law enforcement facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).

- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).
- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

The General Plan Update Community Infrastructure and Services Element includes policies to monitor law enforcement needs and coverage and to work with the Sheriff to secure funding sources to ensure that facilities are available as service demand increases as a result of future growth allowed under the General Plan Update,. Potential impacts resulting from the physical alterations and construction relating to the provision of law enforcement services required to accommodate future growth allowed under the General Plan Update, would be lessened by the implementation General Plan Update policies identified above. Therefore, impacts to law enforcement services resulting from the implementation of the General Plan Update would be **less than significant**.

Mitigation

None required.

3.5 Transportation

This section provides background information regarding the circulation system within the County including the multimodal use of roads; marine, rail, and air transportation; public transportation; non-motorized transportation; the regulations and programs relating thereto; and an assessment of the potential impacts resulting from implementing the proposed General Plan Update.

Existing transportation system conditions are described in the *Moving Goods and People Report, October 2002* (Appendix G), which includes existing conditions, planned improvements and policy options for transportation planning and Section 2, Road Infrastructure, of the *Community Infrastructure & Services Technical Report,* July 2008 (Appendix Q). These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://co.humboldt.ca.us/gpu/documentsbackground.aspx, are incorporated herein by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.5.1 Transportation/Traffic -Environmental and Regulatory Setting

Modes of Transportation

Travel by Humboldt County residents is accomplished through a variety of transportation modes. These modes present mobility choices for County residents, employees, and visitors, depending on their destinations and reasons for their trips. Transportation mode choices offer different benefits and costs, such as travel time, effort, convenience, and expense.

The U.S. Census collects information as part of the American Community Survey regarding the modes of travel to work for employed persons over the age of 16. Nearly 83 percent of County residents commute to work in cars, either alone or as part of car pools. Most people not commuting in cars either walk to work or work at home. A notable percentage of commuters who live in the County's incorporated cities walk to work: Arcata (18 percent), Ferndale (15.2 percent), Eureka (7.9 percent), as compared to the County on the whole (6.5 percent). This is primarily due to the proximity of employment opportunities to residential areas. Very few commuters living in unincorporated communities walk to work, with the exception of Redway – Garberville and Westhaven-Moonstone, where 10.3 percent and 5.5 percent, respectively, walk rather than drive. The following table summarizes the mode choices found in Humboldt County as a whole and in the various communities around the County in the year 2010-2014.

Table 3.5-1. Modes of Transportation.

Census Designated Place	Car – (Alone)	Carpool	Public Transit	Bicycle	Walk	Other	Work at Home
Humboldt County (countywide average)	73.5	9.3	1.2	1.7	6.5	1.2	6.6
Incorporated Cities							
Arcata	60.5	8.5	1.8	6.2	17.8	0.8	4.5
Blue Lake	73.6	4.4	0.0	1.0	9.8	1.6	9.6
Eureka	71.9	9.9	2.3	2.3	7.9	2.0	3.7
Ferndale	67.4	4.6	0.0	0.4	15.2	2.2	10.6
Fortuna	71.5	13.2	2.1	1.4	6.5	1.1	4.2
Rio Dell	86.7	7.8	0.0	0.0	1.0	0.0	4.5
Trinidad	48.1	6.0	0.0	0.0	9.0	0.0	36.8
Unincorporated Communities							
Cutten	77.1	10.9	0.0	1.7	2.0	3.5	5.0
Humboldt Hill	80.6	11.6	0.1	0.0	3.4	4.1	0.1
Hydesville	94.9	2.9	0.0	0.0	0.0	0.0	2.2
McKinleyville	82.2	9.6	0.9	0.7	1.5	0.2	5.0
Myrtletown	82.5	8.2	0.1	0.3	2.3	0.0	6.6
Pine Hills	77.6	8.6	0.9	2.0	0.0	2.5	8.4
Redway – Garberville	69.0	3.1	0.0	0.0	10.3	0.0	17.4
Westhaven-Moonstone	80.0	6.7	3.0	0.0	5.5	0.0	4.8
Willow Creek	68.4	12.8	1.6	0.0	3.0	0.0	14.2
American Indian Reservations							
Big Lagoon Rancheria	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blue Lake Rancheria	20.5	0.0	0.0	0.0	79.5	0.0	0.0
Hoopa Valley Reservation	83.8	8.6	0.0	0.0	1.4	0.0	6.2
Karuk Reservation	68.6	19.6	0.0	0.0	7.8	0.0	3.9
Table Bluff Reservation	64.3	7.1	0.0	0.0	28.6	0.0	0.0
Yurok Reservation	64.3	16.1	0.0	0.0	5.5	1.7	12.5

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year

Humboldt County Roadway System

Humboldt County contains approximately 1,400 miles of County and city roads, state highways, and roadways on federal lands (see the General Plan Update Map Book Circulation Maps for an indication of the location of major roadways in Humboldt County.) Issues affecting the County road system include: roadway safety, capacity, and condition. Roadway condition and maintenance is a challenge for rural areas like Humboldt County, where lower population densities and long travel distances mean that limited road maintenance funds are spread across an extensive network of roads. Roadway capacity is generally less of an issue for rural areas due to 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.

The Community Infrastructure and Services Technical Report and Moving Goods and People Report include information regarding the capacity of the current and future County roadway system, including maps of Average Daily Trips and Level of Services for roadway segments. Level of Service (LOS) is a standard system for measuring the flow of traffic on a roadway, called roadway capacity, and uses a scale from LOS A (free flow of traffic) to LOS F (extreme congestion and delay). The level of service for roadway segments can also be referred to as the volume to capacity ratio and is calculated by dividing the volume of traffic that passes through a segment of road over a specific period of time by the design capacity of that roadway segment.

The County's roadway network is comprised of a hierarchy of roads with different classifications and characteristics. Functional classification is the process by which streets and highways are grouped according to the character of service they are intended to provide. Basic to this process is the recognition that individual roads and streets do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

The hierarchy of roadways in Humboldt County follows the Federal Highway Administration Functional Classification Guidelines including arterials, collectors, and local roads. The functional classification system also provides for separate classification of urban and rural functional systems

The Humboldt County roadway system is dominated by U.S. 101, which runs north-south, through or adjacent to five of the County's seven cities. The following is a general description of major roadway facilities within the County:

State Highways/Routes. The following is a description of the state highways and state routes in Humboldt County.

The Caltrans Transportation Concept Report (TCR) for U.S. 101 states that it "is the economic lifeline of the north coast and the most important route in the (Caltrans) District. It is a principal arterial serving interregional and interstate traffic, with relatively high traffic volumes and heavy use by both truck and tourist traffic." This roadway varies between one and two lanes in each direction for most of its length with some three-lane passing sections. There are three-lane one-way couplets in Eureka, and U.S. 101 serves as the main street for the City of Eureka and for the community of Orick, and other portions operate as a freeway. U.S. 101 is also the principal commute route to Eureka and Arcata from the north and south. The Caltrans TCR indicates that U.S. 101 operates at level of service "C" or better within Humboldt County, except for the section through Eureka (Broadway/4th and 5th Streets) where "signalized intersections control level of service, and some intersections within the segment experience unstable flow at peak hour."

State Route (S.R.) 299 is the County's main east-west corridor connecting the Humboldt Bay area to Willow Creek and Trinity County, and eventually to Redding and Interstate 5 (I-5). S.R. 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. S.R. 299 serves as the main street through Willow Creek and includes a traffic calming project. Caltrans reports that this facility operates at level of service "C" or better through Humboldt County (Route Concept Report, 299 Corridor, Caltrans, January 1998)

Other State Routes include:

- S.R. 36 is a two- and one-lane highway that extends from U.S 101, south of Fortuna to Trinity County following the Van Duzen, Mad and Trinity River valleys and eventually connects with I-5 in Red Bluff.
- S.R. 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
- S.R. 169 is a one-lane highway that extends northwest from S.R. 96 at Weitchpec along the Klamath River to Wautec (Johnsons).
- S.R. 200 is a two-lane highway (also known as North Bank Road) that connects U.S. 101 south of McKinleyville to S.R. 299 east of Arcata and provides a bypass for trucks that are too tall to cross the Mad River Bridge.
- S.R. 211 is a short two-lane highway that extends from U.S. 101 to the City of Ferndale, crossing the Eel River over historic Fernbridge.
- S.R. 253, also known as Avenue of the Giants, is a two-lane highway that parallels U.S. 101 from approximately five miles north of Redway to approximately three miles south of Stafford. This route provides a scenic bypass to U.S. 101 and provides access to several unincorporated communities and state parks.
- S.R. 255 is a two-lane highway, with a four-lane segment in Arcata, that extends from Arcata to Eureka through Manila and also serves as an alternate to U.S. 101.
- S.R. 283 is the shortest State Highway in the State of California, consisting of a two-lane highway across the historic Eagle Prairie Bridge that connects Rio Dell and the unincorporated community of Scotia.

Major County Roads. County roads provide access to urban and rural communities from state highways, interconnect with city roads, and serve as main streets and local streets within unincorporated communities. The major County roads that carry significant amounts of daily traffic include (note - roadway functional classifications are identified in parenthesis after the road name):

- Central Avenue (Urban Minor Arterial) in McKinleyville
- Old Arcata Road (Rural Major Collector)/Myrtle Avenue (Rural Major Collector and Urban Minor Arterial) - serves as an alternate to U.S. 101 between Arcata and Eureka
- Walnut Drive (Rural Major Collector, Urban Collector, and Urban Minor Arterial)/Ridgewood Drive (Rural Major Collector) in the Cutten and Ridgewood areas
- Herrick Avenue /Fairway Drive/F Street (Urban Minor Arterial) - serve as an alternate to U.S. 101 to downtown Eureka and the Henderson Center and Myrtletown areas for commute traffic from the south
- Murray Road (Rural Major Collector and Urban Minor Arterial) in McKinleyville
- School Road (Urban Minor Arterial) in McKinleyville
- Harris Street (Urban Minor Arterial) - a major east-west route through the City of Eureka
- Harrison Street (Urban Minor Arterial) - serves as the eastern boundary of the City of Eureka and provides access to the County's major medical center

Numerous County roads operate like highways in the County's rural areas, such as:

- The Mattole Road (Rural Major Collector) - provides access to the Petrolia and Honeydew areas from Ferndale and Weott
- Briceland-Thorne Road (Rural Major Collector) - extends from Redway to Thorne Junction where it intersects with the Shelter Cove Road; these two roads provide access to the southwestern portion of the County
- The Alderpoint Road (Rural Major Collector) - extends from Garberville in the south to Bridgeville and serves the communities of Alderpoint and Blocksburg as well as other areas along the Middle Fork of the Eel River and the south-eastern County

In addition, Humboldt County has identified the following roads as Regionally Significant Streets and Roadways as part of the 2008 Regional Transportation Plan (see Humboldt County Regional Transportation Plan, 2008, Table HR1, Significant Roadway and the discussion on Page HR-1):

- Bald Hills Road (Rural Major Collector) - connects U.S. 101 to S.R. 169 through Redwood National Park and the Yurok Reservation
- Bair Road (Rural Minor Collector) - extends from S.R. 299 near Lord Ellis Summit, through Redwood Creek, to S.R. 96 in Hoopa
- Blue Lake Boulevard (Rural Major Collector)/Glendale Drive (Rural Major Collector) - extends from the City of Blue Lake to the community of Glendale;
- Blue Slide Road (Rural Major Collector)/Grizzly Bluff Road (Rural Major Collector) - extends from the City of Rio Dell to the City of Ferndale
- Campton Road (Urban Minor Arterial) - connects H Street in the City of Eureka to Walnut Drive
- Elk River Road (Rural Major Collector) - connects Herrick to Ridgewood Drive and serves the Elk River Valley
- Fieldbrook Road (Rural Major Collector) - connects S.R. 299 through the community of Fieldbrook to Murray Road, which connects to U.S. 101 in McKinleyville
- Freshwater (Rural Major Collector)/Kneeland Road (Rural Major Collector) - connects the communities of Freshwater and Kneeland to Myrtle Avenue as well as to Butler Valley Road which eventually connects to the City of Blue Lake via Maple Creek Road
- Maple Creek Road (Rural Major Collector) - see Freshwater/Kneeland Road above
- Humboldt Hill Road (Rural Minor Collector) - extends from U.S. 101 to the Humboldt Hill community
- Redwood Drive (Rural Major Collector) - U.S. 101 and extends from downtown Garberville through Redway and connects to U.S. 101 at Dean Creek
- Rohnerville Road (Rural Major Collector) - located mostly within the City of Fortuna, extends to S.R. 36
- Sprowel Creek Road (Rural Major Collector) - extends south from Garberville, past the Garberville County airport towards the Mendocino County line
- Wilder Ridge Road (Rural Minor Collector)/Ettersburg Road (Rural Minor Collector) - connects Mattole Road to Shelter Cove Road
- New Navy Base Road (Rural Major Collector) - extends south to the end of the Samoa Peninsula from S.R 255

Roadway System Condition and Capacity. Roadway maintenance is a key challenge for rural areas such as Humboldt County. Lower population densities and long travel distances result in fewer funds available on a per-mile basis for roadway maintenance. Maintenance problems are even more challenging in an area, such as Humboldt, which is dependent on logging and heavy commercial truck traffic to sustain its economy. Heavy truck traffic and wet weather comprise the two most critical factors in pavement deterioration. Humboldt County experiences significant winter rainfall. In the1960's, the American Association of Highway and Transportation Officials (AASHTO) found that damage to pavement from one truck is roughly equal to that of 10,000 cars.

Critical issues for the rural road system are safety and road rehabilitation. Roadway capacity (i.e. the number of lanes) is not generally an issue for rural areas, due to the lower population densities. There are areas of the County where capacity has become an issue due to increased tourist travel, increased truck travel, and increased development. Also, rugged topography often justifies truck climbing lanes, but funding for such improvements is limited and competes with funding for roadway maintenance.

In addition, the County lacks an infrastructure financing mechanism that would require all development to pay for its "fair-share" of off-site impacts to road infrastructure (as well as other infrastructure and public service needs). Currently, a traffic impact fee is being considered for the Greater Eureka Area by the County and the City of Eureka. The difficultly of recovering the costs of public road improvements and maintenance due to new construction is exacerbated by lower density rural residential development. This development typically occurs in a scattered pattern, requiring a more extensive road system than more compact development. The lower densities also make it more difficult to implement programs such as public transportation, which can also serve to lessen auto trips. Financing roadway improvements through Mello-Roos or other methods is not feasible due to a low rate of growth.

The Humboldt County roadways with the most significant capacity constraints are located in the Eureka and McKinleyville areas. Both of these areas have been experiencing increased development pressures, which have added vehicles to existing capacity constrained County roadways.

The circulation network for the unincorporated areas surrounding Eureka, including Cutten and Myrtletown, is inter-connected with the City of Eureka. The Eureka Community Plan area is largely dominated by residential land uses, with residents traveling into or through the City of Eureka for work, shopping, and other purposes. The development around the City of Eureka and regional commercial areas within the City, such as the Bayshore Mall, have contributed to increasing congestion and delays along Broadway, leading travelers and commuter to divert their trips to other routes as they travel through the City.

A traffic impact analysis was prepared for the General Plan Update by TJKM Transportation Consultants (Appendix H). As recommended by TJKM, the analysis utilizes level of service calculations based on daily traffic volumes rather than peak hour traffic volumes.

Public Transportation

The Humboldt Transit Authority was established in 1975 through a joint powers agreement (JPA) between the cities of Rio Dell, Fortuna, Eureka, Arcata and Trinidad and the County of Humboldt to provide public transportation services along the U.S. 101 corridor throughout the County. Funding for HTA is available from Transportation Development Act (TDA) funds and passenger fares. Of the TDA funding, Humboldt County contributes 50% and the JPA cities contribute the other 50%. 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.

Redwood Transit System. The Redwood Transit System (RTS) consists of "mainline" commuter service along the U.S. 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. Although some trips serve the entire corridor, most trips provide service only along shorter sections of the route. Service was recently added to southern Humboldt, now connecting Garberville, Redway, Phillipsville, Miranda, Myers Flat, and Weott with the Humboldt Bay area. In addition to the mainline route serving U.S. 101, a separate route provides service between Willow Creek and various locations in Arcata and McKinleyville.

Eureka Transit Service. The Eureka Transit Service (ETS) has four fixed-routes within the city of Eureka, as well as the unincorporated communities of Bayview, Cutten, and Myrtletown.

Arcata & Mad River Transit System (A&MRTS). The Arcata & Mad River Transit System provides fixed-route service within the city of Arcata.

Blue Lake Rancheria Transit System. The Blue Lake Rancheria Transit System provides hourly service between Blue Lake and Arcata via S.R. 299, and includes service to the unincorporated community of Glendale.

Klamath-Trinity Non-Emergency Transportation (K/T Net). 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 (since August 2008), and Pecwan/Wautec and Orleans (since early 2009). 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 Lines, Inc. Greyhound provides intercity bus service to Humboldt County with connections along the U.S. 101 corridor to various cities. Greyhound currently provides twice-daily services with stops at Arcata, Eureka, Rio Dell and Garberville.

Amtrak Thruway Motorcoach. 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.

Non-Motorized Transportation

Bicyclists, pedestrians, and equestrian riders each have unique needs for public facilities that support these modes of transportation for trips that might otherwise be accomplished using a car, and for recreation. Bicycle facilities include: Class 1 Bikeways (bike path), is a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized; Class II Bikeway (Bike Lane), which provides a striped lane for one-way bike travel on a street or highway; and Class III Bikeway (Bike Route) that provides for shared use with pedestrian or motor vehicle traffic (Caltrans Highway Design Manual, Chapter 1000, Bicycle Transportation Design, http://www.dot.ca.gov/hq/oppd/hdm/pdf/english/chp1000.pdf). Most dedicated bicycle 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. However, programs are underway to improve the bicycle network.

Pedestrian facilities, primarily sidewalks and crosswalks, are also most commonly provided in the urban areas. 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. Over time, the County Department of Public Works is upgrading pedestrian facilities to be ADA compliant.

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.

Pedestrian facilities are most commonly found in the County's seven cities and larger unincorporated communities. Sidewalks and pathways of varying width are found in commercial areas, residential neighborhoods, and near schools. In many cases, existing sidewalks meet only the minimum ADA standards and often are obstructed by utility poles, signposts, and other obstacles. There are also sidewalk gaps, uncontrolled intersections, and street crossings that pose pedestrian travel impediments, especially to the mobility-impaired. Most facilities dedicated for bicycle use are in the urban and suburban areas of the County, with bicycle lanes in place in Eureka, Arcata, McKinleyville and Fortuna. The City of Arcata provides the most interconnected system of bicycle lanes/routes that facilitates access to and from a number of trip-generating areas. In Eureka, the bike lane/route system includes both north-south and east-west lanes; however, not all trip generating areas are connected. Fortuna has limited systems of bike lanes and designated routes.

Some existing bicycle lanes/routes in the region do not meet current state standards. Caltrans increased bike lane width standards from four to five feet in 1997 (when not adjacent to a curb four feet is still permitted); consequently, many bike lanes constructed before 1997 do not meet the new state width standards. The most prominent Class I bike path (a separated surfaced right-of-way designated exclusively for non-motorized use) in Humboldt County is the Hammond Coastal Trail in McKinleyville, which provides opportunities for non-motorized travel for both transportation and recreation purposes. The Hammond Coastal Tail is Humboldt County's preeminent bicycle and pedestrian facility. The trail presently consists of a 2.4-mile hiking/biking/equestrian trail linking Arcata with McKinleyville from the Arcata Bottoms to Murray Road in McKinleyville, a hiking/equestrian loop north of Murray Road, and the newest sections from just north of Vista Point on Highway 101 to Strawberry Creek and the Widow White Creek crossing.

There is also the Mid-Town Trail in McKinleyville located between Railroad Avenue and Fernwood Drive, and a new trail is being constructed along Highway 101 leading from Arcata toward Eureka. There are a few other trails of significant length in or near communities that provide for both transportation and recreation. There are, however, a large number of recreational trails in city, county, state, and national parks, the National Forest, and Bureau of Land Management land. Cyclists are granted full access to all state route facilities in Caltrans District 1, which includes all of Humboldt County.

The Elk River Hikshari' Trail (is a multiple-use, paved trail that runs between Truesdale Avenue (just south of the Bayshore Mall) 1.5 miles south to the Pound Road Park & Ride lot, off the Herrick Avenue and Highway 101 interchange. Four parking areas and trailheads were enhanced at the following locations: Truesdale Vista Point, Hilfiker Lane (with primitive boat ramp), Hilfiker Lane at the Elk River Wildlife Sanctuary, and Pound Road Park & Ride.

Humboldt County is the lead agency in the Humboldt People Powered Pathways (HP3) funding proposal to the federal government. The HP3 proposal seeks transportation funding to implement local jurisdiction's plans for improving active transport systems and programs. The HP3 plan identifies approximately 25 active transport planning, implementation programs, and partnerships that identify $50 non-motorized transportation projects located across the County.

Truck Transportation

Truck transportation is a major factor in business operations for most industries in Humboldt County. U.S. 101 and S.R. 299 are the County's main truck transportation corridors. A key concern for the County is the impact of heavy truckloads on deteriorating County roads. Annual maintenance costs associated with a sustained logging operation are $9,000 per mile, according to the Moving Goods & People Technical Report (Appendix G).

Additionally, there is an economic effect on transportation costs due to the limitations on large STAA truck sizes on U.S. 101at Richardson Grove. Because of the restrictions on the length of trucks that can travel this route into the County, goods often need to be transferred to smaller trucks, which increase the transportation cost of goods shipped to and from the County. State Route 299 from Arcata to Trinity County is considered a California Legal Network highway and allows STAA trucks.

Caltrans has completed a Final EIR (SCH # 2009012070) for a project to provide access for larger trucks on U.S. 101 through Richardson Grove State Park near the Humboldt County line. The proposed project extends from post mile (Humboldt) 1.1 to post mile (Humboldt) 2.2 and would include minor realignments and widening of the existing roadway, culvert improvements, and repaving the roadway. This project has been controversial because it involves road improvements and the removal of trees within a State Park as well as concerns regarding growth inducing impacts.

Air Transportation

Humboldt County is served by nine public airports: California Redwood Coast– Humboldt County Airport; Dinsmore Airport; Garberville Airport; Kneeland Airport; Murray Field; Rohnerville Airport; Samoa Field; Shelter Cove Airport; and the Hoopa Airport (see Table 3.5-3 below for additional information regarding these airports). All but the Samoa Field, Shelter Cove, and Hoopa Airports are owned and operated by Humboldt County. General background information regarding public airports in Humboldt County can be found in the Humboldt County Regional Transportation Plan, Chapter 7, Aviation System Element and the Airport Land Use Compatibility Plan (ALUCP) for Humboldt County Airports, March 1993 that was adopted in 1998.

Table 3.5-3. Airports in Humboldt County.

Airport	Location	Based Aircraft	Annual Aircraft Operations	Owner/ Operator
California Redwood Coast– Humboldt County Airport	McKinleyville	20	115 per day	Humboldt County
Dinsmore Airport	¼ miles east of Dinsmore	1	1,600	Humboldt County
Garberville Airport	1 mile southwest of Garberville	20	16,500	Humboldt County
Kneeland Airport	Kneeland	0	7,000	Humboldt County
Murray Field Airport	City of Eureka	100	55,450	Humboldt County
Rohnerville Airport	0.8 miles south of Fortuna	36	27,500	Humboldt County
Samoa Field	Fairhaven	N/A	N/A	City of Eureka

Airport	Location	Based Aircraft	Annual Aircraft Operations	Owner/ Operator
Shelter Cove Airport	Shelter Cove	N/A	N/A	Shelter Cove Resort Imp. District No. 1
Hoopa Airport	Hoopa	N/A	N/A	Hoopa Valley Tribal Council

Source: Humboldt County Airport Master Plans.

Air travel is a growing transportation option in Humboldt County with passenger enplanements at California Redwood Coast – Humboldt County, the only airport in the County with scheduled passenger flights, and passenger enplanements are expected to increase from 98,453 in 204 to 167,000 in 2024 (Arcata-Eureka Airport Master Plan Report, Chapter 2 Airport Role and Activity Forecasts). Several daily flights are provided, connecting Humboldt County with San Francisco and Portland, Oregon. The airport continues to work to add more flights to more destinations.

The Board of Supervisors is the Humboldt County Airport Land Use Commission (ALUC) and approved the Airport Land Use Compatibility Plan (ALUCP) for Humboldt County Airports, March 1993 (adopted in 1998). The ALUCP sets forth the criteria and policies which the ALUC will use in assessing the compatibility between the public use airports and land use development in the areas surrounding them.

State law requires local agencies to modify their general plans and any affected specific plans to be consistent with airport land use compatibility plans (ALUCPs). A general plan must address compatibility planning issues and avoid direct conflicts with compatibility planning criteria. County zoning regulations limits density, height, and use within defined airport flight obstruction areas.

Marine Transportation

The Port of Humboldt Bay is a working port that can handle ocean-going vessels with domestic or international cargoes. The Port is the only deep-water shipping port between San Francisco, 225 nautical miles to the south, and Coos Bay, Oregon, 156 nautical miles to the north. The Port of Humboldt Bay is an important transportation facility for the shipment of goods and products to and from Humboldt County. The competitiveness of the Port is closely related to its ability to adapt to changes in the shipping industry, most notably the use of larger deep draft vessels.

The Port's amenities include: the jetties at the Bay entrance, the bar and entrance channel, shipping channels within the Bay, turning basins, shoreline protection and improvements, docks and other landside improvements, and key waterfront sites used for coastal-dependent industry. Adjacent to the Humboldt Bay channels there are currently four operating terminals with the potential of serving ocean-going dry cargo vessels and one liquid bulk dock. Two of the eight cargo docks are located on the Eureka waterfront, four are located on the Samoa Peninsula, and two are located at Fields Landing.

The Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD) District is a countywide agency that was established in 1970 to implement, supervise, and regulate the development of Humboldt Bay. The HBHRCD manages Humboldt Bay to promote commerce, navigation, fisheries, recreation, and the protection of natural resources. The HBHRCD also operates facilities in Shelter Cove. The HBHRCD has jurisdiction over port facilities and works with the U.S. Army Corps of Engineers to periodically dredge Humboldt Bay to maintain Bay access for various types of ocean-going vessels.

The HBHRCD prepared the Humboldt Bay Management Plan in 2007. The purpose of the Humboldt Bay Management Plan is to serve as a management guide, planning tool, policy strategy, and reference document for the HBHRCD and other parties interested in Humboldt Bay. The Humboldt Bay Management Plan provides a comprehensive discussion of existing conditions, including descriptions of the harbor and port, as well as recreation opportunities and conservation activities. The Humboldt Bay Management Plan also includes a policy document with water use designations similar to a land use plan, and policies regarding the harbor and recreation and conservation uses of the Bay.

In 2003, the HBHCRD prepared the Port of Humboldt Bay Harbor Revitalization Plan that establishes a two-phase port strategy that involves channel deepening and landside improvement. After a 12-year effort, the Humboldt Bay Channel Deepening Project was completed in April 2000. The 48-foot deep Bar and Entrance Channels and 38-foot deep North Bay and Samoa Channels were intended to provide for greater navigation safety and improved vessel economics.

Annual maintenance dredging of Humboldt Bay is vital to maintaining safe and navigable access. Federal channels in Humboldt Bay are dredged by the U.S. Army Corps of Engineers. Any other area that requires dredging is the responsibility of local governments, in this area that is the Harbor District.

The U.S. Department of Transportation published a final rule in 2009 that established America's Marine Highway Program. Pursuant to this rule, marine highway corridors will be designated and funding made available to support short sea transportation projects in order to expand domestic water transportation services as an alternative means of moving containerized and wheeled freight cargoes. The objectives of America's Marine Highway Program are to mitigate the economic, environmental, and energy costs of landside congestion; integrate the marine highway into the transportation planning process; and research improvements in efficiencies and environmental sustainability. Humboldt Bay has been identified as a potential port within the marine highway system.

Rail Transportation

The North Coast Railroad Authority (NCRA), created by the State Legislature in 1989, has either full or partial ownership of the Northwestern Pacific Railroad (NWP). NCRA owns the railroad from Arcata to Healdsburg, and is a member of the Northwestern Pacific Railroad Authority JPA (joint powers authority) for the portion south of Healdsburg. The NCRA has a Lease and Operating Agreement with Northwestern Pacific Railway Company (NWPY), to provide common carrier freight operations and maintenance of the railroad.

Rail service to and within Humboldt County was suspended in 2001 due to the deteriorating condition of railway infrastructure. When operating, it provided freight service three times a week and occasional passenger service on weekends. Rail service provided an alternative to truck transportation, carrying mostly lumber products with the potential for transporting dairy products, fish products, aggregates, and coke and calcified lime used in paper processing. In order to return competitive rail service to Humboldt County, a substantial program of roadbed, track, bridge, tunnel, and station upgrading will be necessary. The future of the railway and the use of the railroad right of way, especially along Humboldt Bay, has been an important policy discussion within the region during the preparation of the General Plan Update.

Amtrak provides twice-daily bus service between Humboldt County and the Martinez train station in the San Francisco Bay Area. The bus follows the U.S. 101 corridor and provides service at McKinleyville, Arcata, Eureka, Fortuna, Scotia and Garberville.

Road Safety

Most County roads in rural areas are one- and two-lane roads of varying surface types that were constructed and improved over time and have evolved from trails, stage and rail routes, and logging roads. The alignment of many roads is irregular with varying horizontal and vertical curves and sight distances. Drivers are required to constantly adapt their speed to account for changing situations and circumstances that increase the opportunities for human error. In addition, street lights and intersection safety lighting are not present on most rural roads. Section 8, Streetlights, of the *Community Infrastructure and Services Technical Report* inventories street lighting standards and areas served by street lighting within the unincorporated area.

The operation of agricultural vehicles on roadways may also affect traffic on rural roadways in the unincorporated area. Agricultural activities are an important element of the local economy and agricultural vehicles operate regularly on County roadways. Agricultural vehicles are slow moving vehicles and considered incompatible with other motorists. Implementation of the proposed General Plan Update would increase the amount of traffic on roadways and could increase the potential for conflict with agricultural vehicles.

Another factor that can impact roadway safety is the incompatibility of some unincorporated area roadway and highway facilities with multi-modal transportation uses. Many existing roadways and intersections in the County do not contain pedestrian or bicycle facilities. Humboldt County Transportation-Disadvantaged Populations Report, 2006, (http://www.naturalresourcesservices.org/TDP.html) found that Pedestrian and bicycle safety is generally poor in Humboldt County when compared to other rural counties. There are substantially higher bicycle injuries and fatality rates in Humboldt County than all other rural areas in California. Bicycle injury and fatality rates are also significantly higher than the state average, particularly for youth and the 05-24 age groups. In spite of this, bicycle and pedestrian injuries and fatalities are decreasing in Humboldt County.

The Transportation-Disadvantaged Populations Report further indicates that Humboldt County has a higher number of bicyclists than some other rural counties, and this fact may influence the absolute number of collisions. Two potential reasons for this include: the presence of both Humboldt State University and College of the Redwoods campuses within ten miles of each other in the Humboldt Bay region; and the Pacific Coast Bike Route on U.S. 101 attracts many touring cyclists every year. Until 2000, the City of Eureka still had many intersections without traffic signals, stop, or yield signs, which may have also contributed to a higher number of collisions.

The Humboldt County Public Works Department recently established the Humboldt County Rural Transportation & Access Partnership (RTAP) program to help rural communities overcome transportation challenges and improve access to goods, services, employment, education and/or recreation, as well as to Increase safety and advance “complete streets” for all modes of transportation. The RTAP is a matching program available through Humboldt County Department of Public Works to help address unfunded transportation needs through community partnership. The types of projects eligible for the program could include street/road improvements, pedestrian and bicycle improvements, enhancement of sites in County jurisdiction for access to public or community transportation services.

3.5.2 Transportation/Traffic - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on transportation/traffic if it would:

a) 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.
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
c) 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.
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
e) Result in inadequate emergency access.
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

3.5.3 Transportation/Traffic - Impacts and Mitigation Measures

Traffic Model Description

The traffic impacts resulting from General Plan Update land uses were evaluated by TJKM Transportation Consultants using the latest Humboldt County Travel Demand Model. The Humboldt County Travel Demand Model was updated in 2013 by the Humboldt County Association of Governments (HCAOG) and the California Department of Transportation (Caltrans) to forecast travel patterns in both rural and urbanized portions of Humboldt County. The main purposes of the Humboldt County Travel Demand Model are to support the Regional transportation planning process[1], to evaluate potential improvements to the roadway system, and evaluate the impacts of land use changes in the County. The model also includes limited transit and non-motorized analysis capabilities. The base year for the model is 2010, with a forecast year of 2040.

The Humboldt County Travel Demand Model utilizes a traditional four-step modeling process, consisting of trip generation, trip distribution, mode split, and traffic assignment. This process addresses all person trips, occurring primarily by car but also includes trips made using transit and non-motorized modes (walk and bicycle). The updated model includes AM and PM peak periods and an off-peak period, which are combined to produce total daily traffic volumes. The entire process is automated and can be managed from a scenario management system within the TransCAD software platform.

A travel demand model is a computer program that simulates traffic levels and patterns for a specific geographic area. The program consists of input files that summarize population and

[1] A State-mandated effort involving each of the local jurisdictions and Caltrans in setting regional transportation goals and programs on a recurring basis.

employment characteristics, the street network, travel characteristics, and other key factors of the area analyzed. The Humboldt County Travel Demand Model contains information regarding the street network and land uses for the entire County, including the seven incorporated cities. Using this data, the model performs a series of calculations to determine the number of trips that would be generated, where the trips would begin and end, and the route for each trip. The model's output includes information such as peak AM, PM, and daily vehicle trips; average daily trips; daily vehicle trips and speed; volume to capacity ratio; and vehicle miles traveled. The volume to capacity ratio is a ratio of the number of vehicles that can be expected to travel over a given section of roadway during a given time period and the capacity of the segment. For purposes of this traffic analysis, the volume to capacity ratio is used to measure LOS.

2010 Scenario

The model roadway network contains basic input information for use in the Travel Demand Model and represents real-world conditions for the 2010 base year. The transportation analysis zones cover the entire County and each city and include existing and projected future population and employment levels. The model was successfully calibrated and validated by using the data and networks described in the "*Humboldt County Association of Governments Rural Regional Blueprint Planning Phase III, Travel Model Update Technical Documentation*" report. The traffic count data provided by Caltrans, Humboldt County, and other local jurisdictions, as well as additional traffic counts collected specifically for the purpose of supporting the model update, were used for validation. Due to differences in the way various agencies provide traffic data, some adjustments were made to the original data, which has been retained on the roadway network for reference. For model validation, traffic count data must represent a "typical weekday when school is in session." This condition allows model results to reflect volumes that would be consistent with traffic counts taken during this time period. Due to minimal growth during the last few years, all traffic count data was assumed to represent 2010 conditions for use in model validation.

2040 Scenario

This scenario represents the land use and policies contained in the GPU. Land use forecasts were updated to represent 2040 conditions. The land use information, depicted in Table 3.5-4b, General Plan Land Use Information – 2010 to 2040, represents a realistic view of 2040 conditions. In the table HH represents the number of households and EMP indicates the number of jobs.

2028 Scenario

The 2040 scenario represents the population and jobs projected for the ultimate planning horizon year of the County General Plan Update. However, the highest projected County population numbers will occur during an interim year (2028) according to the Department of Finance (DOF). In other words, the County's population is projected to peak in 2028 and decline thereafter. Consequently, an interim year (2028) scenario was developed using the 2028 population from the DOF and 2028 employment from Caltrans 2015 Economics Forecasts, and analyzed as a worse-case scenario. This is depicted in Table 3.5-4a.

Table 3.5-4a. General Plan Land Use Information – 2010 to 2028

	2010		2028		Growth	
	HH	EMP	HH	EMP	HH	EMP
Unincorporated	33,176	18,724	34,856	19,911	1,680 -- 5.0%	1,187 – 6.3%
Cities	22,855	29,478	24,012	31,199	1,157 – 5.0%	1,722 – 5.8%
Model Total	56,031	48,202	58,868	51,110	2,837 – 5.0%	2,908 – 6.0%

HH – Households EMP – Employment shown as number of jobs
Source: TJKM, 2017

Table 3.5-4b. General Plan Land Use Information – 2010 to 2040

	2010		2040 Rev		Growth	
	HH	EMP	HH	EMP	HH	EMP
Unincorporated	33,176	18,724	34,085	21,164	909 – 2.7%	2,440 – 13.0%
Cities	22,855	29,478	23,482	33,018	627 – 2.7%	3,540 – 12.0%
Model Total	56,031	48,202	57,567	54,182	1,536 – 2.7%	5,980 – 12.4%

HH – Households EMP – Employment shown as number of jobs
Source: TJKM, 2017

As shown, the forecast 18 year and 30-year growth in both households and employment is relatively modest. Household growth is 5% to 2028 and only 2.7% to 2040. Employment growth is 6% to 2028 and 12.4% to 2040. Land use and employment projections were based on information from the California Department of Finance (DOF) and Caltrans. The 2028 and 2040 household forecasts are from DOF; the assignments of housing between unincorporated and incorporated areas are based on current proportions. The employment growth is from Caltrans; assignment of housing between cities and unincorporated areas also retains the current proportions.

Vehicle Miles Traveled

Table 3.5-5 describes the traffic model evaluation of vehicle miles traveled (VMT) on the Humboldt County roadway network in 2010, 2028 and 2040, as well as a comparison between the two model years. The growth percentages for the two future years are indicated in the table.

Table 3.5-5. Comparison of 2010 and 2040 Vehicle Miles Traveled (VMT)

Trip Origin	Trip Destination	2010 VMT	2040 Rev VMT	2028 VMT
Inside Unincorporated County	**Inside** Unincorporated County	**1,070,071**	**1,097,038**	**1,116,701**
Inside Unincorporated County	**Outside** Unincorporated County	**851,484**	**929,479**	**935,833**
Outside Unincorporated County	**Inside** Unincorporated County	**888,993**	**969,080**	**976,290**
Outside Unincorporated County	**Outside** Unincorporated County	**731,135**	**807,070**	**819,932**
	Total	**3,541,683**	**3,802,668 (7.4%)[1]**	**3,848,756 (8.7%)[1]**

[1] Growth in VMT from 2010
Source: TJKM, 2017

Circulation System Improvements

Table 3.5-6, General Plan Update Circulation System Improvements, provides a list of the proposed roadway improvements included in the General Plan Update. The McKinleyville and Eureka Circulation and Public Facilities Maps in the General Plan Update Draft Map Book show the location of the proposed improvements. These improvements are intended to enable the roadway system to accommodate the increased traffic demand generated by General Plan Update development without causing unacceptable traffic congestion. Improvement project numbers 26, 27, 30, 32, 33, 34, 39, 42 are also contained in RTP Table HR8, Long Term (11-20 years) Roadway Projects and are therefore consistent with the RTP. Most of these sections are not on

the traffic model network, so they do not have a major impact on the traffic forecasting efforts summarized in this document.

Table 3.5-6. General Plan Update Circulation System Improvements.

No.	Proposed Road Improvements	Area	Length (feet)	Class	Maintenance Responsibility
3	McKinleyville Avenue South Ext.	MCPA	784	Urban Collector	County of Humboldt
4	Norton Road Extension	MCPA	5,821	Urban Collector	County of Humboldt
7	Underwood Road Extension	MCPA	1,735	Urban Collector	County of Humboldt
8	City Center Road Extension	MCPA	607	Urban Collector	County of Humboldt
12	Bird Avenue Extension	MCPA	1,504	Urban Collector	County of Humboldt
13	Montana Road Extension	MCPA	330	Local	Maintenance District
14	Berg Avenue Extension	MCPA	810	Local	Maintenance District
15	Windson Road Extension	MCPA	977	Local	Maintenance District
17	West Bates Road Extension	MCPA	210	Local	Maintenance District
18	Rita Avenue Extension	MCPA	645	Local	Maintenance District
19	Terrace Road Extension	MCPA	569	Local	Maintenance District
20	Pedroni Road Extension	MCPA	1,534	Local	Maintenance District
21	Walnut Avenue Extension	MCPA	1,085	Local	Maintenance District
22	Waters Avenue Extension	MCPA	120	Local	Maintenance District
23	Lime/A Avenue Extension	MCPA	152	Urban Collector	County of Humboldt
25	Pickett Road Extension	MCPA	534	Local	Maintenance District
27	Connection from Cypress to Harris at Girard	ECPA	7,348	Urban Collector	Maintenance District
28	Cypress Avenue Extension to new Connector 27/29	ECPA	529	Local	Maintenance District
30	Fern Street Extension (Not on Circulation Diagram)	ECPA	581	Urban Collector	County of Humboldt
31	Connection from Northridge to Walnut at Pleasant	ECPA	4,914	Local	Maintenance District
32	Connection from Home to Fairway	ECPA	10,124	Urban Collector	County of Humboldt
33	Connection from Ridgewood at Eggert to Lundblade	ECPA	9,828	Urban Collector	County of Humboldt

No.	Proposed Road Improvements	Area	Length (feet)	Class	Maintenance Responsibility
34	Connection from Connector 32 to Connector 33	ECPA	2,311	Local	Maintenance District
35	Connection from Connector 33 to Elk River at Swain Slough	ECPA/ HBAP	10,161	Urban Collector	County of Humboldt
36	Hilma Drive Extension to Connector 33	ECPA	3,009	Local	Maintenance District
37	Bassford Road Extension to Connector 33	ECPA	1,719	Local	Maintenance District
38	Eggert Road Extension to Elk River Road	ECPA	5,873	Urban Collector	County of Humboldt
39	Connection from Loma at King Salmon Drive to London	ECPA/ HBAP	2,699	Urban Collector	County of Humboldt
40	Aspen Road Extension to Loma	HBAP	1,361	Urban Collector	County of Humboldt
41	Mesa Avenue Extension to Connector 39	HBAP	1,269	Local	Maintenance District
42	Connection from Humboldt Hill to Tompkins Hill	ECPA/ HBAP	5,975	Urban Collector	County of Humboldt
43	Connection from Barry Property to Connector 42	HBAP	568	Local	Maintenance District

Source: Humboldt County Department of Public Works, 2016

Impacts

The traffic impact analysis examined only roadway segment LOS for the EIR. Although an assessment of intersection LOS is very useful in evaluating traffic operations, the traffic model is not configured to carry out this function and the information was not available for the entire modeling area to conduct this analysis. However, the roadway segment analysis is considered adequate for characterizing the transportation and circulation impacts of the General Plan Update.

Table 3.5-7 below identifies the road segments within the incorporated and unincorporated areas of the County that are projected to fall below LOS C as a result of cumulative growth within the County that is projected to occur between 2010 and 2040[2].

[2] As described in Chapter 2 – Project Description, the impacts considered in this RDEIR are those resulting from the increase in population projected by DOF and the increase in employment projected by Caltrans during the planning period (2016 -2040), which is a small fraction of the estimated maximum feasible development potential of the GPU, roughly four percent.

Table 3.5-7. 2010 LOS and Projected Roadway Segments Worse than LOS C in 2028 and 2040.

Road	Segments	Location	Estimated 2010 ADT	2010 LOS	Estimated 2028 ADT	Estimated 2040 ADT	Length (Miles)	2028/ 2040 LOS
U.S. 101	Between 6th Street and S.R. 255	Eureka/ Arcata	36,452	D	38,264	38,127	6.05	D-E
U.S. 101	Between 6th Street and Herrick Avenue	Eureka	32,135	D	32,851	32,201	3.03	D
Main Street	Between 7th Street and 13th Street	Fortuna	13,640	D	13,681	13,744	0.3	D
Kenmar Road	Between U.S. 101 and Fortuna Blvd.	Fortuna	15,756	D	16,563	16,257	0.2	D

Source: TJKM, 2017

Impact 3.5.3.1 – Increase in Vehicle Miles Traveled.

Implementation of the General Plan Update would generate levels of development that result in a greater number of vehicle trips and increased traffic volumes on roads within the County that could cause congestion.

This impact analysis addresses item "a" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.5.2 above. Pursuant to these criteria, the proposed County General Plan Update would have a significant impact if it would:

a) 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.

The Level of Service (LOS) for traffic is defined in the General Plan Update as the performance rating ("A" through "F") for a segment of street or intersection, based on generalized perceptions of performance. Caltrans uses measures of effectiveness (MOEs) for gauging the level of service of State highway facilities and defines MOEs for each facility type (for instance freeway ramps or signalized intersection) in the "Guide for the Preparation of Traffic Impact Studies" December 2002 (http://www.dot.ca.gov/hq/tpp/offices/ocp/igr_ceqa_files/tisguide.pdf). Measures of Effectiveness include items such as passenger cars per lane mile per hour, seconds of delay, and average travel speed.

There are no are no adopted plans, ordinances or policies establishing measures of effectiveness for the performance of the circulation system in Humboldt County. The Eureka Community Plan contains a general goal that does not include an MOE: Policy 4220.1 "the County shall strive to maintain a Level of Service of C or better on arterials in the Planning Area.

The acceptable level of service goal will be consistent with the financial resources available and the limits of technical feasibility. Plans adopted by HCAOG do not contain required MOEs or LOSs.

Land use planning is critical to reducing vehicle trips and vehicle miles traveled. A report prepared by U.C. Davis for the California Air Resources Board (Land Use and Travel Behavior, Parts 1 and 2, University of California, Davis. 1994) found that local land use characteristics influence the amount of driving and travel by other modes, such as transit, bicycling, and walking. The neighborhood characteristics found to be most important were housing density, access to services, the availability of transit service, and the interconnection of travel routes. Residents in higher density, mixed-use areas were found to make more trips by transit, walking, and biking than those living in lower density areas.

Due to already established auto-oriented land use patterns, the private automobile would likely continue to be the dominant mode of transport in Humboldt County. The General Plan Update seeks to reduce vehicle miles traveled per person by providing balanced transportation opportunities, whereby the needs of motorized vehicles, public transit, bicyclists, and pedestrians are considered during land use and transportation planning.

Growth projected to occur during the General Plan Update planning period would generate levels of development that result in a greater number of vehicle trips and increased traffic volumes on roads within the County. The proposed General Plan Update, plus growth that would be allowed by each city general plan, would generate about 3,769,686 vehicle miles traveled per day (65 miles per dwelling unit per day) by the year 2040, up from approximately 3,541,683 vehicle miles traveled per day in 2010 (63 miles per dwelling unit per day). The cumulative traffic generated by both the County and the seven cities could cause congestion on some County or city roadways and would also affect air quality and greenhouse gas emissions. Air quality and greenhouse emission related impacts are evaluated in Section 3.12 Air Quality and Greenhouse Emissions.

Analysis of Relevant General Plan Update Policies

In general, the General Plan Update seeks to reduce vehicle trips and trip length by encouraging growth within existing communities, improving pedestrian and bicycle facilities and connectivity, and encouraging transit service expansion. The General Plan Update includes policies to reduce the length and frequency of vehicle trips by encouraging mixed use zoning; focusing planned residential uses within neighborhood and town centers, thereby locating residential development in proximity to transportation and work; ensuring neighborhood connectivity; and providing incentives for housing and infrastructure development in housing opportunity zones located within urban development areas.

Circulation Element Policy C-P1, Circulation System, encourages a road system that supports a pattern of growth with more intense development near collectors and arterials, and that provides connectivity between neighborhoods and destinations. Policy C-P2, Consideration of Land Uses in Transportation Decision Making, notes that a comprehensive planning approach be utilized that considers the transportation consequences of land use changes to avoid operational and economic impacts.

Policy C-P4, Mitigation Measures, requires that conditions of approval be imposed on new development to address proportional potentially significant transportation impacts. Policy C-P4 would relate only to discretionary development that would trigger CEQA review and not to ministerial projects. Policy C-Pxx, Long Term Transit Plan, directs the County to support the

development of a long term transit plan with the goal of increasing the percentage of public transit trips compared to automobile trips.

Table 3.5-7 lists only one road in the City of Eureka, that would be affected by the implementation of General Plan Update, and countywide growth expected to occur during planning period, that is the responsibility of Caltrans. Humboldt County cannot implement mitigation measures for projects that are not under its jurisdiction or guarantee their success. As a result, the General Plan Update contains policies that involve inter-jurisdictional coordination. Community Infrastructure and Services Element Policy IS-P7, Mitigation of Cross-jurisdictional Impacts, directs the County to work with cities to mitigate impacts associated with new development for each affect jurisdiction. Policy C-P5, Level of Service Criteria, requires that the County shall strive to maintain level of service "C" on all roads and intersections except U.S. 101, where level of service D is acceptable, and advises that the County should not adversely affect Level of Service and/or Quality of Service for other modes of transportation, if possible. This policy compliments policies contained in the City of Eureka General Plan. Policy C-P6, Jurisdictional Coordination and Integration, furthers the level of service standard consistency between the County and the City of Eureka by using HCAOG, memorandums of understanding, and informal project level cooperation to integrate countywide transportation planning and implementation measures. Policy C-P7, Joint Use of Traffic Models, encourages the County-Wide Transportation Plan (CWTP) and projects with potentially significant transportation impacts to use area-wide travel demand models.

Conclusion

Given that there are no applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, increased vehicles miles traveled is used as a measure of congestion for purposes of this analysis. As noted above, the growth anticipated under the General Plan Update would increase the absolute number of vehicle miles traveled within the County as well as the vehicle miles traveled per dwelling unit. This could result in a potentially significant effect on roadway operation and maintenance.

Mitigation

Mitigation 3.5.3.1.a. The following policies shall be added to the Circulation Element and would require the implementation of transportation demand management programs with new larger scale development in the unincorporated area.

> ***C-P3.Consideration of Transportation Impacts in Land Use Decision Making.*** *Decisions to change or expand the land use of a particular area shall include an analysis of the impacts to existing and proposed transportation facilities and services so as to minimize or avoid significant operational, environmental, economic, and health-related consequences.*
>
> ***C-Px9. Regional Transportation Demand Management Funding.*** *Encourage HCAOG to seek funding to support transportation demand management planning and to promote strategies that can lower the demands made on the road and highway system, reduce energy consumption, and improve air quality.*
>
> **C-Px10. Transportation Demand Management Programs.** Require residential subdivisions and multifamily development that would result in fifteen or more dwelling units, and non-residential development that would employ greater than ten persons,

and that require a discretionary permit, to comply with County transportation demand management programs.

C-IMX6. Transportation Demand Management. *Amend the Zoning Regulations to include criteria for the development and implementation of transportation demand management programs as required by this Plan.*

Level of Significance after Mitigation

Although the General Plan Update seeks to reduce vehicle miles traveled per capita, total vehicle miles traveled are projected to increase into the future. Adoption and implementation of the additional policies and implementation measures described in the above Mitigation Measure may help reduce VMT per person. Given the political and economic difficulties of actually implementing these programs, achieving reducing VMT per person from 2010 levels is unlikely; therefore, this would be a **significant unavoidable impact**.

Impact 3.5.3.2 – Unacceptable LOS on Roadways within the County.

Implementation of the General Plan Update would generate levels of development that result in increased traffic volumes on roads within the County that could cause existing levels of service to fall below LOS C as a result of cumulative growth within the County that is projected to occur between 2010 and 2040.

This impact analysis addresses item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.5.2 above. Pursuant to these criteria, the proposed County General Plan Update would have a significant impact if it would:

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

Impacts 3.5.3.2-1 through 3.5.3.2-4 analyze the four roadway segments that would be expected to degrade to below LOS "C" (see Table 3.5-7,).

The following road segments: U.S. 101 between 6th Street and S.R. 255; U.S. 101 in Eureka between 6th Street and Herrick Avenue; Main Street Fortuna, between 7th Street and 13th Street; and Kenmar Road in Fortuna, between U.S. 101 and Fortuna Blvd are projected to fall below level of service "C" due to cumulative growth during the General Plan Update planning period. Each of these segments is described in greater detail below and specific mitigations are proposed to reduce impacts. The following more general mitigations are proposed to limit undesirable transportation impacts and, in combination with specific mitigations listed below, would reduce impacts relating to these four roadway segments.

Mitigation

To help reduce impacts of the General Plan Update on Levels of Service on county roads, the following mitigation measures are necessary.

Mitigation Measure 3.5.3.2.a. Amend existing policies and add the following implementation measure to the Circulation Element that establishes a multi-faceted program to lessen impacts relating to traffic congestion:

> ***C-IMX7. Congestion Relief Planning and Implementation Program.*** *The County shall utilize the best available traffic information, including the Humboldt County Travel Demand Model, other models and plans, and transportation impact analyses to identify roads that are currently capacity constrained or projected to become capacity constrained at some point as a result of General Plan implementation, and shall work cooperatively with HCAOG, Caltrans, applicable cities, HTA, or other agencies to implement a coordinated traffic management strategy to plan and prioritize transportation demand measures and roadway improvements to reduce roadway congestion along such roadways.*
>
> *The County shall use state and federal transportation improvement funds available directly to the County or through HCAOG, other grant funds, project related exactions, other available County funds, and impact fees to fund congestion relief improvements.*
>
> *The following steps shall be taken to address specific capacity limitations:*
>
> *A. Monitor vehicle trips and other modes of travel at regular intervals.*
> *B. Solicit public involvement in transportation improvement planning prior to implementing any improvements.*
> *C. Identify transportation demand management measures that could be applied to the areas served by the specific roadway(s) to reduce peak-hour vehicle trips and congestion, such as:*
> *1. Coordinate with school districts to expand school bus operations, create a "walking school bus" program, create programs for shared rides to school, or other programs to reduce school-related vehicle trips;*
> *2. Coordinate with transit providers to identify strategies to improve and expand bus service and encourage ridership;*
> *3. Coordinate with businesses served by the roadway(s) and encourage the use of appropriate transportation demand measures to reduce employee-related vehicle trips;*
> *4. Identify bicycle and pedestrian enhancements that improve the ability of motorists to shift short trips to non-motorized modes.*
> *D. Use the following roadway and intersection improvements, as appropriate, in combination with "E" below, to accommodate additional traffic volumes while providing a safe multi-modal circulation system:*
> *1. Public education*
> *2. Signage*
> *3. Stop signs*
> *4. Traffic signals or roundabouts*
> *5. Traffic signal timing changes and signal coordination*
> *6. Striped turn-lanes*
> *7. Turn movement prohibitions*
> *8. Bulb-outs and chicanes*

9. *Change stop sign location of two-way stop signs at four-way intersections to reduce unwarranted stops on parallel alternative routes*
10. *Develop parallel routes or make parallel routes into couplets*

E. Implement the following measures in a stepwise manner to provide additional vehicle capacity on existing two-lane roads:

1. *Within the existing curbs, provide a two-way left turn lane (2WLTL), two travel lanes, and up to two parking lanes when space permits – provides a capacity of up to 16,000 vehicles per day.*
2. *Provide 2WLTL, two travel lanes, two bike lanes, and up to two parking lanes when space permits (usually a parking lane needs to be removed to add bike lanes) - provides a capacity of up to 16,000 vpd.*
3. *Identify parallel alternate routes with available traffic capacity to which some of the excess traffic can be diverted and utilize intersection improvements listed in "D" above to encourage drivers to divert to identified alternate routes.*

F. If transportation demand management measures and capacity improvements located within the existing two-lane cross-section have been demonstrated to be inadequate:

1. *Consider accepting a lower level of service;*
2. *Within the existing curbs, provide four lanes consisting of two travel lanes and no parking - provides a capacity of up to 20,000 vpd. Note: Although a four-lane undivided roadway section provides more capacity than two lanes and one 2WLTL, the section with a 2WLTL is considered safer.*
    a. *Within the existing curbs, same as above but with a.m. and p.m. peak hour left turn prohibitions into driveways and side streets - provides a capacity of up to 22,000 vpd.*
    b. *Within the existing curbs, same as above but with a.m. and p.m. peak hour left turn prohibitions into driveways and side streets; widen curbs to provide left turn pockets at key intersections – provides a capacity of 24,500.*
3. *Consider widening the curbs to provide additional travel lanes, bike lanes, 2WLTL, medians, parking lanes, and sidewalks, all as needed to meet demands.*

C-Px. Countywide Traffic Impact Fee Program. *In coordination with the cities within the County, shall develop and implement a countywide traffic impact fee program that addresses impacts on major roads resulting from development in cities and unincorporated areas. Adopt this fee within one year of the adoption of the General Plan Update. A traffic impact fee is currently being evaluated for the Greater Eureka Area, encompassing the Eureka urbanized area.*

Impact 3.5.3.2.-1: Unacceptable LOS on U.S. 101 Between S.R. 255 in Arcata and 6th Street in Eureka

The travel demand model indicates that implementation of the General Plan Update will result in increased traffic that will cause U.S. 101 between S.R. 255 in Arcata and 6th Street in Eureka to operate at LOS D/E in 2028 and 2040. The minimum acceptable LOS on U.S. 101 in urban areas in Caltrans District 1 is LOS D.

Caltrans is in the process of completing planning and designs for the Eureka-Arcata Route 101 Corridor Improvement Project (SCH Number 2001092035), which includes the area in question. Caltrans has completed a Final Environmental Impact Statement and a Final Environmental

Impact Report for the Eureka-Arcata Corridor Improvement Project (http://www.dot.ca.gov/dist1/d1projects/eureka_arcata/reports.htm). Caltrans is planning on certifying these documents and approving this project in early 2017. Permits will then need to be obtained and a final design will need to be approved.

Major proposed project features include safety and operational improvements to U.S. Highway 101 between Eureka and Arcata in Humboldt County, including a grade separated interchange at Indianola Road, a half signal at Airport Road, and a bridge replacement. The primary purpose of the proposed project is to improve safety at uncontrolled left turns on and off the highway. No other improvements are planned by Caltrans.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes Policy C-P5, Level of Service Criteria, which strives to maintain a LOS "C" on all roadway segments, except for any portion of U.S. 101, where Level of Service "D" would be acceptable, and further states that Level of Service improvements for automobiles should not adversely affect Level of Service and/or Quality of Service for other modes of transportation, if possible. Policy C-P17, Highway Improvements, encourages state and federal highway improvements that promote safety and connectivity for all users, especially for communities with highway arterials. Policies C-P6 Jurisdictional Coordination and Integration, and C-P7 Joint Use of Traffic Models, encourages the use of consistent travel demand models and cross jurisdictional coordination in addressing impacts outside County jurisdiction.

Conclusion

Projected growth during the General Plan Update planning period in conjunction with growth in the cities within the County would increase vehicle trips on U.S. 101 between the cities of Eureka and Arcata. Future traffic levels are projected to cause the highway to fall to LOS "D/E"; therefore, implementation of the General Plan Update would result in a potentially significant impact. The General Plan Update policies and measures referenced above would reduce the anticipated impacts but not necessarily to a less-than-significant level**.** The mitigation measures described below would help reduce the impacts of the General Plan Update on U.S. 101 Between S.R. 255 in Arcata and 6th Street in Eureka.

Mitigation

Mitigation Measure 3.5.3.2.c. Modify Policy C-P17 to demonstrate support for the implementation of Caltrans U.S. 101 Eureka-Arcata Corridor Improvement Project, in a manner consistent with the General Plan Update.

> **C-P17. Highway Improvements.** Encourage state and federal highway improvements that promote safety and connectivity for all users, especially for communities with highway arterials. **The County supports a strategy for safety and operational improvements to the U.S. Highway 101 Safety Corridor that is implemented in a manner consistent with the General Plan.**

Level of Significance after Mitigation

The future U.S. 101 LOS benefits resulting from Mitigation Measure 3.5.3.2.c cannot be definitively determined or tested at this time. In addition, improvements that would involve construction outside of the existing highway cross-section would be within an area that contains significant environmental constraints. Implementation of the Highway 101 Safety Corridor improvements within the General Plan Update planning period would be unlikely. Therefore, with

implementation of Mitigation Measure 3.5.3.2.c, impacts related to the future capacity of U.S. 101 would be reduced, but not necessarily to a less-than-significant level. This would be a **significant and unavoidable impact**.

Impact 3.5.3.2-2: Unacceptable LOS on U.S. 101/Broadway, City of Eureka

Implementation of the General Plan Update will result in increased traffic that will cause U.S. 101/Broadway in the City of Eureka to operate at LOS D in 2028 and 2040, which is the minimum acceptable LOS on U.S. 101 in urban areas in Caltrans District 1.

U.S. 101within the City of Eureka consists of Broadway between 6h Street (south of the one-way couplet) to Herrick Avenue, where the freeway begins. The travel demand model projects that Broadway will operate at LOS D in 2028 and 2040. Broadway is a four-lane, north-south urban principal arterial highway in a mixed land use area. From approximately 800 feet south of the Kmart Traffic Signal to Washington Street, Broadway has a TWLTL. The Broadway corridor is approximately 3 miles in length. The Transportation Concept Report for this facility indicates that Broadway operates at a signalized unstable flow, which means that signalized intersections control level of service, and some intersections within the segment experience unstable flow at peak hour.

The collision rate at certain locations along Broadway reaches as high as four times the statewide average when compared to similar facilities. The corridor also experiences significant traffic congestion and poor mobility for all modes of transportation. The options for improvement include various capacity enhancements, such as added lanes or improved coordination (e.g. signal timing); freeing up capacity by converting trips from vehicles to other modes; and diverting trips to alternative routes, potentially including a bypass. Adding lanes to US 101 is generally infeasible as the route runs through areas that are fully built out, leaving little available space to create new lanes without taking land from adjacent properties. While limited relief could be achieved through optimized signal timing, changes in traffic patterns occur routinely and signal timing should therefore be modified as necessary to reflect such changes (City of Eureka General Plan Update Mobility Policy Paper (http://www.eureka2040gpu.com/Links/pdfs/Mobility%20Policy%20Paper%203-23-15.pdf) .

Analysis of Relevant General Plan Update Policies

The General Plan Update Circulation Element includes the following policy relating to a minimum LOS standard on U.S. 101: C-P5, Level of Service Criteria, which directs that the County shall strive to maintain a LOS "C" on all roadway segments and intersections, except for any portion of U.S. 101, where LOS "D" would be acceptable. This policy further states that Level of Service improvements for automobiles should not adversely affect Level of Service and/or Quality of Service for other modes of transportation, if possible. See Impact 3.5.3.12.c-1 above, for a discussion of how Policies C-P6 Jurisdictional Coordination and Integration, and C-P7 Joint Use of Traffic Model, lessen potential impacts.

Conclusion

The traffic model projects that buildout of the General Plan Update, in conjunction with the implementation of city general plans within the County, would result in traffic levels that would reduce the LOS of the U.S. 101 Broadway corridor at or below "D," which is the General Plan update LOS standard and the LOS concept established by Caltrans for this facility. Therefore, this would be a potentially significant impact.

Mitigation

Mitigation Measure 3.5.3.2.d. A Circulation Element policy shall be added to direct the County to participate in joint planning for the Broadway corridor:

> **C-Px, U.S. 101/Broadway Corridor.** The County shall participate in joint planning for capacity improvements relating to the U.S. 101/Broadway corridor with HCAOG, Caltrans, and the City of Eureka.

Level of Significance after Mitigation

Based on the forecasts of the 2028 and 2040 travel demand model, the LOS on this section of US 101 will reach LOS D as a result of the implementation of city general plans within the County. The benefits to LOS of future Caltrans capacity improvements to U.S 101 cannot be definitively determined or tested at this time and no funding source has been identified. However, with implementation of Mitigation Measure 3.5.3.1.d, impacts related to the future capacity of U.S 101 would be reduced and LOS D is considered acceptable on U.S. 101. This impact is **less than significant**.

Impact 3.5.3.2.-3: Unacceptable LOS on Main St, Between 7th St and 13th Street, Fortuna

Implementation of the General Plan Update will result in increased traffic that will cause Main Street between 7th Street and 13th Street to operate at LOS D in 2028 and 2040.

Main Street and Fortuna Boulevard (North and South) in Fortuna are the former alignment of U.S. 101, prior to the construction of the freeway along the western edge of the City. The segment of Main Street between 7th St and 16th Street comprises the downtown portion of Fortuna and has been upgraded to provide bulbouts and other features that improve the pedestrian experience and provide protected parking areas. This section of Main Street will slightly exceed the County's LOS C standard but is not a candidate for improved capacity. The City of Fortuna General Plan Draft EIR determined that no additional lanes would be needed in this area, however it states that the 9th Street and Main Street and 12th Street and Main Street intersections will drop to F in 2030, and includes a mitigation measure for a signalized new left-turn land to east and west approaches to the 9th Street and Main Street intersection. Intersection improvements at 12th and Main also required. After mitigation, these intersections will drop to D. Policy TC-1.2 says LOS D is acceptable on Main Street.

Analysis of Relevant General Plan Update Policies

See the discussion of Impact 3.5.3.2.-4 above for a discussion of General Plan Update Circulation Element policies relating to minimum LOS standards and jurisdictional coordination.

Conclusion

Based on the travel demand model, growth projected to occur during General Plan Update planning period in conjunction with the growth in the cities within the County would reduce the LOS of the segments of Main Street in Fortuna, between 7th Street and 13th Street to LOS D. However, any mitigation involving capacity improvements, typically include the addition of travel lanes, and this would mean adding lanes to areas that are largely built out, leaving little available space to create new lanes without taking land from adjacent properties. or degrade the desired downtown amenities in the area. Therefore, this impact would be **significant and unavoidable**.

Impact 3.5.3.2-4: Unacceptable LOS on Kenmar Road between U.S. 101 NB Ramps and S. Fortuna Blvd, Fortuna

Growth projected to occur during the General Plan Update planning period in conjunction with the growth in the cities within the County will result in increased traffic that will cause Kenmar Road between U.S. 101 NB ramps and S. Fortuna Blvd. to operate at LOS D or below in 2028 and 2040. The minimum acceptable LOS on U.S. 101 in urban areas in Caltrans District 1 is LOS D.

Kenmar Road is located in the City of Fortuna and extends from South Riverwalk Drive to Rohnerville Road. The portion of Kenmar Road from U.S. 101 to South Fortuna Boulevard currently operates at a LOS "D" according to the travel demand model. Based on the Fortuna General Plan EIR, the intersection with Eel River Drive currently operates at a LOS "C", and the southbound 101 off-ramp to Kenmar is currently at an LOS "E". By 2028 and 2040, the travel demand model projects that the Kenmar Road from U.S. 101 to South Fortuna Boulevard road segment will degrade to LOS "D".

The Fortuna General Plan EIR identifies the following mitigation programs that will improve the operation of this segment and related intersections: South Fortuna Boulevard-Ross Hill Road/Kenmar Road - implement right-turn overlap phasing on both Kenmar Road approaches; Kenmar Road/Eel River Drive – the northbound Eel River Drive approach will need to be widened to provide a right-turn lane; Kenmar Road/U.S. 101 North Ramps – signalize and operate with permitted left-turn phasing (no additional lanes would be needed); Kenmar Road/U.S. 101 South Ramps – signalize, add a right-turn lane on the eastbound approach and operate with permitted left-turn phasing. Upon implementation of these improvements this segments and associated intersections would operate at LOS "C" or better.

Analysis of Relevant General Plan Update Policies

See the discussion of Impact 3.5.3.2.-4 above for a discussion of General Plan Update Circulation Element policies relating to minimum LOS standards and jurisdictional coordination. In particular, the General Plan Update Circulation Element includes the following policy relating to minimum LOS standards, C-P5, Level of Service Criteria, which strives to maintain a LOS "C" on all roadway segments, except for any portion of U.S. 101, where Level of Service D would be acceptable. See Impact 3.5.3.12.c-1 above, for a discussion of how Policies C-P6 Jurisdictional Coordination and Integration, and C-P7 Joint Use of Traffic Model, lessen potential impacts.

Conclusion

Based on the travel demand model, the 2028 and 2040 forecasts of growth projected to occur during the General Plan Update planning period in conjunction with the growth in the cities within the County indicate that, the LOS on this section of Kenmar Road would be reduced to LOS D. The City of Fortuna General Plan identifies a series of mitigations intended to improve the future operation of the Kenmar Road/Eel River Drive, Kenmar Road/U.S. 101 North Ramps, and Kenmar Road/U.S. 101 South Ramps to LOS "C". LOS benefits resulting from mitigation measures contained in the City of Fortuna General Plan Update DEIR cannot be definitively determined or tested at this time; impacts related to the future capacity of Kenmar Road would be reduced, but not necessarily to a less-than-significant level. Therefore, as the full implementation of these mitigation measures may not be sufficiently effective, and implementation of the mitigation is the jurisdiction of the City of Fortuna and not Humboldt County, this impact would be **significant and unavoidable**

Impact 3.5.3.3 Regional Level of Service Standard

Implementation of the General Plan Update would generate levels of development that result in increased traffic volumes on roads within the County that could Conflict with an applicable regional level of service standard.

This impact analysis addresses item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.5.2 above. Pursuant to these criteria, the proposed County General Plan Update would have a significant impact if it would:

c) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.

The Humboldt County Association of Governments (HCAOG) is the Regional Transportation Planning Agency for Humboldt County. There is no regional congestion management agency in Humboldt County. The HCOAG Regional Transportation Plan (RTP) was adopted in 2014, The RTP does not establish level of service standards for roadway or multi-modal facilities.

The HCAOG Regional Transportation Plan (Variety in Rural Options of Mobility, HCAOG 20-Year Regional Transportation Plan 2014 Update, http://hcaog.net/sites/default/files/vroom_adopted_w_8.5x11_maps_0.pdf) Policy HR-11 states that level of service (LOS) standards are to be used to measure the performance of all regionally significant roadways that contribute to the regional transportation network. Objectives that are intended to carry out this policy call for the development and maintenance of a list of regionally significant roadways with established minimum acceptable LOS for each, and periodic traffic volume counts to determine whether minimum LOS levels are being maintained. A second objective calls for the traffic volume LOS to be coordinated with other bicycle and pedestrian LOS to achieve balanced multi-modal use of roadways.

Table HR-1 on page HR-2 of the RTP lists regionally significant streets roadways that are identified by members of city and County staff (the list of regionally significant roads in the unincorporated area identified by County staff is presented herein under the heading Major County Roads in 3.5.1 Transportation/Traffic -Environmental Setting). Given that Policy HR-11 includes an objective to establish a list of regionally significant roadways, it is not clear if the list in Table HR-1 is the official HCOAG list or if it represents an intermediate step towards establishing such a list. In addition, the 2014 RTP does not establish a regional LOS standard. Nonetheless, it is clear from Impact 3.5.3.1 above that projected growth during the General Plan Update planning period would result in additional traffic congestion and contribute to reductions in the level of service on County roads, state highways, and city streets.

Analysis of Relevant General Plan Update Policies

The following proposed Circulation Element policies are intended to reduce roadway congestion on County roads, state highways, and city streets and to facilitate coordination with HCAOG, Caltrans, and the seven cities. Policy C-P6, Jurisdictional Coordination and Integration, directs the County to use HCOAG, formal Memorandums of Understanding, and informal project level cooperation to integrate countywide transportation planning and implementation efforts. Currently, the County and each city maintain their own roadway standards. Policy C-P7, Joint Use of Traffic Models, would direct the County to integrate transportation planning and analysis through joint use of area-wide traffic models such as the Greater Eureka Area Travel Demand

Model (GEATM). Implementation Measure C-IM4, Regional Coordination, directs the County to support and participate in joint circulation system and land use planning with HCOAG, affected cities, Caltrans, and other transportation agencies and providers.

The GPU does establish a level of service criteria for County roads. Pursuant to Policy C-P5, Level of Service Criteria, the County shall strive to maintain Level of Service C operation on all roadway segments and intersections, except for U.S. 101, where Level of Service D shall be acceptable. This policy also states that Level of Service and/or Quality of Service for automobiles should not adversely affect Level of Service and/or Quality of Service for other modes of transportation, if possible. In addition, Policy C-P4, Mitigation Measures, requires that development with potentially significant impacts as determined by CEQA review be conditioned to proportionally mitigate such impacts through payment of impact fees, construction of on-site and off-site improvements, and dedication of rights-of-way, or a combination of impact fees, improvements and dedications.

Conclusion

As noted above, the growth projected to occur during the General Plan Update planning period has the potential to exceed level of service standards for certain roads and highways. The HCAOG Regional Transportation Plan does not specify a level of service standard for designated roads or highways, nor does any other HCAOG adopted document. The policies, standards and implementation measures listed above under Impact 3.5.3.2, address this impact and would require that transportation demand measures or road improvements are implemented in a timely manner so as to avoid deterioration in levels of service. However, this EIR cannot guarantee that transportation management programs would be implemented or would be completely successful, and that capacity related roadway improvements could feasibly be constructed. Therefore, this is a **potentially significant impact**.

Mitigation

Mitigation Measure 3.5.3.2.a will add an implementation measure that involves using best available traffic information, and working with other agencies to implement a coordinated traffic management strategy to plan and prioritize transportation demand measures and roadway improvements to reduce roadway congestion along such roadways, which will help reduce this impact as well.

Level of Significance after Mitigation

Mitigation 3.5.3.2a establishes a program for congestion relief by planning cooperatively with HCAOG, Caltrans, applicable cities, HTA, or other agencies to implement a coordinated traffic management strategy to plan and prioritize transportation demand measures and roadway improvements to reduce roadway congestion along such roadways and to use of a Countywide traffic impact fee program to support project implementation. These programs have the potential to reduce future congestion. However, potential congestion relief projects have not been identified, and coordination between affected agencies has not yet occurred. Therefore, the benefits to LOS of future capacity improvements cannot be definitively determined or tested at this time; therefore, with implementation of these mitigation measures, future capacity related impacts would be reduced, but not necessarily to a less-than-significant level. This impact would remain **significant and unavoidable**.

Impact 3.5.3.4: Air Traffic

Implementation of the general plan would allow new development and associated traffic that could pose safety risks due to conflicts with airport operations or potential exposure of new development to airport hazards.

This impact analysis addresses item "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.5.2 above. Pursuant to these criteria, the proposed General Plan Update would have a significant impact if it would:

c) 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.

Humboldt County contains eight general-aviation airports (Dinsmore, Samoa, Garberville, Hoopa, Kneeland, Murray, Rohnerville, and Shelter Cove), and one commercial service primary airport. The Humboldt County Airport Land Use Commission has established airport land use compatibility plans for each airport, except Samoa Field. The plans describe the allowable land uses and development standards for each airport compatibility zone.

Impact 3.7.2.5, Airport Safety Hazards, in Chapter 3.7, Hazards and Hazardous Materials, analyzes the extent to which the implementation of the General Plan Update would locate land uses within an airport land use plan or within two miles of an airport, which would result in a safety hazard for people residing or working in the project area. This safety hazards analysis described the proposed land use designations around airports and found that certain land use designations would conflict with the Airport Land Use Compatibility Plan. Impact 3.7.2.5 included several mitigation measures that would require that the proposed land use designations or allowable densities be changed in a manner consistent with the Airport Land Use Compatibility Plan, or that an overlay by applied to limit residential density and employment intensity to levels consistent with the Airport Land Use Compatibility Plan.

Residential and commercial growth during the General Plan Update planning period would likely generate additional passenger and cargo air travel within the County. However, the proposed General Plan Update does not contemplate land uses that would require any changes to air traffic patterns.

Pursuant to state and federal regulations, Humboldt County prepares an Airport Master Plan for each airport that it operates that evaluates safety risks. The Airport Master Plan is a 20-year comprehensive study that describes the short-, medium- and long-term development plans of an airport and its facilities. The master plans also contain an Airport Layout Plan that provides a graphic representation of the current conditions and the future long-term planned development for an airport as well as a capital improvement program that addresses how the master plan is to be implemented.

The Arcata-Eureka Airport Master Plan Report (September 2005) for the California Redwood Coast – Humboldt County Airport contains of future airport operations forecasts. Currently, commercial service is provided by United Express and Pen Air. The Arcata-Eureka Airport Master Plan projects that aircraft operations at the California Redwood Coast – Humboldt County Airport will increase from 49,000 in 2004 to 55,000 in 2024, a 12 percent increase. Passenger enplanements are projected to increase from 98,453 in 2004 to 167,000 in 2024. However, the slowing local economy since those projections may have an influence on future passenger travel growth rates.

Aircraft operations at the Dinsmore, Garberville, Murray Field, and Rohnerville airports are expected to increase by between 15 and 18 percent between 2010 and 2025 according to Table AS3 Aviation Activity Forecast – Annual Operations, of the Regional Transportation Plan Aviation Systems Element. Samoa Field, Hoopa Airport, and Shelter Cove Airport are not anticipated to experience increases in aircraft operations in the next 20 years. The airport master plans identify the improvements if any that may be required to accommodate future aircraft operations.

Analysis of Relevant General Plan Update Policies

The following proposed Safety Element policies are intended to ensure that implementation of the General Plan Update does not result in a change in air traffic patterns or an increase in traffic levels or a change in location that results in substantial safety risks. Safety Element Policy S-P21, Development Compatibility, encourages the ALUC to review the Airport Land Use Compatibility Plans (ALUCP) at least every five years to ensure the ALUCP accurately defines planning areas around airports, to establish land use policies and standards appropriate for the public safety and protection of airport operations, and to amend the General Plan to be consistent with changes to the ALUCP. Standard S-S14, Airport Land Use Compatibility Plan, requires that development within the jurisdiction of Airport Land Use Compatibility Plans (ALUCP) conform to the policies and standards of the ALUCP. Policy S-P22, Airport Land Use Compatibility Criteria, directs the County to regulate and plan land use around airports according to the Airport/Land Use Safety Compatibility Criteria (Safety Element Table 14-A), which is required to be consistent with the ALUCP. Policy S-P24, Airport Safety Combining Zone, indicates that airport safety combining zones are to be used within airport influence areas to ensure consistent application of the Airport Land Use Compatibility Criteria matrix. Policy S-P23, Obstruction-free Approach Surfaces, allows the maintenance of obstruction-free approach surfaces at all airports identified on the Approach and Clear Zone plans consistent with FAA requirements to be principally permitted. Also, Humboldt County Code Section 333-1 regulates building heights near airports.

Conclusion

The Safety Element policies and standards identified above along with the established airport land use compatibility plans would protect future operations of the airports and provide for the safety and compatibility of adjacent land uses. Because future land uses and development would continue to be subject to the established airport land use compatibility plans regulations and policies, this impact would be **less than significant**.

Mitigation

None required.

Impact 3.5.3.5: Road Safety

Implementation of the proposed General Plan Update would result in increased vehicle, pedestrians, and bicyclists trips on roadways within the unincorporated area, thereby increasing hazards to roadway users.

This impact analysis addresses item "d" of the significance criteria described in Section 3.5.2 above. Pursuant to these criteria, the proposed General Plan Update would have a significant impact if it would:

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Table 3.5-6, General Plan Update Circulation System Improvements, lists a series of additional road segments that are planned as part of the General Plan Update. The General Plan Update Circulation Diagram contains general illustrations of the proposed alignments for these roadways; however, designs have not yet been prepared. Changes in the alignment of these routes should be expected. New County roadways would be designed and constructed to meet the requirements of the Caltrans Highway Design Manual and/or AASHTO standards, which is consistent with federal highway standards. It is presumed therefore that roadway design would not create additional safety hazards. Other roads that are proposed by applicants to serve their projects would be constructed to meet County roadway standards contained in the Appendix to Title III, Division 2, of the Humboldt County Code Establishing Subdivision Design and Improvement Standards and Chapter 2, Emergency Access, of the Humboldt County Fire Safe Regulations; Title III - Land Use and Development---Division 11; the Humboldt County Design Manual; AASHTO; and the Caltrans Highway Design Manual.

Analysis of Relevant General Plan Update Policies

The General Plan Update supports a safe and efficient transportation system that accommodates automobiles, trucks, transit buses, bicycles, pedestrians, and the mobility-challenged population. Circulation Element Goal C-G1, Circulation System Safety and Functionality, defines a General Plan Update circulation system that is safe, efficient circulation system to all cities, communities, neighborhoods, recreational facilities, and adjoining regions. The Circulation Element contains policies to ensure that roadway design reduces roadway safety hazards and accommodate multi-modal users.

The Circulation Element includes policies and standards that that relate to safe circulation facilities for all transportation modes. C-P25, Multimodal Level of Service (LOS) and Quality of Service Standards (QOS), directs the County to use objective methods and criteria to formulate Level of Service (LOS) and Quality of Service (QOS) standards which consider "walkability audits" and "bikeability audits" suitable for the locality, to assess and plan the multi-modal quality and capacity of County roads and intersections. Policy C-P31, Design Standards for All Pathways, requires that design standards appropriate to urban, suburban, rural and remote character shall be used by the County Public Works Department for the design and construction of pedestrial and bicycle facilities. In addition, Policy C-P32, Traffic Calming, directs the County to use traffic calming measures, where feasible and appropriate, as a means of providing safe pedestrian and bicycle access.

Circulation Element Standard C-S5, Prioritizing Roadway Capital Expenditures, directs the County to use objective criteria to prioritize roadway capital expenditures and directs the County to develop criteria to reflect consideration of information such as accident data and traffic engineering safety analysis for safety projects, and LOS and QOS measures for congestion relief projects.

Specific policies that address existing transportation safety issues include Circulation Element Policy C-P17, Highway Improvements, which indicates that Humboldt County supports a strategy for safe and connective improvements. Policy C-P24, Investment in Improvements, requires that the County's Capital Improvement Plan be consistent with the County-Wide Transportation Plan and that the level of service and quality of service for all users not be diminished when expanding roadway capacity for motorized circulation, and encourages road resurfacing

projects to provide improved access and safety for bicycles. Policy C-P29, Removal of Obstacles in Pathways, would require that, where feasible and consistent with the County-Wide Transportation Plan, new pathways and sidewalks be free of obstacles such as utility poles and mailboxes, and that existing sidewalks or pathways be widened or otherwise designed to provide the least amount of obstruction to users where obstacles are unavoidable. In addition, Policy C-P18, County Feedback to School Districts Regarding Transportation Planning, directs the County to provide feedback to school districts with new school site locations or other significant changes to school facilities or operations, to give advice on mitigating traffic impacts and promote multi-modal school site access.

For new development, Policy C-P4, Mitigation Measures, requires that development with potentially significant circulation impacts as determined by CEQA review be conditioned to proportionally mitigate such impacts through the payment of impact fees, construction of on-site and off-site improvements, and dedication of rights-of-way, or a combination thereof. The Land Use Element Rural Lands Chapter Policy RL-P5, Road Constraints and Rural Development, requires that rural zoning densities and subdivision approvals reflect road constraints identified by the County Public Works Department. This policy specifies that subdivisions may be allowed where roads can be feasibly improved to minimum County standards at the time of subdivision, or incrementally through road improvements from future development. Implementation measure RL-IM2, Identification of Substandard Roads, directs the County to coordinate with area emergency service providers to inventory and map road segments that do not meet subdivision road standards or State Responsibility Area Fire Safe standards. Such a measure constitutes a major undertaking and requires identification of a funding source.

Conclusion

The proposed General Plan Update Circulation Element has as its first goal to provide safe and efficient circulation system to all cities, communities, neighborhoods, recreational facilities, and adjoining regions, and contains policies to ensure that roadway design reduces roadway safety hazards and accommodates multi-modal users. The General Plan Update would prioritize improvements that address existing safety problems and design of new improvements to meet appropriate standards. Therefore, General Plan Update impacts relating to hazards to roadway users as a result of the General Plan Update would be **less than significant.**

Mitigation

None required.

Impact 3.5.3.6: Inadequate Emergency Access.

This impact analysis addresses item "e" of the significance criteria described in Section 3.5.2 above. Pursuant to these criteria, the proposed General Plan Update would have a significant impact if it would:

e) Result in inadequate emergency access.

Inadequate emergency access and egress can occur as a result of an incomplete or not fully interconnected roadway network, such as inadequate roadway widths or turning radii, dead end or gated roads, one-way roads, or single ingress and egress routes. The lack of a comprehensive road network can result in traffic congestion or blocked routes which can limit the responsiveness of emergency service providers or trap residents trying to evacuate during an emergency. In addition, inadequate roadway widths and turning radii and one-way roads can

impair emergency access and cause delays in response. Gated communities can also obstruct access for emergency vehicles and hinder egress for residents evacuating in the event of an emergency such as a fire. The County also has several low water bridges or crossings that affect access in winter months.

The Humboldt County road network is comprised of highways and state routes, arterials, collectors, and local public, private, and fire access roads. Many neighborhoods and residential areas in McKinleyville and the unincorporated area surrounding the City of Eureka have been developed on cul-de-sacs or have small network of local roads that are served by a single access road. As indicated above, the lack of multiple connection points limits the ability of residents to evacuate in the event of an emergency and limits the ability of emergency responders to render prompt assistance. A major problem is gates on secondary access roads where residents may not know that there is a secondary access road since the gate is typically closed. The McKinleyville and Eureka Community Plans circulation maps identify road extensions and new connectors intended to improve circulation and that would provide better emergency access.

There are 25 roadway extensions or planned connectors that are intended to improve circulation and emergency access within the McKinleyville area. The Humboldt Hill area may be the largest unincorporated urbanized area with a single access. Approximately 2,200 people who live along Humboldt Hill Road have only one access road. The proposed Circulation Diagram contains 5 new connectors that would improve emergency access in the Humboldt Hill area, including: a connection from Loma at King Salmon Drive to London (Connector 40); the Aspen Road Extension to Loma; the Mesa Avenue Extension to Connector 40; a new connection from Humboldt Hill to Tompkins Hill (Connector 42); and a connection from the Barry Property to Connector 42.

Within rural areas, there are many communities and inhabited areas with only one access road, and sometimes old logging roads that are gated and can be used as emergency evacuation routes. Unless these roads are open at all times, such routes may not be known to all residents or emergency responders and can therefore not be relied upon for secondary access.

The Fire Safe Regulations (Title III, Land Use and Development, Division 11) apply to subdivisions and other new development within the State Responsibility Area, which covers most of the unincorporated County. The Fire Safe Regulations require that new road and street networks, whether public or private, provide for safe access for emergency wildland fire equipment and civilian evacuation, and provide unobstructed traffic circulation during a wildfire emergency. The Fire Safe Regulations specify road width, surface, grade, radii, turnouts and turnarounds, the maximum length of dead-end roads, as well as specify standards for driveways and gated entrances. Roadway standards for new development are also specified in Appendix to Title III, Division 2, of the Humboldt County Code establishing subdivision design and improvement standards. New County roadways would be designed and constructed to meet the requirements of the AASHTO standards, and/or Caltrans Highway Design Manual, which is consistent with federal highway standards.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes policies, standards and implementation measures intended to ensure adequate emergency access to the new development planned under the General Plan Update. Rural Land Chapter of the Land Use Element Policy RL-P5, Road Constraints and Rural Development, requires that rural zoning densities and subdivision approvals reflect road constraints identified by the County Public Works Department and allows subdivisions where

roads can be feasibly improved to minimum County standards at the time of subdivision, or incrementally through road improvements from future development. Rural Lands Implementation Measure RL-IM2, Identification of Substandard Roads, directs the County to coordinate with area emergency service providers to inventory and map road segments that do not meet subdivision road standards or State Responsibility Area Fire Safe standards; assess the feasibility of achieving minimum standards through the Public Works Capital improvement program or through incremental road improvements provided by future development; and where adequate access cannot be achieved by these methods, place an overlay zone over the affected area restricting further residential subdivision.

Circulation Element Standard C-S1, Functional Classifications, states that roadway classifications and standards are shown in General Plan Circulation Element Table 7-B and further specified in the Subdivision Regulations. Circulation Element Implementation Measure C-IM1, Countywide Transportation Plan, directs the County to adopt a clear plan for the development and improvement of multi-modal transportation infrastructure, which will include a review and update of roadway, pedestrian, and bicycling facility standards in the Humboldt County Roadway Design Standards Manual, Title III—Land Use and Development Division 2 Subdivision Regulations, and other appropriate ordnances. This standard and implementation measure would ensure that current roadway standards continue to be implemented and are updated as needed.

Conclusion

The implementation of these General Plan Update policies, standards and implementation measures would help ensure that adequate emergency access is in place to serve planned development or that development density would be limited to a level consistent with available access. These policies, standards and programs, in concert with existing standards, would reduce the likelihood that implementation of the General Plan Update would result in inadequate emergency access below a threshold of significance. Therefore, General Plan Update impacts relating to inadequate emergency access would be **less than significant.**

Mitigation

None required.

Impact 3.5.3.7: Conflict with Multi-Modal Policies, Plans, or Programs

Implementation of the General Plan Update would result in new development and contain new policies that could conflict with regional multi-modal transportation plans, or otherwise decrease performance or safety of multi-modal facilities.

This impact analysis addresses item "f" of the significance criteria described in Section 3.5.2 above. Pursuant to these criteria, the proposed General Plan Update would have a significant impact if it would:

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

The HCAOG Regional Transportation Plan (RTP) would be the most appropriate multi-modal policy, plan, or program against which to compare the General Plan Update in regard to

potential conflicts. The overall goal of the RTP is to develop, operate, and maintain a well-coordinated, balanced, countywide multimodal transportation system that is safe, efficient, and provides good access to all cities, communities, and recreational facilities, and into adjoining regions. A balanced multimodal transportation system includes but is not limited to highway, public transit, aviation, marine, railroads, recreation, bicycle, pedestrian, and utility systems. The RTP establishes policies to meet this goal, which include preserving the road system, encouraging interconnectivity, linking inter-county systems, promoting a multimodal transportation system, and promoting transportation system management.

Other County multi-modal plans include the 1978 Humboldt County Trails Master Plan, which contained policies intended to develop an accessible trails network as shown on trails maps; provide safe bicycle and pedestrian trails to schools, when it is determined that inadequate access exists; encourage development of trails with varying lengths and difficulty through diverse terrain, scenery, and points of attraction; and blend trails into the natural environment to reduce environmental disruption. The County also participated in the preparation of the Manila Community Transportation Plan, 2005, that documents the technical details of existing and future traffic conditions and provides details regarding projects to address existing problems and enhance mobility for Manila.

HCAOG has also prepared the Humboldt County Coordinated Public Transit Human Services Transportation Plan, 2016, which identifies unmet transit needs and identifies strategies to address them. Other HCAOG plans that address public transit, bicycle, or pedestrian facilities include the Regional Pedestrian Needs Assessment, 2008, and the Humboldt County Regional Trails Master Plan, 2010. Each of these plans evaluates existing multi-modal transportation facility conditions and identifies and prioritizes future facility needs.

Transit service is available to portions of about two-thirds of the inland and coastal Community Planning Areas within the County, and serves up to 55 percent of the unincorporated area population. However, not all residents of these Community Planning Areas live within walking distance of bus stops. Community Planning Areas served by transit are concentrated in and around Humboldt Bay, with service also available within Community Planning Areas north and south along U.S 101 between Trinidad and Garberville, and east along S.R. 299 to Willow Creek. The Transportation-Disadvantaged Populations Report found that "there is generally good transit access to those services in the Humboldt Bay region with the exception of a few areas with concentrated populations (such as south of Eureka and between Eureka and Arcata). Another notable gap between transit access and population concentration is in the Carlotta-Hydesville area. Generally, in rural areas where transit services are more costly and challenging to provide, analysis indicates very limited service." Table 6-1, Identified Needs and Strategies/Projects, on Page 56 of the Humboldt County Coordinated Public Transit Human Services Transportation Plan, contains a series of strategies to address unserved or underserved areas, in particular: "Provide transit, or develop feeder route systems(s) that would link to main routes for the farther-out communities with low populations. Unserved communities identified: Between Eureka and Arcata along Old Arcata Road, (Freshwater, Bayside, Jacoby Creek), Samoa, Ferndale, Orick, McKinleyville, Bridgeville."

Analysis of Relevant General Plan Update Policies

The General Plan Update includes policies, standards and implementation measures intended to ensure consistency between the General Plan Update and regional multi-modal transportation plans. Circulation Element Goal C-G3, Interagency Cooperation, envisions coordinated planning between the County transportation system service providers and HCAOG for improved system design, development, operations, and maintenance.

Policy C-P2, Consideration of Land Uses in Transportation Decision Making, requires that land use and transportation decisions be based on a comprehensive planning approach that considers existing land uses, principally permitted land uses and future land development as proposed in adopted County plans and plans of other governmental agencies. Policy C-P6, Jurisdictional Coordination and Integration, directs the County to use HCOAG, formal Memorandums of Understanding, and informal project level cooperation to integrate countywide transportation planning and implementation efforts. Policy C-P22, Public Transit, requires that the County support the implementation of guiding goals, policies, and objectives of the Public Transit and Paratransit Service Element of the Regional Transportation Plan as amended, to the extent they are consistent with the General Plan. Policy C-S8, Pedestrian and Bicycle System, requires that a County adopted Pedestrian and Bicycle System Plan consistent with the RTP shall identify trails and routes considered a part of County maintained circulation system. This standard further states that development projects proposed on lands that include a County maintained trail or route may be required to dedicate easements or make improvements.

In addition to policies that require the County to coordinate its multi-modal planning and projects with the RTP, the Circulation Element contains additional policies that are intended to improve the capacity of multi-modal transportation facilities. Policy C-P23, Public Transit Service, requires the County to coordinate and integrate with public transportation providers so that a full range of travel patterns and connectivity with other modes of transportation can be supported.

Policy C-P25, Multimodal Level of Service (LOS) and Quality of Service Standards (QOS), directs the County to use objective methods and criteria to formulate Level of Service (LOS) and Quality of Service (QOS) standards which consider "walkability audits" and "bikeability audits" suitable for the locality, to assess and plan the multi-modal quality and capacity of County roads and intersections. Standard C-S7, Transit, Bicycle, and Pedestrian Quality/Level of Service Standards, requires that bicycle and pedestrian Quality of Service and Level of Service Standards be specified in county code and that Transit Level of Service standards specified in the Public Transit Service Element of the Regional Transportation Plan as amended, be utilized in land use planning. Implementation Measure C-IM12, Pedestrian and Bicycle System Plan, requires that the Public Works Department prepare a Pedestrian and Bicycle System Plan consistent with the Regional Transportation Plan and incorporate standards into the Subdivision Regulations.

Implementation Measure C- IM11, Transit Service to East, South and North County, directs the County to pursue funding and partnerships with the Humboldt Transit Authority, Native American tribes, and non-profit transportation organizations to establish and sustain transit services to rural communities. Air Quality Element Policy AQ-P1, Reduce Length and Frequency of Vehicle Trips, directs the County to reduce the length and frequency of vehicle trips through land use and transportation policies by encouraging mixed-use development, compact development patterns in areas served by public transit, and alternative modes of travel.

Conclusion

The proposed policies contained in the General Plan Update are supportive of the RTP, and encourage the consideration of transportation impacts in land use decision making and coordination with HCAOG and transportation service providers. Therefore, the General Plan Update would not conflict with policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities adopted by HCAOG.

A significant portion of planned development is outside areas served by transit providers. Approximately 200 acres of land planned for medium density residential uses is more than ¼ mile from existing transit stops, but could be served with the establishment of additional transit stops along existing nearby routes or the extension of existing routes. However, these conditions would not decrease the performance or safety of public transit, bicycle, or pedestrian facilities. Therefore, General Plan Update impacts relating to multi-modal policies, plans, or programs would be **less than significant.**

Mitigation

None required.

3.6 Noise

This section provides background information regarding noise sources within the county, the regulations and programs that provide for the protection of land uses that are sensitive to noise, and an assessment of the potential noise related impacts of implementing the proposed General Plan Update. The existing noise environment is described in Chapter 13, Noise, of the *Natural Resources and Hazards Report*, December 2002 (Appendix D), which includes a discussion of Humboldt County noise and view sheds. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka or for download at http://humboldtgov.org/571/Background-Reports , is incorporated by reference, and summarized below. Additional noise surveys were conducted for this EIR by Environmental Science Associates (ESA), between November 14th and November 18th of 2016. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.6.1 Noise - Environmental and Regulatory Setting

Noise Background and Terminology

Noise is defined as unwanted or objectionable sound. The objectionable nature of sound could be caused by its pitch or its loudness. Pitch is the height or depth of a tone or sound, depending on the relative rapidity (i.e., frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. Loudness is the amplitude of sound waves combined with the reception characteristics of the ear. Amplitude may be compared with the height of an ocean wave.

Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers, to the intermittent disturbances of overhead aircraft, to the constant noise generated by traffic on freeways or mechanical equipment associated with an industrial facility. Noise is primarily a concern for residences, schools, churches, parks, and hospitals. Excessive noise also can adversely affect the quality of life and the rural ambiance that attracts many visitors to Humboldt County.

In addition to the concepts of pitch and loudness, there are several noise measurement metrics which describe noise in a particular location. A decibel (dBA) is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in dB are calculated on a logarithmic scale. An increase of 10 dB represents a ten-fold increase in acoustic energy, while 20 dB is 100 times more intense, 30 dB is 1,000 times more intense, and so on. There is a relationship between the subjective noisiness or loudness of a sound and its dB level. Each 10 dB increase in sound level is perceived as approximately a doubling of loudness over a wide range of intensities.

As a general rule, sound from localized or point sound sources spreads out as it travels away from the source and the sound level drops at a rate of 6 dB per doubling of distance. The sound level from a line source such as traffic on a highway will drop off at a rate of 3 dB per doubling of distance. If the intervening ground between the highway and the receptor is

acoustically "soft" (e.g., ground vegetation, scattered trees, clumps of bushes), an attenuation rate of 4.5 dB per doubling of distance is generally used.

According to the Governor's Office of Planning and Research, maximum exterior noise levels of 60 dBA are considered "normally acceptable" for unshielded residential development. Noise levels from 60 to 70 dBA fall within the "conditionally unacceptable" range, and those in the 70 to 75 dBA range are considered "normally unacceptable."[1]

Existing Noise Conditions in Humboldt County

The Natural Resources and Hazards Report contains descriptions of noise levels in Humboldt County. The major sources of noise in Humboldt County includes highway and roadway traffic; aircraft in the vicinity of airports (see Airport Noise below, and 3.7 Hazards and Hazardous Materials, for a description of airports in Humboldt County); railroad traffic along the Northwestern Pacific right-of-way; and noise from industrial activities, such as lumber mills; power plants, (including facilities in Blue Lake, Fairhaven, and Scotia); and construction sites. Most of these noise source types are found within incorporated areas of the County. Noise complaints are received by the Sheriff's Office and Code Enforcement Unit and the Sheriff's Office acts on noise matters that result in public nuisances.

Noise-Sensitive Land Uses

Land uses such as residential, schools, hospitals, parks, outdoor restaurants, and lodging are most affected by noise and are referred to as noise sensitive land uses. General Plan Update Table 13-D, Land Use/Noise Compatibility Standards shows the County's noise exposure standards for various land use types (this table is identical to Figure 3-2, Land Use/Noise Compatibility Standards, in Section 3240, Noise, of the Framework General Plan). These standards, or thresholds, are intended to ensure that new development limits the noise exposure of noise-sensitive land uses. Development standards for new uses may require the installation of fences, landscaping, and noise insulation to mitigate the impacts of excessive noise levels.

Transportation Related Noise Traffic Noise

Traffic noise depends primarily on the speed of traffic and the percentage of truck traffic. The primary source of noise from automobiles is high frequency tire noise, which increases with speed. In addition, trucks and automobiles produce engine and exhaust noise, as well as wind noise. Pavement type and condition can also influence traffic noise. Noise from automobiles is generally located at ground level, whereas truck noise sources can be located as high as 10 to 15 feet above the roadbed due to tall exhaust stacks and higher engines. Thus, sound walls need to be approximately ten to fifteen feet tall to be effective for mitigating transportation noise.

Differences in elevation can dampen the perceived noise level. Noise from a thoroughfare in a trough or valley between residential areas is reflected upward and focused, similar to a satellite dish, while noise from an elevated thoroughfare will dissipate and is perceived as less of an annoyance. On flat ground, a buffer (such as a sound wall or dense vegetation) can greatly reduce the noise escaping to surrounding areas.

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1 State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*

Humboldt County is subject to transportation related noise impacts primarily from Highway 101and other state highways, which create noise in adjacent areas. Table 3.6-1, displays the result of noise surveys conducted at various locations along US 101, State Route (SR) 299, SR 96 and SR 36 over a 24-hour period in November 14 through November 18, 2016. Monitoring sites included incorporated, unincorporated, and rural areas of the County. Distances to the 60 dBA CNEL contour ranged from 50 feet south of Owl Mine Road along SR 96 near Orleans to 1,228 feet north of Indianola Cutoff along Highway 101 near Brainard. .

Table 3.6-1. Existing Traffic Noise Levels in Humboldt County (2016)

Location	Route	Post Mile	Measured CNEL	Measured distance from Centerline of Road (feet)	Distance to 65 CNEL (feet)	Distance to 60 CNEL (feet)
Benbow	US 101	9.1	73.4	86	312	673
North of Metropolitan Rd.	US 101	54.9	71.4	74	198	426
South of Loleta Dr.	US 101	65.6	75.1	56	264	569
North of Indianola Cutoff	US 101	82.8	75.6	112	570	1,228
North of Airport Rd.	US 101	94.2	69.6	106	215	463
South of Seawood Dr.	US 101	102.8	67.2	130	182	393
South of Bald Hills Rd.	US 101	122.0	68.0	58	92	198
South of Corbett Ranch Ln.	SR 36	7.7	68.1	27	43	94
East of Blue Lake Blvd.	SR 299	8.5	65.7	64	71	154
West of Will Rd.	SR 299	37.8	69.4	56	110	237
South of Orchard Park Ln.	SR 96	2.1	65.2	38	39	84
South of Owl Mine Rd.	SR 96	35.8	63.1	31	23	50

Source: ESA, 2016

Airport Noise

The aviation system for Humboldt County is composed of nine airports. The airports serve as bases for public, private, and commercial aircraft and provide an important means of travel and goods movement. The airports are distributed throughout the County in response to the geographical and population characteristics of the region. The airport name, proximity to the nearest community, and airport operator are provided in Table 3.6-2 below.

Table 3.6-2. Airport Locations in Humboldt County.

Airport	Location	Operator
Arcata-Eureka Airport	McKinleyville	Humboldt County
Dinsmore Airport	¼ miles east of Dinsmore	Humboldt County
Garberville Airport	1 mile southwest of Garberville	Humboldt County
Kneeland Airport	Kneeland	Humboldt County
Murray Field Airport	3 miles east of Eureka	Humboldt County
Rohnerville Airport	0.8 miles south of Fortuna	Humboldt County
Eureka Municipal Airport	Fairhaven	City of Eureka
Shelter Cove Airport	Shelter Cove	Resort Improvement District No. 1 (Shelter Cove)
Hoopa Airport	Hoopa	Hoopa Valley Tribal Council

Aircraft takeoffs, landings, and over-flights are among the most common sources of noise in communities located near airports. In general, airport noise is concentrated towards the end of the runway and will vary depending on the type of aircraft (e.g., size and type of engine), the

frequency of flights, flight patterns, and local topography. Noise from aircraft is often more intrusive and has a higher potential noise impact than noise from traffic along roadways.

The noise contours are one of the factors used to define compatibility zones around airports. The 60 CNEL is considered normally acceptable for residential areas in the vicinity of airports. The Airport Land Use Compatibility Plan specifies noise level standards for compatibility with other land use types in Table 2B, Noise Compatibility Criteria.

Noise contour maps for each of the County operated airports as well as the Hoopa and Shelter Cove Airports are contained in the Airport Land Use Compatibility Plan for Humboldt County (March 1993). The Airport Land Use Compatibility Plan identifies the future noise contours for each airport, based on aircraft activity forecasts contained in the airport master plans. Noise contours associated with airports operated by Humboldt County were updated as part of airport master plans prepared between the years 2005 and 2007.

Railroad Noise

The North Coast Railroad Authority (NCRA) rail line connects the Humboldt Bay area to the San Francisco Bay Area. Within Humboldt County the NCRA rail line extends along the Middle Fork of the Eel River from the Island Mountain area to the confluence of the Middle and South Fork Eel River and then follows the Lower Eel River to Loleta, passes through a 0.25-mile tunnel under U.S. 101, then traverses around Humboldt Bay through Eureka, Arcata, Manila, and eventually terminates in Samoa. The rail line was a significant source of transportation noise when it ran regularly. Service to and within Humboldt County was suspended in 2001 due to the deteriorating condition of railway infrastructure. See Section 3.5, Transportation, for additional information regarding this rail line.

The NCRA prepared the Public Draft Environmental Impact Report for the Russian River Division Freight Rail Project in November 2009 (State Clearinghouse Number 2007072052) to evaluate environmental impacts associated with the resumption of freight rail service over the Russian River Division of the Northwestern Pacific Railroad (NWP). Section 3.8, Noise, of that EIR identified noise levels for reference freight trains that are considered representative of the proposed project. The NCRA EIR based noise impacts on a normalized train speed of 50 mph, producing Sound Exposure Levels (SEL) of approximately 96 dBA and 85 dBA for individual freight locomotives and cars, respectively, at a distance of 50 feet from the center of the tracks. These levels were used in the modeling of NCRA project-related freight train noise exposure and would likely be an appropriate approximation for future noise that may result if freight rail transport were to be resumed along the Eel River and Humboldt Bay.

The NCRA EIR also evaluated train warning horn noise. The NCRA EIR indicates that field measurements have shown that warning horns are generally sounded using intermittent, short bursts between ¼- and ⅛-mile from an at-grade crossing. This area is referred to as the "½-Zone". As the train approaches the grade crossing, the horn is generally sounded with more continuous and louder bursts. With respect to the modeling of train warning horn noise exposure, an SEL of 108 dBA at 50 feet perpendicular to the tracks is assumed at the grade crossing. These levels were used in the modeling of NCRA project-related train warning horn noise and would likely be an appropriate approximation for future noise that may result if freight rail transport were to be resumed along the Eel River and Humboldt Bay.

Non-Transportation Noise Sources

Noise can result from many processes and activities even when the best available noise control technology is applied. Noise exposure within industrial facilities is controlled by federal and state employee health and safety regulations, but exterior noise levels may exceed locally acceptable standards. Activities at commercial, recreational, and public services facilities can also produce noise that affects adjacent land uses.

Noise-related Land use controls are typically focused in two areas: (1) preventing the introduction of new noise-producing uses in noise-sensitive areas; and (2) preventing encroachment of noise-sensitive uses on existing noise-producing facilities. The first land use control can be achieved by applying noise performance standards to proposed new noise-producing uses. The second land use control can be accomplished by requiring that new noise-sensitive uses located near noise-producing facilities include mitigation measures to ensure compliance with noise performance standards. Site-specific noise analyses should be performed where noise-sensitive land uses are proposed near noise sources, or where noise sources are proposed to be located near sensitive land uses.

Prominent non-transportation noise sources in Humboldt County include industrial activities (e.g., lumber mills in Scotia and Eureka,), power plants, gravel operations, and rock quarries. Noise from such sources is localized. See Section 3.9 Mineral and Energy Resources for a detailed discussion of mineral extraction in Humboldt County and the regulation associated with such operations.

Construction Noise

Noise from construction and demolition activities adds to the noise environment in the immediate project vicinity. Humboldt County has both urban and rural areas. Construction activities in rural areas would be more noticeable than in urban areas when compared to background noise levels.

The U.S. Environmental Protection Agency has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities that are commonly used in environmental impact analyses. Construction equipment evaluated includes trucks, loaders, back hoes, pneumatic impact equipment, compressors, saws, as well as others. Activities involved in construction would generate maximum noise levels typically ranging from 70 dBA up to nearly 100 dBA at a distance of 50 feet (Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances, US EPA, December 31, 1971). These types of equipment generate both temporary steady state and episodic noise that can be heard both on and off the construction site. Construction activities that create a noise impulse such as pile driving generate even higher noise levels. Although construction activities can vary in duration, they are nonetheless temporary in nature and typically occur during normal daytime working hours.

Ground-borne Vibration

Vibrating objects in contact with the ground radiate energy through the ground. Large and/or powerful vibrating objects can cause vibration perceptible by humans and animals. The vibration of floors and walls may cause perceptible vibration, or shaking and rattling of

windows or dishes on shelves, or a rumble noise. The rumble is the noise radiated from the motion of the surfaces of a room within a building. In essence, the room surfaces act like a giant loudspeaker causing what is called ground-borne noise (Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006 FTA-VA-90-1003-06).

The effects of ground-borne vibration include movement of the building floors which can be felt, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings.

The basic concepts of ground-borne vibration can be illustrated by train wheels rolling on the rails, which create vibration energy that is transmitted through the track support system into the transit structure. The amount of energy that is transmitted into the transit structure is strongly dependent on factors such as how smooth the wheels and rails are and the resonance frequencies of the vehicle suspension system and the track support system. These systems, like all mechanical systems, have resonances which result in increased vibration response at certain frequencies, called natural frequencies.

The vibration of the transit structure excites the adjacent ground, creating vibration waves that propagate through the various soil and rock strata to the foundations of nearby buildings. The vibration propagates from the foundation throughout the remainder of the building structure. The maximum vibration amplitudes of the floors and walls of a building often will be at the resonance frequencies of various components of the building. Ground-borne vibration is almost never annoying to people who are outdoors. Although the motion of the ground may be perceived, without the effects associated with the shaking of a building, the motion does not provoke the same adverse human reaction. In addition, the rumble noise that usually accompanies the building vibration is perceptible only inside buildings.

Common sources of ground-borne vibration are trains, buses and large trucks on rough roads, and construction activities such as blasting, pile driving, and operating heavy earth-moving equipment. In Humboldt County, construction activities are the more common ground-borne vibration source.

3.6.2 Noise - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on noise if one of the following exists:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.
c) Substantial permanent increases in ambient noise levels in the project vicinity above levels existing without the project.
d) Substantial temporary or periodic increases in ambient noise levels in the project vicinity above levels existing without the project.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

Items "a" and "c" are discussed in Impact 3.6.3.1. Noise Exposure. Items "b" and "d" are discussed Impact 3.6.3.2: Ground-borne Vibration and Construction Noise. Items "e" and "f" are discussed in Impact 3.6.3.3, Airport Noise.

3.6.3 Noise - Impacts and Mitigation Measures

Impact 3.6.3.1. Noise Exposure

Projected growth during the General Plan Update planning period could result in development of noise-sensitive uses in areas where noise levels exceed applicable standards for sensitive interior and outdoor areas. Noise levels exceeding standards contained in Noise Element Table 13-D, Land Use/Noise Compatibility Standards, would represent a significant impact.

This impact analysis addresses items "a" and "c" of the significance criteria described in 3.6.2 Noise, Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

a) Result in the exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies; or
b) result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Transportation related noise sources in Humboldt County include car and truck traffic on highways and roads, aircraft noise from general and commercial aviation activities, and noise from maritime vessels traveling at sea and in the harbors. To the extent that the Northwest Pacific Railway begins operating again, the railroad traffic would once again become a significant source of noise within the County. Roadways, in particular federal and state highways, are a major source of ambient noise in Humboldt County, especially because most developed communities are located adjacent to these transportation corridors. However, the sources of noise will remain the same under the General Plan Update as they presently exist. Highways and streets are expected to remain the major noise sources in the County.

Noise levels were calculated by Environmental Science Associates (ESA) for Highway 101, SR 299, SR 255, SR 96 and SR 36 where future growth in Humboldt County could result in an increase in traffic volumes. Based on population growth projections in Humboldt County, the County's population is expected to peak in the year 2028 and decline thereafter. The traffic noise levels were calculated at a reference distance of 50 feet from center of roadway for existing (2010), near-term (2028) and future (2040) conditions. Traffic noise impacts were assessed using the Federal Highway Administration (FHWA) Noise Prediction Model (FHWA RD-77-108) and the project traffic volumes provided by TJKM (TJKM, 2017). The model is based upon the Calveno reference noise factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle trip volume and speed. The results of the traffic noise analysis under existing (2010), near-term (2028) and future (2040) are presented in Table 3.6-3.

Table 3.6-3. Existing (2010), Near Term (2028) and Future (2040) Traffic Noise Levels in Humboldt County

Location	Roadway	Noise Level 50 Feet From Centerline of Roadway (dBA CNEL)			Near Term (2028) minus Existing (2010	Future (2040) minus Existing (2010)
		Existing (2010)	Near Term (2028)	Future (2040)		
		(A)	(B)	(C)	(B - A)	(C - A)
North of Eureka	US 101	76	76	76	0	0
North of Samoa	SR 255	66	66	66	0	0
Near Carlotta	SR 36	68	69	69	1	1
Near Hoopa	SR 96	61	61	61	0	0
North of McKinleyville	US 101	75	76	76	1	1
Near Loleta	US 101	77	78	78	1	1
Northeast of Arcata	SR 299	75	75	75	0	0

Source: ESA, 2017

As shown in Table 3.6-3, the greatest increase in traffic noise would occur near Carlotta along SR 36, McKinleyville along US 101 and Loleta along US 101 where both near-term (2028) and future (2040) traffic noise levels would increase by 1 dB over existing (2010) conditions. This increase in traffic noise would be considered a just-perceivable increase and would not result in a substantial noise increase. All other roadways analyzed would be expected to experience a traffic noise increase no greater than 1 dB, with some roadways actually experiencing a slight decrease in road noise.

The chief non-transportation related sources in the County include mining, industrial, commercial, and utility land uses. Construction activities, power tools, lawn and garden tools, and other intermittent activities around homes and businesses also represent sources of noise.

Traffic and construction noise, noise from commercial and industrial activities, and intermittent noise in residential areas would be expected to increase as development projected growth during the General Plan Update planning period occurs. The following are summaries of noise related environmental analyses from recent community plans and development projects in the unincorporated area and describe the typical mitigation measures that are applied to lessen impacts.

The McKinleyville Community Plan Environmental Impact Report (EIR) (SCH# 9808024) identifies the following sources of noise within that planning area: aircraft landings and take-offs at the Arcata-Eureka Airport; vehicular traffic on Highway 101 and major arterial and collector streets; industrial processes; construction sites; and noise nuisances (barking dogs, amplified music, heavy equipment operation at late/early hours, etc.). This EIR includes Tables 4.9-1 through 4.9-4 that identify year 1999 traffic noise levels and project traffic noise levels for the years 2005, 2010, and 2020. Highway 101 is the facility with the highest noise levels at a distance of 100 feet from the roadway. Other than the Arcata-Eureka Airport, there are no other specific sources of noise identified in this EIR.

The Central Estates Subdivision Phase 2 EIR (SCH# 2008072106) evaluated noise affecting planned uses in the proposed subdivision as well as noise that may be generated by the development of the subdivision. This EIR indicates that noise levels in the area will increase as a result of day-to-day residential activities, such as noise from vehicles and people. Mitigation measures were imposed that limit the hours that certain construction activities can occur and that require the notification of adjacent residents prior to the use of heavy construction equipment.

The Eureka Community Plan EIR (SCH# 9211307) identified roads and commercial-industrial uses as the primary noise sources within the planning area. This EIR also identifies other types of noise, such as intrusive noise resulting from parties, dogs barking, construction activities, and intermittent commercial and industrial activities, and indicates that these noise sources can generate complaints but cannot be quantified as noise generators. This EIR also includes Table 1, Estimated Traffic Noise Levels, which identifies estimated noise levels at specified distances from major roadways within the planning area. This EIR included mitigation measures requiring noise impact analyses for discretionary projects, a measure intended to lessen noise from construction activities, and identifies measures that would lessen road related noise.

The Ridgewood Village Draft EIR (SCH# 2007012007) evaluated noise related impacts of that proposed development. Potentially significant affects are expected to result from project related traffic plus cumulative 2030 traffic on Walnut Drive between Home Drive and Westwood Place, the exposure of incompatible residential uses to logging operations, and stationary and maintenance noise sources associated with the proposed commercial uses. This Draft EIR includes mitigations that would limit the hours within which construction activities can take place, require the use of best available control technology for construction equipment, require that residential units near gulch and open space areas be equipped with triple paned windows and that sales and rental documents include appropriate noise disclosures, and that a noise wall and landscaping be constructed between commercial and residential lots. Feasible mitigation measures are not available to reduce noise impacts along Walnut Drive between Home Drive and Westwood Place, and this impact would remain significant.

The Humboldt County Zoning Regulations contain various measures intended to address noise compatibility that will not be lessened as part of the implementation of the proposed General Plan Update, including:

- **Noise Impact Combining Zones** (Section 314-29.1). Noise Impact Combining Zones are applied to areas where airport or major road noise exposure would be in excess of 60 dBA and would require residential interior noise be limited to acceptable levels.
- **Planned Unit Development Combining Zones** (314-31.1). Planning Unit Development Combining Zones are intended to allow flexibility in the administration of the development standards to cope with difficulties due to topography and other natural or man made feature, such as parking lots and roads and includes noise compatibility standards.
- **Right to Farm** (314-43.2). Regulations intended to reduce the loss of agricultural resources by informing adjacent landowners and limiting the circumstances under which existing and planned agricultural operations may be considered a nuisance to adjacent non-agricultural land uses.
- **Cottage Industry** (314-45.2) **and Home Occupation** (314-50.1) Cottage Industries and home occupation businesses are allowed as a principally permitted appurtenant and accessory use to the residential use to the extent that they do not produce evidence of its existence in the external appearance of the dwelling or premises, or in the creation of

noise, odors, smoke or other nuisances to a degree greater than that normal for the neighborhood.

- **Surface Mining and Reclamation.** State law relating to surface mining operations does not regulate noise, which is considered a local concern, and not of statewide or regional concern. Humboldt County applies General Plan and Zoning noise standards and compatibility criteria to surface mining proposals through the Zoning Regulations to protect against land uses that may be incompatible with the preservation and utilization of natural resources and to assure the adequate supply of these resources for present and future generations.

In addition, regulations that apply in the Coastal Zone, such as Wind General Facility standards (313-91.1 and Industrial Performance Standards (313-103.1)) and are not present in the inland regulations and are applied as guidance where these regulations would lessen potential noise related impacts to adjacent noise sensitive uses.

Analysis of Relevant General Plan Update Policies

The noise goals and policies contained in the proposed General Plan Update are focused on the management of noise sources to minimize the exposure of community residents to excessive noise. Noise Element Goal N-G1, is intended to create a quiet and healthful environment with limited disagreeable noise. Policy N-P1, Minimize Noise from Stationary and Mobile Sources, would apply standards during permit review, such as those currently contained in the Zoning Regulations, to minimize noise and its affect on sensitive receptors. Pursuant to Policy N-P1, a new standard is applied to limit noise related nuisances: Standard N-S8, Short-term Noise Performance Standards Maximum Noise Level (Lmax), establishes the maximum permissible noise levels within zoning classifications and defines the method by which noise measurements are to be conducted; as well as the existing standards contained in N-S1, Land Use/Noise Compatibility Matrix, which identifies levels of noise that are compatible with different land use types. Policy N-P2, Guide to Land Use Planning, would direct the County to evaluate existing noise levels when making community planning and zoning decisions in order to minimize the exposure of sensitive receptors to nuisance noise levels. Policy N-P3, Noise from SR 101 and SR 299, would support the establishment of maintenance priorities for Caltrans for these highways and other measures such as noise reducing surface treatments, landscaping, and the installation of sound walls, which is intended to address the fact that major roadways are among the most significant noise sources within the County. Policy N-P4, Protection from Excessive Noise, would protect persons from existing or future excessive noise levels which interfere with sleep, communication, relaxation health or legally permitted use of property.

Standard N-S2, Noise Impact Combining Zones, would continue the use of established Noise Impact Combining Zones and utilize the most current Airport Land Use Compatibility Plans to identify noise impact combining zone areas to indicate where sound insulation measures may apply. However, the most current Airport Land Use Compatibility Plan was adopted in 1998 relating to the Arcata-Eureka Airport, and more current noise contour maps exist as part of approved Airport Master Plans.

Standard N-S3, Environmental Review Process, would utilize the CEQA process to analyze impacts to discretionary projects in areas with noise exposure that do not have noise contours to ensure that mitigations are incorporated to limit exposure to current and future noise levels. Standard N-S4, Noise Study Requirements, would require the preparation of noise impact studies based on the U.S. Housing and Urban Development Noise Guidebook, or equivalent, for discretionary projects with the potential to generate noise levels that exceed County standards to limit impacts to sensitive receptors. Standard N-S5, Uniform Building Code, would require that

the Uniform Building Code be used to determine the required noise separation requirements for buildings. It should be noted that California now utilizes the International Building Code, not the Uniform Building Code. Standard N-S6, Noise Standards for Habitable Rooms, requires that noise levels in habitable rooms meet the California building standard of 45 CNEL. Standard N-S7, Noise Reduction Requirements for Exterior Areas in Residential Zones, establishes the requirement for an exterior living area of at least 200 square-feet in area that achieves a noise standard of 60 CNEL. Further, Standard N-S8, Short-term Noise Performance Standards Lmax, establishes the maximum permissible noise levels within specified zone classifications.

To fully implement noise policies and standards, Implementation Measure N-IM7x, Noise Control Ordinance, would require that the County prepare and consider a noise control ordinance to regulate noise that defines excessive levels of noise and may exempt or modify noise requirements for agricultural uses, construction activities, school functions, property maintenance, waste collection and other sources and that includes responsibilities and procedures for enforcement, abatement and variances.

Conclusion

As described above, the General Plan Update requires the application of noise impact combining zones in areas where noise standards are exceeded as well as the use of project-specific noise mitigation measures (completion of acoustical studies, use of buffering, and implementation of other noise abatement measures, as necessary). Implementation of these General Plan Update programs, as described above, would lessen the potential for noise levels in areas around new noise-sensitive land uses to exceed the standards contained in Table 13-D. Land Use/Noise Compatibility Standards. The implementation of N-IM7x, Noise Control Ordinance, would further reduce potential impacts. Therefore, this impact would be **less than significant**.

Mitigation

None required.

Impact 3.6.3.2: Groundborne Vibration and Construction Noise

Implementation of the General Plan Update could result in changes in land use designations that would directly lead to construction activities that could result in excessive ground vibration or temporary or periodic increases in ambient noise levels in the project vicinity.

This impact analysis addresses items "b" and "d" of the significance criteria described in 3.6.2 Noise – Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

b) Result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels or
d) Substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile driving and the operation of heavy earth-moving equipment. In Humboldt County, train operations were suspended in 2001 due to the deteriorating condition of railway infrastructure. Therefore, construction activities would be the more common ground-

borne vibration source. Construction and demolition activities associated with project growth during the General Plan Update planning period have the potential to result in varying degrees of temporary or periodic noise increases or temporary ground-borne vibration, depending on the specific construction tools or equipment used, the location of construction activities relative to receptors, and the operations involved. For example, air compressors, heavy equipment and power tools used during construction activities can all generate disturbing levels of noise. Vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. In addition, the type and density of soil can also affect the transmission of energy.

Depending on the nature and location of the future projects, existing vibration-sensitive receptors could be located within close proximity to the proposed construction sites. Temporary, short-term vibration levels from project construction sources could exceed noise thresholds. More importantly, if construction activities were to occur during the more noise-sensitive hours, vibration from construction sources could annoy and/or disrupt the sleep of occupants of existing and proposed residences and expose persons to excessive ground-borne vibration or noise levels.

The types of construction equipment required for future projects is not known at this time, but it could include maximum generation of vibration from trucks and bulldozers. The highest construction noise levels are generated during grading and excavation, with lower noise levels occurring during building construction. Large earth-moving equipment, such as graders, scrapers, and bulldozers, generate maximum noise levels of 85 dBA to 90 dBA at a distance of 50 feet. Typical hourly average construction-generated noise levels are about 80 dB to 85 dB measured at a distance of 50 feet from the site during busy construction periods. These noise levels drop off at a rate of about 6 dB per doubling of distance between the noise source and receptor. Intervening structures or terrain would result in lower noise levels. During active construction periods, hourly average noise levels could exceed 60 dB at distances of 500 to 900 feet.

Construction noise from discretionary projects would be the subject of CEQA review. To the extent construction associated with the project has the potential to result in significant noise levels at adjacent noise sensitive uses, CEQA review would require that mitigations be imposed to reduce impacts to a less than significant level.

Impact 3.6.3.1, Noise Exposure, above describes construction noise related mitigations that were imposed upon the Ridgewood Village and Central Estates Phase 2 projects. It is anticipated that mitigations such as these would be imposed on projects allowed under the General Plan Update.

Analysis of Relevant General Plan Update Policies

Noise Element Goal N-G1, Excessive Noise, intends to establish a quiet and healthful environment with limited disagreeable noises. Construction noise would be the most likely source of ground-borne vibration or substantial temporary or periodic increase in ambient noise level that could occur consistent with the General Plan Update. Noise Element Standard N-S8, Short-term Noise Performance Standards Lmax, establishes the maximum permissible noise level within each zoning classification. As such, daytime noise levels within single-family residential zones cannot exceed 65 dB, and nighttime noise levels cannot exceed 60 dB. Standard N-S8 provides exceptions for heavy equipment and power tools used during construction, when conforming to the terms of the approved permit. In addition, Policy N-S4, Noise Study Requirements, requires that discretionary projects with the potential to generate noise levels in

excess of Plan standards prepare a noise study together with acceptable plans to assure compliance with the standards shall be required.

Implementation Measure N-IM7x, Noise Control Ordinance, would define excessive levels of noise for various activities including construction. However, this ordinance may exempt or modify noise requirements for construction activities.

Conclusion

The standards identified above would establish limits to short-term noise within each zoning classification and specify the parameters for discretionary project noise impacts but do not clearly indicate that they are applicable to construction related noise and vibration. Therefore, this impact would be potentially significant.

Mitigation

Mitigation Measure 3.6.3.2.a. Amend Implementation Measure N-IM7x., Noise Control Ordinance, to the Noise Element to require that construction noise parameters for discretionary projects be specified.

> ***N-IM7x. Noise Control Ordinance.*** *Prepare and consider a noise control ordinance to regulate noise and vibration sources in order to protect persons from existing or future excessive levels of noise and/or vibration which interfere with sleep, communication, relaxation, health or legally permitted use of property. The ordinance shall define excessive levels of noise for construction activities to be incorporated as permit requirements and other noise sources and may exempt or modify noise requirements for agricultural uses, ~~construction activities,~~ school functions, property maintenance, waste collection and other sources. The ordinance shall include responsibilities and procedures for enforcement, abatement and variances.*

Level of Significance after Mitigation

The mitigation measure requires the preparation of a noise control ordinance and consideration of ordinance provisions to regulate noise sources in order to protect persons from existing or future excessive noise levels which might interfere with sleep, communication, relaxation, health or legally permitted use of property. The ordinance is required to define excessive noise levels for construction activities, school functions, property maintenance, waste collection and other noise sources. Implementation of the ordinance would thus serve to regulate construction noise and vibration to acceptable levels. With the addition of the above mitigation measure, noise impacts from new development allowed under the General Plan Update would be **less than significant**.

Impact 3.6.3.3: Airport Noise

This impact analysis addresses items "e" and" f" of the significance criteria described in 3.6.2 Noise, Standards of Significance. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would locate development within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and expose people residing or working in the project area to excessive noise levels; or expose people residing or working in the project area to excessive noise levels from a private airstrip.

Projected growth during the General Plan Update planning period would result in new urban land uses in the vicinity of certain Humboldt airports and rural residential uses in proximity to others. New development near airports could expose residents and workers to excessive noise from aviation. This is of most concern in the McKinleyville area near Arcata-Eureka Airport; however, development near other airports could also expose sensitive receptors to excessive aviation noise.

Arcata-Eureka Airport. Based on the Arcata-Eureka Airport Master Plan Report (September 22, 2005) the current 65 CNEL contour and most of the 60 CNEL contour fall within airport property. The 60 CNEL contour extends about 1,300 feet beyond the southwest corner of the airport. There is also a small segment of the 60 CNEL contour that extends about 100 feet outside of airport property to the southeast. Additionally, projected noise contours for the year 2022 for the Arcata-Eureka Airport assume aircraft activity level increases; a shift in mix of aircraft types to larger jet aircraft; and an extension of Runway 14-32 by 502 feet to a length 6,500 feet. Under the forecast assumptions listed above, the year 2022 noise contours show a noticeable change only to the northwest and southeast. However, even with the growth assumptions described above, most of the future 60 CNEL and 65 CNEL contours remain within airport property. The forecast 60 CNEL contour will extend about 2,200 feet southeast and 1,600 feet northwest of the airport property line. Most of the off-airport portion of this contour will overlay a golf course (southeast) or highway right-of-way and beach (northwest). Several rural residential parcels will be affected by the 60 CNEL contour at the southeast end of the airport. Policies in the Airport Land Use Compatibility Plan place limitations on development in areas subject to noise impacts from airports.

Dinsmore Airport. Figure 5B of the 2007 Dinsmore Airport Master Plan Report indicates that future 60 CNEL noise contours would be largely contained within the airport property and would remain fully on the south side of S.R. 36. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Garberville Airport. Figure 5B of the 2007 Garberville Airport Master Plan Report indicates that the future 60 CNEL noise contour extends beyond the airport property and onto land on the southeast side of the airport planned RE1-5 and land on the south, west, and north planned RR5-20. These future sound levels may not be considered normally acceptable for single family residential uses. There is currently no Noise Impact combining zone area surrounding the Garberville Airport.

Kneeland Airport. Figure 4C of the 2005 Kneeland Airport Master Plan Report indicates that future 60 CNEL noise contours would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Murray Field. Figure 5B of the 2007 Murray Field Airport Master Plan Report indicates that the future 60 CNEL noise contour extends beyond the airport property and onto land subject to land use regulation by the City of Eureka. Land uses around the airport that would be subject to 60 CNEL noise levels include less than nine acres of agricultural grazing land to the south; open space and a small undeveloped portion of commercial land to the north east; and small portion of a lumber facility to the north. The future noise levels projected to affect these areas would be considered normally acceptable.

Rohnerville Airport. Figure 5B of the 2007 Rohnerville Airport Master Plan Report indicates that the future 60 CNEL would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Shelter Cove Airport. The Shelter Cove airport is operated by Resort Improvement District No. 1. Figure 4T of the Airport Land Use Compatibility Plan, Humboldt County Airports indicates that the future 60 CNEL would be largely contained within the airport property and would likely remain within the area planned PF that contains the airport. As a result, noise levels near to the airport would be considered normally acceptable for uses allowed by adjacent land use designations.

Analysis of Relevant General Plan Update Policies

Impact 3.6.3.1 Noise Exposure, describes the Noise Element Policies, Standards, and Implementation Measures that would limit impact to noise sensitive land uses from airports within the County, especially the Arcata-Eureka Airport. Standards N-S2, Noise Impact Combining Zones, would continue the use of Noise Impact Combining Zones and utilize the most current Airport Land Use Compatibility Plans to identify noise impact combining zone areas to indicate where sound insulation measures may apply.

Conclusion

As described above, the General Plan Update requires the application of noise impact combining zones in areas where noise exceeds adopted standards and the use of project-specific noise mitigation measures (completion of acoustical studies, use of buffering, and implementation of other noise abatement measures, as necessary) would be required. Implementation of this program and others in the General Plan Update described above, would reduce the potential for noise levels in areas of new noise-sensitive land uses to exceed the standards contained in Table 13-D. Land Use/Noise Compatibility Standards.

As indicated in the analysis above, noise levels that would exceed normally acceptable criteria would extend beyond the Garberville airport into areas planned for future residential uses. This is not within a noise impact combining zone. Therefore, this impact would be potentially significant.

Mitigation

Mitigation Measure 3.6.3.3.a. The following implementation measure shall be added to the Noise Element.

> ***N-IMx. Garberville Airport Noise Impact Combining Zone.*** *Add a Noise Impact (N) Combining Zone to the areas surrounding the Garberville Airport that are subject to noise*

levels equal to or above 60 CNEL according to Figure 5B of the 2007 Garberville Airport Master Plan Report, or the most recent Garberville Airport Master Plan Report.

Level of Significance after Mitigation

By application of a noise impact combining zone to address the Garberville Airport Noise, airport noise in this area would be regulated in a manner consistent with other airports in the County. Addressing airport noise levels in this manner has been effective in mitigating the potential noise impacts caused by airports. With the addition of the above mitigation measure, noise impacts from projected growth during the General Plan Update planning period would be **less than significant**.

3.7 Hazards and Hazardous Materials

This section provides background information regarding hazards and hazardous materials within the County, including the regulations and programs that provide for their use, handling and disposal, and an assessment of the potential impacts of implementing the proposed General Plan Update. Existing hazard and hazardous materials conditions are described in Chapter 12, Fire and Other Hazards, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a discussion of fire risk and underground storage and fuel tanks. Additional background information is contained in the Humboldt County Master Fire Protection Plan, August 2006 (Appendix I), which is the County's community wildland fire protection plan and which informed the General Plan Update process, and the Humboldt Operational Area Hazard Mitigation Plan (HMP), December 2014, which inventories natural hazards within the County and assesses potential risk to communities and is available on the County website at http://humboldtgov.org//506/Local-Hazard-Mitigation. These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours or for download at http://co.humboldt.ca.us/gpu/documentsbackground.aspx, are incorporated by reference and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.7.1 Hazards and Hazardous Materials - Regulatory Setting

Hazards and hazardous materials are regulated by federal, state, and county laws and regulations, which are periodically revised as more is learned about the impacts on the environmental and human health. Most regulations originate at the state and federal levels, with local county and city agencies enforcing these regulations. The following table lists the federal, state, and local laws and regulations that relate to hazards and hazardous materials production, use, transport, handling, and disposal. Further discussion of these regulations can be found within the setting discussions below.

Regulations Relating to Hazardous Materials, and Waste.

Legislation	Purpose
Federal	
Federal Hazardous Substance Control Act of 1960	Requires labeling and bans certain hazardous products used in the household
Occupational Safety and Health Act of 1970	Ensures worker and workplace safety from hazards, including toxic substances
Federal Insecticide, Fungicide, and Rodenticide Act of 1972	Regulates pesticide sale and use, requires labeling, licensing, and certification of applicators
Hazardous Materials Transportation Act of 1975	Requires driver training, cargo labeling, container design and safety specifications relating to hazardous materials
Toxic Substance Control Act of 1976	Authorizes the reporting, tracking, testing, and control of industrial chemicals
Resource Conservation and Recovery Act of 1978 (RCRA)	Regulates the generation, transportation, treatment, storage, and disposal of hazardous

Legislation	Purpose
	materials
Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)	Also known as the Superfund, this act authorizes the management of inactive hazardous waste sites
Hazardous and Solid Waste Amendments of 1984	Affirms and extends the "cradle to grave" system established by the RCRA and includes restrictions on land disposal and underground storage tanks
Superfund Amendments and Reauthorization Act of 1986	Affirms and broadens CERCLA to include emergency planning and other provisions
Emergency Planning and Community Right to Know Act of 1986	Imposes hazardous materials planning requirements to help protect local communities in the event of accidental release
Telecommunications Act of 1996 (47 U.S.C. Section 332(c))	Broadly regulates telecommunications. Provides for competition-"to let anyone enter any communications business -- to let any communications business compete in any market against any other." In particular, state and local governments may not reject the siting of a tower on the basis of radio frequency emissions—i.e., radiation— unless a tower exceeds standards set forth by the Federal Communications Commission
State of California	
Hazardous Waste Control Law of 1972	Requires the generation, transportation, treatment, storage, and disposal of hazardous materials
Hazardous Substance Account Act of 1981	Provides response authority and funding for accidental releases of hazardous substances and hazardous waste disposal sites
Underground Storage of Hazardous Substance Act of 1985	Governs design, maintenance, testing, and use of underground storage tanks containing hazardous materials
Toxic Injection Well Control Act of 1985	Prohibits the injection of hazardous wastes into the ground that would endanger the use of groundwater that is designated as drinking water
California Hazardous Materials Release Response Plans and Inventory Law of 1985	Requires preparation of Hazardous Materials Business Plans and the disclosure of hazardous materials inventories
California Hazardous Waste Control Act of 1985	Regulates siting of hazardous waste facilities and requires preparation of County Hazardous Water Management Plans
Safe Drinking Water and Toxic Enforcement Act of 1986	Prohibits the contamination of drinking water with listed chemicals known to cause cancer or reproductive toxicity
Assembly Bill 2948 of1986	Requires that a Hazardous Waste Management Plans be prepared as part of General that identifies the type and quantity of hazardous waste that is generated in the County; projects future quantities; includes goals, policies, and

Legislation	Purpose
	standards for the management of hazardous waste; and establishes procedures for the siting of new hazardous treatment, storage, and disposal facilities. Plan
Assembly Bill 1809 of 1986	Establishes a program for the safe management of household hazardous waste
Assembly Bill 2185 of 1987	Implements an emergency planning and community right-to-know program
Aboveground Petroleum Storage Act of 1990	Establishes inspection programs for aboveground storage tanks to avoid spills
Medical Waste Management Act of 1991	Provides for programs to ensure the proper handling and disposal of medical waste
Assembly Bill 2707 of 1991	Requires the preparation of Household Hazardous Waste Element
Senate Bill 1082 of 1993	Establishes authority to form Certified Unified Program Agencies (CUPAs) for consolidating the hazardous materials management functions of state and local agencies
Asbestos Airborne Toxic Control Measure for Construction -Grading, Quarrying, and Surface Mining Operations	Air Resources Board Final Regulation Order (2002-07-29 Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations) regulates any construction, grading, quarrying, or surface mining operation on any property is located in a geographic ultramafic rock unit; has naturally-occurring asbestos, serpentine, or ultramafic rock as determined by the owner / operator, or the Air Pollution Control Officer; naturally-occurring asbestos, serpentine, or ultramafic rock is discovered by the owner / operator, a registered geologist, or the APCO in the area to be disturbed after the start of any construction, grading, quarrying, or surface mining operation.
Humboldt County	
Humboldt County Code Title III, Division 8 – Environmental Protection- Chapter 3 - Transportation of Wastes and By-Products of Fuel for Nuclear Power Plants Prohibited	Prohibits the transport of nuclear waste through the County for purposes of storage or disposal
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
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 Code title VI - Water and Sewage - Division 4 Water Pollution	Regulations prohibiting the pollution of waters in the County

Legislation	Purpose
North Coast Unified Air Quality Management District Regulation III - Control of Toxic Air Contaminants	Rule 300, State Airborne Toxic Control Measures. Incorporates California State Air Toxic Control Measures (ATCMs) per Health and Safety Code 39666 and relates to asbestos airborne toxic control measure for construction, grading, quarrying, and surface mining operations.

Regulations Relating to Airport Hazards.

Legislation	Purpose
Federal	
Federal Aviation Regulations Safe, Efficient Use, and Preservation of the Navigable Airspace	Code of Federal Regulations, Title 14, Chapter I, Subchapter E, Part 77. Establishes standards used to determine obstructions to air navigation, and navigational and communication facilities; and the process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment
State	
State Aeronautics Act	Public Utilities Code Section 21001, and following. Regulates aeronautics, airports and air navigational facilities, establishes Airport Land Use Commissions and Airport Land Use Compatibility Plans
California Airport Land Use Planning Handbook	Handbook prepared by Caltrans Division of Aeronautics to (1) provide information to ALUCs, their staffs, airport proprietors, cities, counties, consultants, and the public, (2) to identify the requirements and procedures for preparing effective compatibility planning documents, and (3) define exemptions where applicable
Local	
Humboldt County Airports Airport Land Use Compatibility Plan, March 1993	Sets forth criteria and policies which the Humboldt County Airport Land Use Commission will use in assessing compatibility between public use airports and land use in surrounding areas.

Regulations Relating to Wildland Fire Hazards.

Legislation	Purpose
State	
Responsibility for Fire Protection Public Resources Code Sections 4125 to 4137	The California Department of Forestry and Fire Protection (CAL FIRE) has the primary financial responsibility of preventing and suppressing fires within State Responsibility Area

Legislation	Purpose
Hazardous Fire Areas Public Resources Code Sections 4251 to 4290	CAL FIRE 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	
Title III, Land use and Development, Division 11 Fire Safe Regulations	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 SRA.

Regulations Relating to Emergency Management.

Legislation	Purpose
Federal	
Disaster Mitigation Act of 2000 (Public Law 106-390)	Requires state and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance.
State	
Requirements for Local Hazard Mitigation Plans Government Code Section 65302(g)	The State of California encourages local government to adopt a , county, or a city and county may adopt a local hazard mitigation plan with its safety element, including called for in the federal act requirements: an initial earthquake performance evaluation of public facilities; an inventory of private facilities that are potentially hazardous; a plan to reduce the potential risk from private and governmental facilities in the event of a disaster.
Local	
Humboldt Operational Area Hazard Mitigation Plan, February 2014 Update	A plan to reduce risks from natural disasters and to comply with the federal and state law. This plan will act, and has acted, as the key to funding under FEMA hazard mitigation grant programs.

3.7.2 Hazards and Hazardous Materials - Environmental Setting

This section provides background information regarding hazards and hazardous materials within the County, including the handling of hazardous materials, industrial hazards, airport safety, wildfires and the programs that are currently in place to manage hazards. Flood hazards are analyzed in Section 3.10, Hydrology and Water Quality, and geologic hazards are analyzed in Section 3.8 Geology and Soils.

Hazardous Materials and Hazardous Waste

A hazardous material is defined as a substance or combination of substances that, because of its quantity, concentration, or physical, chemical or infectious characteristics, may: (1) cause or significantly contribute to an increase in mortality, or an increase in serious irreversible or incapacitating reversible illness; or, (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of or otherwise managed.

Exposure to hazardous materials and wastes could cause various short-term or long-term health effects. Health effects resulting from exposure to hazardous materials would be specific to each chemical or combination of chemicals. Possible health effects of exposure may be acute (immediate or of short-term severity), chronic (long-term, recurring, or resulting from repeated exposure), or both. Hazardous materials are commonly used in various commercial, agricultural, and industrial applications, as well as in residential uses.

Pursuant to AB 2948 (Tanner, 1986), 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 (IWMP), consistent with the Integrated Waste Management Act. The IWMP addresses solid waste source reduction and recycling, household hazardous waste, and countywide landfill capacity needs. (See section 3.3 Utilities and Services).

State and federal agencies regulate hazardous materials. The Hazardous Waste Control law (Chapter 6.5 of Division 20 of the Health and Safety Code) and Title 26 of the California Code of Regulations list more than 800 potentially hazardous materials and establish criteria for identifying, packaging, and disposing of such wastes. Under these regulations, the generator of hazardous waste material must complete a manifest that accompanies the material from the point of generation to transportation to the ultimate disposal location, with copies of the manifest filed with State Department of Toxic Substance Control.

Certified Unified Program Agencies. California established a unified hazardous waste and hazardous materials management regulatory program, and in doing so created Certified Unified Program Agencies (CUPA) to provide for unified local hazardous waste and hazardous materials management. The 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. The CUPA 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 underground storage tanks. 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 (CalARP)
3. Underground Storage Tanks (UST)
4. Aboveground Petroleum Storage Spill Prevention Control and Countermeasures (SPCC)
5. Hazardous Waste Generation and Onsite Treatment

In order to legally store hazardous substances (e.g. industrial solvents, flammable liquids, and petroleum products) underground, UST owners must apply for permits and demonstrate satisfactory tank maintenance and local groundwater testing to the local CUPA. The CUPAs then add these sites to the SWRCB's GeoTracker database (also known as Geographic Environment Information Management System (GEIMS) for public access. GeoTracker is a database or sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, such as Leaking Underground Storage Tank (LUST) Sites, Department of Defense Sites, and Cleanup Program Sites. GeoTracker also contains records for various unregulated projects as well as permitted facilities including: Irrigated Lands, Oil and Gas production, operating Permitted USTs, and Land Disposal Sites. The GeoTracker database can be accessed at https://geotracker.waterboards.ca.gov/. Water wells within 1,000 feet of a UST are at risk for contamination and must be documented in the permit. Exempt from permitting are small tanks (holding 1,100 gallons or less) on farms holding heating oil or machinery fuel, sumps, storm drains, and oil pipelines.

Sites with Known Hazardous Materials Issues. The Environmental Protection Agency's (EPA) Resource Conservation and Recovery Act Information (RCRAInfo) database indicates that, as of January 20, 2017, there were 198 transporters, treaters, storers, and disposers of hazardous waste in Humboldt County. The most common users are commercial and industrial users such as automotive repair, dry cleaners, gas stations, pest control, energy providers, and retailers. Institutional users of hazardous materials include schools, colleges, correctional facilities, utilities, hospitals and other public agencies.

The Division of Clean Water Programs (CWP), under the California State Water Resources Control Board (SWRCB), is responsible for regulating waste discharges to land, including the documentation of USTs and leaking underground fuel tanks (LUFTs). Under contract with the SWRCB, the County Health Hazardous Materials Program Local Oversight Program (LOP) oversees the investigation and cleanup of soil and groundwater contamination resulting from unauthorized releases of petroleum products (gasoline, diesel fuel, waste oil, etc.) from leaking USTs. The cleanup of these sites is necessary to protect groundwater from contamination and to protect the public from exposure to hazardous materials.

The LOP works with responsible parties and consultants to ensure that the UST Corrective Action Requirements are met. Compliance with these requirements allows cleanup costs to be reimbursed by the state's UST Cleanup Fund to the maximum extent possible. As of 2007, over 300 contaminated sites in Humboldt County have been cleaned up to a level where no further action is required. In addition to working with SWRCB, consultants and responsible parties, the LOP works closely with the North Coast Regional Water Quality Control Board (NCRWQCB) staff on a site-specific basis.

Information regarding known hazardous waste facilities and activities in Humboldt County can be accessed using the U.S. EPA "EnviroFacts" database at http://www.epa.gov/enviro/index.html. The EnviroFacts database allows users to map data by multiple environmental databases for facility information including toxic chemical releases, water discharge permit compliance, hazardous waste handling processes, Superfund status,

and air emission estimates. In addition, users can map data from the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS-or Superfund); Brownfield sites; RCRAInfo; data on the generation of hazardous waste from large quantity generators; data on waste management practices from treatment, storage, and disposal facilities as well as data on accidents, spills, leaks, and past improper disposal and handling of hazardous materials and wastes.

Government Code Section 65962.5 requires that the California Department of Toxic Substances Control 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 twenty 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.

The Cortese list can be found at http://www.calepa.ca.gov/sitecleanup/corteselist/. According to the Cortese list, 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 Underground Storage Tank Sites; two sites on the "Hazardous Waste and Substances Site List"; and 63 sites that have current or past clean up orders.

Transport of Hazardous Materials. U.S. 101 and S.R. 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. The Hazardous Materials Transportation Act regulates the safe transport of hazardous materials on water, rail, highways, through air, or in pipelines. The Act includes provisions for material classification, packaging, marking, labeling, place carding, and shipping documentation.

The California Highway Patrol (CHP) and California Department of Transportation (Caltrans) have primary responsibility for enforcing federal and state hazardous materials regulations and responding to transportation emergencies. The 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. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at locations throughout the state.

Accidental Spills and Illegal Disposal of Hazardous Waste. Based on information from Humboldt County Environmental Health, there are between approximately 50 and 100 accidental spills of 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. County data regarding releases includes major incidents as well as minor spills and false alarms.

Hazardous waste (e.g., used motor oil, solvents, or paint) is occasionally illegally dumped in remote areas of the County or along roadways. Illegitimate businesses, such as clandestine drug laboratories, are also a significant threat to human health, property, and the environment. In many instances, the dumped residue can pose a serious health threat to unsuspecting persons.

Illegal dumping occurs throughout Humboldt County. The County Public Health Branch and the Code Enforcement Unit respond to complaints regarding illegal dumping. Countywide total dumping complaints range from approximately 100 to 200 per year and include nuisance roadside garbage dumps, illegal disposal sites, sharps/needle dumps, and abandoned appliances or vehicles on abandoned roadsides. Disposal costs for illegally dumped material are covered, in part, by a portion of Humboldt Waste Management Authority's (HWMA) waste management fee (aka disposal fee) to off-set costs incurred by public agency and non-profit organizations for costs associated with cleaning up illegal dump sites incurred by public agency and non-profit organizations. Humboldt County Code, Title V, Health and Safety, Division 2, Solid Waste and Source Separated Materials, establishes fines and possible jail time for dumping related offenses.

The resources necessary to manage a hazardous materials incident depend on the severity and location of the incident and the type of hazardous materials involved. 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).

Industrial Hazards. Several specific industrial activities have been identified with the potential to cause significant damage to the surrounding area in the event of an accident. These activities include the use of chlorine at the sewage treatment plants within the region, shipping and receiving of hazardous materials other than chlorine, and the nuclear materials at the Pacific Gas & Electric (PG&E) Humboldt Bay Power Plant. Each of these activities/facilities is required to have a contingency plan that directs the appropriate disaster response.

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% up to about 25%, 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, when land is graded for building purposes, or at quarrying operations. 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.

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. According to geographic information system mapping data available from the California Department of Conservation, California Geological Survey, other areas with ultramafic rock are listed below.

- Bluff Creek area east of Weitchpec
- upper Soctish and Rock Creeks and the lower slopes of the west side of the Hoopa Valley
- east slope of the upper Little Van Duzen drainage;
- Chalk Mountain area
- Elk Ridge area
- Salmon Creek area

It should be noted that while geologic conditions are more likely for asbestos formation in or near these areas, its presence is not certain. 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. In addition, naturally occurring asbestos may also be present in rocks and soils outside these areas.

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 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.

As a result of the 2009 Housing Element (prior Housing Element Implementation Measure H-IM34, Reduce and Avoid Air Quality Impacts from Naturally Occurring Asbestos), the Planning and Building Department refers all building permits on parcels which appear to be underlain by ultramafic rock to the NCUAQMD for appropriate standards and recommendations. The Planning and Building Department uses its GIS 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.

Electromagnetic Fields. High-speed internet access, or broadband, is a fundamental aspect of the infrastructure required for education, job creation, public safety, and for the delivery of essential services like health care. While some Humboldt County residents have access to broadband, many residents and businesses are underserved in terms of provider choice and speed. The General Plan Update indicates that Humboldt County is lagging behind the rest of the state in the quality and availability of broadband, and contains numerous policies that encourage the expansion of service.

Broadband communications can be delivered using terrestrial (as opposed to satellite based service) "wired" and "wireless" technology. Wired technology consists of copper and optical fiber networks originating from the telecommunications provider that follow pole lines or are placed in underground trenches along roadways and within easements across private property. Wireless technology consists of radio antennas that broadcast communications signals using electromagnetic energy commonly referred to as "radiofrequency" or "RF".

As of 2016 there were approximately 93 wireless communications towers in Humboldt County, including cellular telephone, public safety communications, radio, and television (based on a search of registered towers of any height in Humboldt County using the FCC Antenna Structure Registration search website). These towers may include one antenna, or could include multiple antennas of different types owned by various service providers. Towers vary in terms of their construction (metal lattice, tubular metal, wooden, etc.) and are located on ridge tops, such as Kneeland and Horse Mountain, and are also located within communities and on buildings.

The Telecommunications Act of 1996 (47 U.S.C. Section 332(c)) generally preserves local zoning authority over wireless telecommunications antennas. However, the Telecommunications Act also limits local authority in a number of significant respects. Specifically, it provides that "no state or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the (Federal

Communication) Commission's regulations concerning such emissions." Consequently, the County may not impose any limitations or restrictions on the establishment or location of wireless telecommunication facilities based on concerns about the health effects of RF emissions, so long as the service provider can demonstrate compliance with FCC regulations.

The U.S. Congress directed the FCC, the Federal licensing agency for communication facilities, to evaluate possible significant impacts on the environment from their actions. The FCC adopted human exposure limits for field strength and power density as recommended in the National Council on Radiation Protection and Measurements (NCRP) - Report No. 86, "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields." Provisions within the Telecommunications Act of 1996 require these standards are recognized as the local standard. Therefore, to evaluate public health effects associated with radio frequency (RF) radiation exposure, the County requires that an applicant for a telecommunications facility demonstrate through the preparation of a cumulative RF study that the resulting RF emissions from the facility will comply with the above standards.

Hazardous Materials Response Team. The 2008 Humboldt County Hazardous Materials Area Plan establishes the policies, responsibilities, and procedures required to protect the health and safety of Humboldt County's population, the environment, and public and private property from the effects of hazardous materials incidents. The Hazardous Materials Area Plan contains the results of a hazard analysis performed by Humboldt County Environmental Health that identified those facilities and transportation routes which present a hazardous materials release risk associated with hazardous materials storage, handling and transportation. In addition, vulnerable populations were identified and mapped relative to their proximity of acutely hazardous materials (AHM) and bulk storage facilities. These items can be found in Appendices A through C. This plan establishes the emergency response organization for hazardous materials incidents occurring within Humboldt County. The Hazardous Materials Area Plan was utilized in the preparation of the Humboldt Operational Area Hazard Mitigation Plan and the Humboldt County Emergency Operations Plan.

The County of Humboldt, County of Del Norte, and each city within both counties (with the exception of Fortuna) make up the Humboldt-Del Norte Hazardous Materials Response Joint Powers Authority (HazMat JPA), which was formed in 1995. The HazMat JPA meets quarterly and provides ongoing funding for the 12-member HazMat Team. Each jurisdiction pays a proportionate amount, based on population, of the Team's ongoing expenses. The HazMat Team has received over $200,000 in grants for training and equipment, and receives approximately $60,000 per year in ongoing funding from the JPA. The Hazardous Materials Area Plan also establishes the operational concepts and procedures associated with the HazMat Team.

Airport Safety

Nine public airports operate in Humboldt County: Arcata-Eureka Airport; Dinsmore Airport; Garberville Airport; Kneeland Airport; Murray Field Airport; Rohnerville Airport; Eureka Municipal Airport; Shelter Cove Airport; and Hoopa Airport (see Table 3.5-2 in Section 3.5 Transportation for additional information regarding these airports). All but the Eureka Municipal, Shelter Cove, and Hoopa Airports are owned and operated by Humboldt County. General background information regarding public airports in Humboldt County can be found in the Humboldt County Regional Transportation Plan, Chapter 7, Aviation System Element; the Airport Land Use Compatibility Plan (ALUCP) for Humboldt County Airports, March 1993 and amended in 1998; and in each airport's respective airport master plan. Airport master plans for Humboldt County

airports are available from the Humboldt County Public Works Department at https://humboldtgov.org/1396/Aviation.

The Humboldt County Public Works Department operates six County airports. The Airport Land Use Commission (presently consisting of the members of the Board of Supervisors) coordinates with applicable agencies to ensure compatible land uses for areas surrounding public airports. The principal airport/land use compatibility around airports is:

- **Noise:** Often the most significant of the adverse impacts of airport activities.
- **Airspace:** The height of structures, trees, and other objects in the vicinity of an airport greatly affect the use of that airport.
- **Safety:** Controls on land uses near airports can reduce potential risks both to people on the ground and to the occupants of aircraft.

The Airport Land Use Commission (ALUC) adopted the Airport Land Use Compatibility Plan, Humboldt County Airports, March 1993 (amended in 1998)(ALUCP), which establishes airport land use compatibility policies and maps that are applied to areas adjacent to all the public use airports in the County. The land use compatibility policies are incorporated into the General Plan Update in standard S-P22, Airport Land Use Compatibility Criteria. The General Plan applies these compatibility policies to the County's three other airports.

Wildland Fire Hazards

Wildland fires are fires caused by nature or humans that result in the uncontrolled destruction of forests, brush, field crops, grasslands, and real and personal property in non-urban areas. 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 a number of 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.

Fire Hazard Severity Mapping. In August 2000, President Clinton directed the Secretaries of the Agriculture Department and the Department of the Interior to develop a plan to respond to severe wildland fires, reduce the impact of wildfires on rural communities, and ensure sufficient firefighting capacity in the future. The resulting action plans and agency strategies have collectively become known as the National Fire Plan, which supports the integration of wildland and prescribed fire as a basic tool for land and resource management. The plan directs federal agencies to work directly with states and local communities to reduce immediate hazards in wildland-urban interface areas, and to develop a collaborative effort to ensure that sufficient resources are available for extreme fire conditions in the future. A major feature of the National Fire Plan is the interagency aspect of risk reduction planning and implementation among federal, state, and local agencies.

A major component of the National Fire Plan was funding for projects designed to reduce fire risks to people and their property. A fundamental step in realizing this goal was the identification of areas that are at high risk of damage from wildfire. Federal fire managers authorized state

foresters (foresters with the California Department of Forestry and Fire Protection or CAL FIRE) to determine which communities were under significant risk from wildland fire on federal lands. CAL FIRE undertook the task of generating the state's list of communities at risk. With California's extensive wildland-urban interface situation, the list of communities extended beyond those just on Federal lands.

Part II - Risk Assessment of the 2013 Humboldt County Community Wildfire Protection Plan (see discussion of the Humboldt County Community Wildfire Protection Plan below), beginning on page II.2-2, describes the National Fire Plan Communities at Risk program and the communities within the County that are considered at risk by federal land management agencies and CAL FIRE. Figure II.2-1 Humboldt County Designated Communities at Risk, lists 69 communities in Humboldt County that are considered at risk by CAL FIRE based on vegetation types and their potential fire behavior during a wildland fire; the probability that a large, damaging wildland fire would occur in a particular vegetation type; and the housing density that would create wildland-urban interface fire protection strategy situations.

The Fire and Resource Assessment Program (FRAP) developed and maintained by CAL FIRE includes a historical record of all wildfires in Humboldt County. According to FRAP statistics, 631 wildfires burned in Humboldt County between 1908 and 2015 (the most recent available data). The cause of 414 of these fires is known and recorded. Seventy-two percent were caused by human activities. Lightning accounts for the other 28 percent of the County's wildfires, but human activities often influence the severity and number of fires caused by lightning strikes. Therefore, human activities either directly cause or significantly influence most wildfires.

Recent wildfires of note in Humboldt County include the Megram Fire within the Six Rivers National Forest, caused by lighting that burned 5,473 acres in 1999; the Canoe fire in Humboldt Redwoods State Park and the Honeydew Fire, at 952 and 1,095 acres respectively, both caused by a lightning storm in 2003; the Humboldt Complex fire in 2008 that was composed of multiple fires caused by lightning strikes throughout the County, including the Paradise Ridge Fire that burned over 1,000 acres and threatened Shelter Cove; and the numerous lightening fires of 2015 in the southern portion of the County .

The following is based on the "Fire Perimeters" data, a statewide interagency file geodatabase with wildfire history, prescribed burns and other fuel modification projects, from the CAL FIRE Fire and Resource Assessment Program (FRAP). Over the last 20 years, an average of 9,000 acres of wildland per year have been burned, ranging from 25 acres in 2000 to 59,000 acres in 1999. 2015 was marked by significant lightning events on July 30th that resulted in over 36,000 acres of the over 38,000 total acres burned during that year. The following table describes the total acreage of the largest fires within the County that year.

Table 3.7-2. Humboldt County Large Wildfires, 2015.

Year	Fire Name	Impacted Areas	Acres
2015	Humboldt Complex	Middle Fork Eel River drainage between Alderpoint and Fort Seward, and near Blocksburg	4,531
2015	Route Complex	Mad and Van Duzen River drainage - Six Rivers National Forest lands north and south of Dinsmore	24,345
2015	Mad River Complex	Mad and Van Duzen River drainage - Six Rivers National Forest lands northwest of Blocksburg	7,348

CAL FIRE has prepared fire hazard severity rating maps for Humboldt County (see Table 3.7-2 Fire Hazard Severity by Planning Watershed). Fire hazard is a way to measure the physical fire behavior so that people can predict the damage a fire is likely to cause. Fire hazard measurement includes the speed at which a wildfire moves, the amount of heat produced by the fire, and most importantly, the burning firebrands that the fire sends ahead of the flaming front. According to the Humboldt County Community Wildfire Fire Protection Plan (Hazard Assessment and Fire Hazard Severity Mapping, Chapter II.1 Wildfire Environment, Page II.1-22) fire hazard elements include the following:

- **Vegetation.** Vegetation is "fuel" to a wildfire and it changes over time. The fire hazard severity rating considers the potential vegetation over a 50-year time horizon.
- **Topography.** Fire burns faster on steep slopes.
- **Weather**. Fire burns faster and with more intensity when air temperature is high, relative humidity is low, and winds are strong.
- **Crown fire potential.** Under extreme conditions, fires burn up into trees and tall brush.
- **Ember production and movement.** Firebrands are blown ahead of the main fire, which can ignite buildings and spread the fire.
- **Likelihood of Fire.** Likelihood of an area burning over a 30 - 50 year period.

Humboldt County exhibits extreme diversity in its potential for destructive wildland fire, ranging in severity classification from nil to very high based on the wildfire hazard severity zone map. The Map generally reflects a moderate to high rating on the western portions of the County where the fuel potential is high but the climate is damp. The very high ratings are generally in the drier, eastern portions of the County or in very steep terrain. The areas not prone to fire risk are concentrated in coastal and estuary lands.

Table 3.7-3. Fire Hazard Severity by Planning Watershed.

Planning Watershed	Fire Hazard Severity (Acres)			
	Very High	High	Moderate	Other*
Cape Mendocino	16,761	287,213	6,960	643
Eureka Plain	2,213	83,543	21,094	17,458
Lower Eel	38,514	103,010	18,188	30,526
Lower Klamath	302,702	26,408	1,921	1,499
Lower Trinity	185,511	4,613	657	1,321
Mad River	124,082	86,282	7,285	3,506
Middle Main Eel	83,239	52,412	2,771	0
Redwood Creek	92,555	83,072	11,845	223
South Fork Eel	18,731	178,947	2,561	0
South Fork Trinity	70,130	2,906	0	0
Trinidad	1,517	59,791	21,937	394
Van Duzen	96,581	130,457	6,374	1,300
Total	**1,032,536**	**1,098,653**	**101,594**	**56,868**

*Other = Non-Wildland/Non-Urban, Urban Unzoned

Wildland fire Prevention and Suppression. The State Responsibility Area (SRA) is defined in California Public Resources Code §4125 – 4127 as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the state. In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, grass, whether of commercial value or not, which provide watershed protection for irrigation or for domestic or industrial use; or lands in areas which are principally used, or are useful for, range or forage purposes. Preventing and suppressing fires is the responsibility of the state within SRA.

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 PRC Section 4290, 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. With respect to ongoing responsibility for addressing wildland fire hazards such as clearances around homes and along private roads, CAL FIRE states, "the owner of this property is subject to the maintenance requirements of Section 4291 of the Public Resources Code." In other words, property owners are responsible for maintaining appropriate clearances of vegetation on their property.

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 (other special district types, in additional to Fire Protection Districts, are responsible for fire protection in Humboldt County) 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 3.13, 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. CAL FIRE retains financial responsibility for grass and forest fires and responds to other fires that may pose a threat to the wildland. A map of CAL FIRE responsibility area With Fire Hazard Severity Zones is available from the Planning and Building Department and the on the County's website at https://humboldtgov.org/277/Large-Format-Maps .

According to the report *Solutions to the Rising Costs of Fighting Fires in the Wildland-Urban Interface,* December 2009, a white paper by Headwater Economics which is an independent nonprofit research group, the cost and suppression complexity of wildland fires has increased across the nation over recent decades. Reasons for these increases include: (1) the buildup of fuels resulting in part from past fire suppression efforts, which makes the probability of large fires more likely; (2) drought conditions and climate change which serve to lengthen the fire season and increase fire intensity; and (3) the development of homes adjacent to forest lands which has forced agencies to focus firefighting and management efforts on protecting private property.

The Headwaters Economics report found that fire-safe practices are important for the parts of the wildland-urban interface that are already developed, but can be a "distraction, focusing energy and resources on how to build a better residential subdivision in hazardous areas, rather than redirecting development, through zoning or other means, to less dangerous places on the landscape." (Headwaters Economics Report, Page 8) The Headwaters Economics report concludes that future increases in suppression complexity and cost would only be reduced as the rate of development in the wildland urban interface areas is diminished.

A report by the California Legislative Analyst's Office (LAO), 2010-11 Budget: Resources and Environmental Protection, echoes the conclusions of the Headwaters Economics report. The LAO found that "increasing residential development in and around SRAs has translated to increased CalFire fire protection costs for several reasons. First, with the presence of life and

structures in or nearby to the areas for which CalFire is responsible to provide wildland fire protection, more resources are often deployed to suppress wildland fires than would be used in nondeveloped areas. Second, the presence of development can limit the fire prevention and suppression options available to wildland fire managers, thereby potentially increasing the fire risk of an area and increasing fire suppression costs. For example, development substantially restricts the ability of fire prevention agencies to use certain techniques such as prescribed burning to reduce the high volume of flammable vegetation intermixed with development. Lastly, the presence of people in wildlands can increase fire protection costs because fire from structures, vehicles, and human activities can quickly spread to the wildland vegetation." (LAO Overview of the 2010-11 Governor's Budget, Resources and Environmental Protection, Page RES-34 through 35).

Community Wildfire Fire Protection Plan. The 2006 Master Fire Protection Plan assessed the risk of fire within the County using the Risk Assessment and Mitigation Strategies (RAMS) planning process. The RAMS is a computer-based modeling system for analyzing fire related fuels, hazard, risk, assets at risk, and suppression capability. The 2013 Humboldt County Community Wildfire Protection Plan, which updated the Master Fire Protection Plan, utilized each of the RAMS factors and more in the risk assessment included in that plan. The Community Wildfire Fire Protection Plan risk assessment is largely qualitative rather than a database driven model like the RAMS. However, the output of the RAMS analysis cannot take into consideration the unique characteristics of each Humboldt County community and watersheds. Plan Section II.5, Risk Assessment Summary, summarizes the CWPP risk assessment. The following table gives a very brief synopsis of the CWPP Risk Assessment.

Table 3.7-4. Summary of the Humboldt County Risk Assessment

Category	Description	Rating
Wildfire Environment		
Risk of Wildfire Occurrence	The possibility of a wildfire occurring based on factors such as fire history and ignition risk	Northeast and extreme southwest parts of the County have a high risk of wildfire occurrence; and coastal areas and river valleys have moderate risk and generally better fire-protection access, which increases initial attack success
Fire Hazard Severity	A measure of how resistant to control a wildfire is once it starts; it is affected by vegetation, topography, and weather	Coastal areas and river valleys with fog influence are rated moderate, western side of the County is rated high, and eastern side of the County is rated very high.

Table 3.7-4. Summary of the Humboldt County Risk Assessment

Category	Description	Rating
Wildfire Environment		
Structural Ignitability	The ability of structures, especially homes, to burn, where newer developments that are built to current building codes receive a "low" ignitability rating compared to older wooden homes which generally have much higher structural ignitability	The complete range from low to very high structural ignitability is found throughout Humboldt County, although most homes tend toward higher structural ignitability.
Interface Fuels	Anything surrounding a structure that can burn is an interface fuel, including ornamental vegetation or the objects found around homes such as patio furniture, as well as the homes themselves	Interface fuels throughout Humboldt County are high to very high.
Humboldt County Values and Assets	Humboldt County is known for its natural beauty and abundant natural resources which are important to the local economy and could be severely impacted by wildfire	The Values and Assets at risk for Humboldt County are given a high to very high rating.
Wildfire Protection Capabilities		
Level of Fire Protection Service	The ability to provide, on a countywide basis, adequate and appropriate level of emergency service, that is, a level of service that is commensurate with the community's risks and the public safety responsibilities of the local fire agency/organization. Fire-protection organizations are called upon to provide a range of emergency-response services, including wildland and structure fire suppression, emergency medical and rescue services, as well as a broad range of other response types.	Overall, fire protection capability for the County is moderate.

Table 3.7-4. Summary of the Humboldt County Risk Assessment

Category	Description	Rating
Wildfire Protection Capabilities		
Fire Protection Support	The ease of fire engine access to homes, adequate water supply and pressure, and community support for fire protection, both financially and through volunteering	Support for fire protection in Humboldt County is generally low and even lower during extreme fire weather events.
Evacuation Vulnerability	The ability for residents and their animals to safely evacuate	The existing road infrastructure is inadequate in most areas of the County for safe and effective evacuation. Therefore, evacuation vulnerability is very high.
Community Preparedness		
Community Fire Safety Efforts	The level of community responsibility for preparing their communities for wildfire	Although a number of communities have taken initiative to increase their fire preparedness, several "Communities at Risk" have multiple unmet hazard mitigation needs. Therefore, community preparedness through fire safety efforts is moderate.
Fire Prevention and Education	The Resources devoted to promoting fire education and prevention programs within local communities	Although public understanding of fire prevention and fire safety is increasing in Humboldt County, education is still needed, especially among the smaller, more remote Communities at Risk. Therefore, community preparedness through fire prevention and education is moderate.

Emergency Management

Chapter 10, of Division 2 of Title II of the County Code establishes the Humboldt Operational Area (OA) and identifies the Sheriff as Director of Emergency Services for the County. The Humboldt OA is composed of the County of Humboldt, serving as the lead agency, and all political subdivisions (cities and special districts). The Office of Emergency Services (OES), which is part of the Special Operations Division within the Sheriff's Department, assists the Sheriff in controlling and directing the effort of the emergency organization of the County, as defined in Section 2210-8 of the County Code.

The OES is responsible for maintaining the Humboldt County Emergency Operations Plan (EOP), which serves to address the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in, or affecting, Humboldt County. The EOP accomplishes the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting Humboldt County.
- Identifies the policies, responsibilities, and procedures required to protect the health and safety of Humboldt County communities, public and private property, and the environmental effects of natural and technological emergencies and disasters.
- Establishes the operational concepts and procedures associated with field response to emergencies, County Emergency Operations Center activities, and the recovery process.

The EOP is designed to establish the framework for implementation of the California Standardized Emergency Management System (SEMS) for Humboldt County, which is located within the Governor's Office of Emergency Service's Mutual Aid Region II. It is intended to facilitate multi-agency and multi-jurisdictional coordination, particularly between Humboldt County and local governments, including special districts and state agencies, in emergency operations.

The OES also maintains specific hazard response plans for earthquake, flooding, tsunamis, coastal storms, and other events. These response plans are used to determine the most appropriate evacuation routes based on the nature and extent of the hazard. Pre-disaster evacuation route planning is addressed through a variety of efforts including the Federal Emergency Management Agency (FEMA) local Multi-Hazard Mitigation Plan (HMP) program, the seismic retrofit program for state bridges and overpasses, tsunami response planning, and the application of the CAL FIRE SRA standards for emergency access.

Humboldt Operational Area Hazard Mitigation Plan. The federal Disaster Mitigation Act of 2000 (DMA 2000, P.L. 106-390) requires local governments to adopt a federally approved HMP in order to receive pre- and post-disaster mitigation funds. The DMA emphasizes planning for disasters before they occur. In response to this opportunity, a planning partnership of eligible local governments within the Humboldt Operational Area formed to develop a local hazards mitigation plan to address multiple hazards faced by Humboldt County communities.

On December 11, 2007, the Humboldt County Board of Supervisors adopted the Humboldt Operational Area HMP. On January 28, 2008, FEMA approved the HMP. The Final Draft of the HMP can be viewed at http://www.humboldtgov.org/506/Local-Hazard-Mitigation. There are 26 planning partners participating in this program from a broad range of jurisdictions including each of the seven cities and a number of special districts. Each planning partner participated in the development of the countywide plan and their HMP effort is incorporated into the HMP as an "Annex" that contains a description of the local agency, a description of the hazards that affect that agency, and an action plan to address the hazards. This Annex is equivalent to each planning partner having their own plan, which ensures eligibility for hazard mitigation funding from FEMA.

The HMP inventoried potential natural hazards that the defined planning area is most vulnerable to, assessed the risk to the planning area's citizens, buildings and critical facilities, and developed a mitigation strategy to reduce the risk of exposure and allow a swift and organized recovery should a disaster occur. Natural hazards that the HMP addresses include

flood, wildland fire, earthquake, tsunami, severe weather, landslides and other mass movement, dam failure, fish losses, and drought. The HMP process provided the County and the cities with the opportunity to review and expand on policies contained in their planning documents. In developing the HMP, the agencies used the General Plan and the HMP as complementary planning documents that work together to achieve the ultimate goal of reducing the risk of exposure to the residents of the Humboldt OA.

3.7.3 Hazards and Hazardous Materials - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update would result in a significant impact related to hazards and hazardous materials if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
b) 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.
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
e) Result in a safety hazard for people residing or working within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport. .
f) Result in a safety hazard for people residing or working within the vicinity of a private airstrip.
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
h) 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 where residences are intermixed with wildlands.

Items “a” through “d” are discussed in Impact 3.7.4.1: Hazardous Materials. Items “e” and “f” are discussed Impact 3.7.4.2: Airport Safety Hazards. Item “g” is discussed in Impact 3.7.4.3: Emergency Response Plan. Item “h” is discussed in Impact 3.7.4.4: Wildland Fire Risk.

3.7.4 Hazards and Hazardous Materials - Impacts and Mitigation Measures

Impact 3.7.4.1: Hazardous Materials

Implementation of the General Plan Update could result in safety hazards due to the presence or use of hazardous materials associated with new development.

This impact analysis addresses items “a” through “d” of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.7.3 above. Pursuant to these

standards, the proposed County General Plan Update would have a significant impact if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
b) 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.
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

The development of 3.1 million square feet of commercial and industrial uses is projected to occur during the General Plan Update planning period. These land uses, along with agricultural land uses, typically involve the use, storage, transportation and disposal of hazardous materials. Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Many products containing hazardous chemicals are also routinely used and stored in homes. These products are also shipped daily on the County's highways. Manufacturers, storage facilities, transporters, and users of chemicals are sources of hazardous materials, but there are many others, including service stations, and hospitals. Varying quantities of hazardous materials are manufactured, used, or stored at facilities in the unincorporated area, from industrial plants to local dry cleaning establishments or garden supply stores.

Although hazardous materials are present in uses within all land use designations, for instance various cleaning chemicals, herbicides, and pesticides can be found on farms and in the typical residential garage, those land uses that are more likely to regularly use hazardous materials include industrial, commercial, mixed use, and some public land use designations. Industrial would be considered the land use type with the highest potential to result in the transport, storage and disposal of hazardous materials in quantities that could pose a significant risk to humans or the environment.

Table 3.7-4 below displays how much land is planned for industrial uses in Humboldt County. Including the coastal zone area, which is not the subject of this EIR, there are over 3,370 acres of land planning for industrial purposes. Approximately 48 percent of that land is within the coastal zone, almost all of which is within the Humboldt Bay Area coastal planning area. Within the inland areas, there are approximately 1,740 acres of industrial lands, 26 percent of which is located in the Blue Lake CPA and 16 percent is in the Town of Scotia. With the projected development of industrial lands during the planning period, the potential exists for incidents resulting in significant exposure associated with the transport, storage, and disposal of hazardous materials.

Table 3.7-5. Land Planned for Industrial Uses.

Community Planning Area	Acres by Land Use Designation		
	IG	IR	Total
Arcata	66.3	13.4	79.7
Avenues -Myers Flat	12.9	0.0	12.9
Avenues -Stafford-Redcrest	45.3	0.0	45.3

Community Planning Area	Acres by Land Use Designation		
	IG	IR	Total
Blue Lake	231.1	218.3	449.4
Eureka	0.0	0.0	0.0
Fieldbrook-Glendale	75.2	4.2	79.4
Fortuna	148.6	0.0	148.6
Garberville/Redway/Benbow/Alderpoint	112.2	51.2	163.4
Carlotta/Hydesville	30.7	35.0	65.7
McKinleyville	119.7	2.1	121.8
Orick	0.0	20.2	20.2
Orleans	37.1	0.0	37.1
Rio Dell/Scotia	282.3	0.0	282.3
Willow Creek	65.5	19.9	85.4
Outside CPAs	129.3	17.4	147.2
Total	**1,356.3**	**381.7**	**1,738.5**

As described in the environmental setting, hazardous materials are regularly used, transported, and disposed of in Humboldt County. Although such activities are regulated and monitored by federal, state, and local agencies, accidental release, misuse or natural disasters (e.g., floods or earthquakes) could occur. Increased residential development would result in increased use, storage, and disposal of household hazardous materials within the County. Commercial and industrial growth during the planning period would also result in increased use, storage, and/or disposal of hazardous materials during routine operations. Of particular concern are facilities with USTs or other methods of storage that could be impaired during a seismic event or could otherwise accidentally leak into the soil, water, or air. Such facilities include gas stations, automotive repair shops, and dry cleaners. Groundwater could become contaminated from these unintentional discharges.

The proposed General Plan Update does not contemplate locating new, incompatible land uses on sites which are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 or the Cortese List that would create a significant hazard to the public or the environment. The environmental setting discussion above provides a discussion of the Cortese List. The General Plan Update does not contain specific development proposals for such sites; however, the Plan does encourage the cleanup and appropriate reuse of Brownfield sites. Existing review procedures for ministerial and discretionary projects include referrals to Environmental Health addressing the safety hazards for development of such sites, and mitigating potentially significant impacts to a level of less than significant.

Table 3.7-4, Land Planned for Industrial Uses, identifies the acres within each community planning area that are planned for industrial uses. There are very few changes from a non-industrial land use to an industrial land use proposed as part of the General Plan Update or from an industrial related land use to a residential land use. There are fifteen areas throughout the County where industrial land uses are planned next to residential land uses (RL and RE land use designations), including the coastal-dependent industrial areas in Fairhaven, Samoa, and Fields Landing; lumber mills and other timber operations in Glendale, Manila, Alton, Carlotta, and Rohnerville; and other industrial areas in McKinleyville, Arcata area, Willow Creek, and Garberville. Risks associated with the use of hazardous materials that normally accompany industrial operations are increased when industrial land uses are located next to residential land uses. All of these

areas were planned for industrial uses as part of the prior Framework General Plan and its predecessors.

Other sources of hazardous emissions that could create a potential hazard to the public or the environment relate to naturally occurring asbestos and emissions from radio antennas that broadcast communications signals using electromagnetic energy commonly referred to as "radiofrequency" or "RF". Several areas within the County, primarily in the Salmon Mountains east of Hoopa and south of Orleans, are known to have ultramafic rock types that may contain naturally-occurring asbestos. The General Plan Update contains a Telecommunications Element to addresses telecommunications access, reliability, and capacity.

Projected growth during the General Plan Update planning could result in site disturbing activities on land that may contain naturally-occurring asbestos. The County has identified all parcels which appear to be underlain by ultramafic rock and any site disturbing activities will 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. For new proposals that would result in broadcast radio communications signals, the County currently requires that an applicant for a telecommunications facility demonstrate that the proposed facility complies with FCC standards.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes several policies related to industrial hazards and hazardous materials which would serve to lessen potential impacts. Located in the Safety (S) Element, Policy S-P25, Hazardous Industrial Development, requires that the approval of proposed hazardous industrial developments include mitigation measure sufficient to offset increased risks, and that risks to adjacent populations be mitigated through response plans. Policy S-P26, Hazardous Waste, seeks the elimination of use of toxic materials within Humboldt County where possible, and requires the reduction, recycling, and reuse of such materials, to the greatest extent possible, where complete elimination of their use is not feasible. It also requires new development that may generate significant quantities of hazardous wastes to provide a plan for disposal that is consistent with applicable state laws and local regulation. Regarding sites that are currently subject to contamination by hazardous materials, Policy ED-P16, Brownfields, located in the Economic Development (ED) Element, would require that the County pursue and distribute funding and technical assistance to assess, clean up, and reuse Brownfields as well as streamline the regulatory review for proposed development in commercial and industrial zoned Brownfields. To reduce hazards to the public from the operation of new wireless facilities, Standard T-S1, Communications Siting Standard (Telecommunications Element) requires that applicants shall demonstrate that proposed wireless facilities operate within Federal Communications Commission (FCC) emission regulations and shall carryout ongoing monitoring for compliance with FCC regulations.

The General Plan Update land use maps places residential land uses adjacent to industrial land uses in numerous locations across the County. Many of Humboldt County's communities developed as mill towns with worker housing adjacent to industrial facilities. Two prominent examples of historic mixed industrial and residential areas include the Towns of Scotia and Samoa, both of which are recent private company town conversions. The Proposed General Plan Update land use map maintains the current distribution of industrial land adjacent to residential land, but does not add to this incompatibility.

In addition, Standard S-S15, Hazardous Materials Handling and Emergency Response, requires that new development that handles toxic, flammable, or explosive materials in certain quantities conform to the applicable state or federal materials handling and emergency response plans. Standard S-S16, Transport of Nuclear Materials, prohibits the transport of nuclear waste through the County, consistent with Section 383-1 of the Humboldt County Code. For site disturbing activities on land that may contain naturally-occurring asbestos, Implementation Measure MR-IM5, Coordination with the Air Quality Management District and AQ-IMx2, Reduce Air Quality Impacts from Surface Mining, the County would defer to the NCUAQMD during discretionary review of proposed mining operations in ultramafic rock areas. AQ-P7, Interagency Coordination, directs the County to coordinate with the NCUAQMD early in the permit review process for site grading and mining projects where there may be naturally occurring asbestos.

The Telecommunications Element contains policies encouraging broadband communications which could result in additional wireless radio facilities as well as multiple antennas co-located on wireless towers. Standard T- S1, Communications Siting Standard, would require that applicants demonstrate that proposed facilities operate within Federal Communications Commission (FCC) emission regulations and guidelines including initial and ongoing monitoring for compliance with FCC regulations.

Conclusion

Local, state, and federal regulations, coupled with the General Plan Update policies and standards would serve to minimize both the frequency and the magnitude of potential releases of hazardous materials through upset, routine use, transport or disposal, and the emission of hazardous materials, but would not eliminate the potential for all such releases. Implementation of the General Plan Update policies and compliance with the applicable laws and regulations would lessen risks associated with the use of hazardous materials and would not create adverse risks to human health or the environment. Policy S-P26, Hazardous Waste, seeks to eliminate the use of toxic materials within Humboldt County, where feasible, and require the reduction, recycling, and reuse of such materials, to the greatest extent possible, where complete elimination of their use is not feasible. Policy S-P26 would also require new development which may generate significant qualities of to provide a plan for disposal that emphasizes on-site treatment, neutralization, and recycling which would ensure that new development would not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. In addition, state laws and local regulations relating to hazardous materials handling and disposal may preclude on-site treatment, neutralization, and recycling and such activities may result in additional hazards.

Regarding hazardous emissions from new telecommunications sites, Telecommunications Element Standard T-S1, Communications Siting Standard, would establish siting standards and ensure that new antennas meet FCC requirements. Mineral Resources and Air Quality policies and implementation measures MR-IM5, AQ-IMx2, AQ-P7, would ensure that mining and grading projects in areas that may contain naturally-occurring asbestos comply with applicable NCUAQMD rules.

The proposed General Plan Update policies coupled with local, state, and federal regulations described above, lessen potential safety hazards due to the presence or use of hazardous materials associated with new development. Therefore, impacts from projected development during the General Plan Update planning period relating to safety hazards due to the presence or use of hazardous materials associated with new development, would be **less than significant.**

Mitigation

None required.

Impact 3.7.4.2: Airport Safety Hazards

Implementation of the General Plan Update could result in new development, including new urban land uses, in the vicinity of airports that could result in airport safety hazards.

This impact analysis addresses items "e" through "f" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.7.3 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Result in a safety hazard for people residing or working within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport. .
b) Result in a safety hazard for people residing or working within the vicinity of a private airstrip.

Projected population growth during the General Plan Update planning period would result in new development, including new urban land uses, in the vicinity of airports. New development near aviation facilities, particularly multi-story structures or developments with aerial features such as antennas, could create hazards to aviation. The Humboldt Airport Land Use Commission (ALUC) is the agency in Humboldt County empowered by state law to ensure the orderly development of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports. The ALUC adopted the ALUCP to reduce hazards that apply to all airports in the County. Reference is made in the ALUCP to the Hoopa Airport, which was operated by Humboldt County until the 1990's, regarding the applicability of the plan to that airport, but there are no airport land use compatibility zones or airport-specific policies for this airport. There is no reference in the ALUCP to the Eureka Municipal Airport.

Pursuant to the Section 1.3.1 of the ALUCP and Section 21676(b) of the Public Utilities Code, Humboldt County would be required to send the proposed General Plan Update policies and land use map to the Humboldt County Airport Land Use Commission for review to ensure consistency with the Airport Land Use Compatibility Plan. State law requires local agencies to modify their general plans and any affected specific plans to be consistent with ALUCPs

The following is an analysis of the mapping of land use designations around airports in the unincorporated area of the County for the purpose of identifying hazards or inconsistencies with the ALUCP. The airport compatibility zones that are specified in the ALUCP are used to guide this evaluation, and are listed below under each airport followed by a compatibility analysis. Maps of the airport compatibility zones may be found in the ALUCP. The airspace protection criteria contained in ALUCPs establishes maximum building heights for airport compatibility zones in accordance with Federal Aviation Regulations.

Arcata-Eureka Airport. An inspection of land use designations within the land use compatibility zone surrounding the Arcata-Eureka Airport indicates that there are conflicts between the current land use designations applied as part of the 2002 McKinleyville Community Plan and 1981 McKinleyville Area Plan, and the Airport Land Use Compatibility Plan. Some of the

proposed changes as part of the General Plan Update would add to the conflict and may result in significant additional hazards to future residents or aviation. The following is an analysis of all General Plan Update land use conflicts surrounding the Arcata-Eureka Airport:

D (Other Airport Environs) Compatibility Zone

- No density limitations, therefore, no impacts associated with the General Plan Update land use map. Hazards to flight are prohibited and deed notices are required for residential development.

C* (Common Traffic Pattern) Compatibility Zone (8 DU/acre, 150 persons per acre)

- Residential Uses. There are approximately 5.9 acres of land planned Residential Medium Density (RM) which would allow up to 30 dwelling units per acre within this compatibility zone, which is in excess of the allowable 8 residential units per acre, and would conflict with the ALUCP
- Mixed Use. There are approximately 4.5 acres of land planned Mixed Use (MU) within this compatibility zone. The proposed General Plan Update allows up to 16 residential dwelling of per acre and a maximum floor to area ratio (FAR) of 3.0; all of the mixed use development is assumed to occur within the same maximum building envelope (3.0 FAR). The allowable residential density exceeds the maximum allowable residential density of the C* (Common Traffic Pattern) Compatibility Zone (8 DU/acre). For non-residential uses, The MU land use designation allows assembly related uses (e.g., churches, meeting halls, and recreation centers), retail, office, transient habitation, and commercial recreation uses. Based on Exhibit C-1 of the ALUCP, the average square feet per occupant for this range of uses would be approximately 48 square feet (the average square feet per occupant of stores =30; assembly=15; office=100). Assuming that the entire area planned MU was to develop with the above mix of non-residential uses at the maximum FAR of 3.0, over 1,000 persons per acre could be accommodated. Therefore, the maximum allowable residential and commercial development of the land planned MU in the C* compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.
- Non-residential Uses. There are approximately 23 acres of land planned Commercial Services (CS) within this compatibility zone. The proposed General Plan Update specifies the FAR for the CS land use designation as 3.0. Based on the Occupancy Levels chart in Exhibit C1 of the ALUCP, the CS land use designation is assumed to be comprised of "All Others" at a minimum of 100 square feet per occupant, or an average of approximately 74 feet per occupant. Based on a FAR of 2.5, 1 acre of land planned CR could result in approximately 589 occupants. Therefore, the maximum allowable development of the land planned CR in the C* compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. Approximately 1.5 acres within the C compatibility zone are planned RL 1-7 and would allow in excess of 4 dwelling units per acre, which would conflict with the ALUCP. Other land that would allow residential uses would allow less than 4 dwelling units per acre, consistent with the ALUCP.
- Non-residential Uses. There are approximately 83 acres of land planned Public Recreation (PR) within the C compatibility zone. The PR land use designation allows assembly uses which, based on Exhibit C1 of the ALUCP, could accommodate up to one person per 7 square feet. Therefore, the maximum allowable development of

the land planned PR in the C compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B3 (Extended Approach Departure Zone) Compatibility Zone (4 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 0.25 acres within the B3 compatibility zone are planned Residential Low Density (RL) and would allow up to seven dwelling units per acre, and approximately 25 acres are planned RL3-8 and would allow eight dwelling units per acre, both of which would conflict with the ALUCP. Approximately one acre is planned Mixed Use (MU), which would allow 16 dwelling units per acre and also conflict with the ALUCP. Other land that would allow residential uses would allow less than 4 dwelling units per acre.
- Non-residential Uses. There is approximately one acre planned MU within the B3 compatibility zone. The MU land use designation allows various commercial uses, including commercial recreation related uses which could include assembly uses at approximately 7 square feet per person which exceeds the maximum allowable number of persons per acre prescribed by the ALUCP.

C1* (Common Traffic Pattern) Compatibility Zone (2.4 DU/acre, 150 persons per acre)

- Residential Uses. Approximately 28 acres within the C1* compatibility zone are planned RL1 and would allow one dwelling unit per acre, consistent with the ALUCP. Approximately one acre is planned Mixed Use (MU), which would allow 16 dwelling units per acre and would conflict with the ALUCP.
- Non-residential Uses. There is one acre of land planned CR within this compatibility zone, which could include assembly uses at approximately 7 square feet per person that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

C1 (Common Traffic Pattern) Compatibility Zone (2 DU/acre, 150 persons per acre)

- Residential Uses. Approximately 17 acres within the C1 compatibility zone are planned RL, RL0-4, or RL1-2 and would allow development in excess of two dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 17 acres of land planned CR within this compatibility zone, which could include assembly uses at approximately 7 square feet per person that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B2 (Extended Approach Departure Zone) Compatibility Zone (0.5 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 17 acres within the B2 compatibility zone are planned RL1 or RL3-8 and would allow development in excess of one dwelling unit per two acres, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 7 acres of land planned Public Recreation (PR) within the B2 compatibility zone. The PR land use designation allows assembly uses which, based on Exhibit C1 of the ALUCP, could accommodate up to one person per 7 square. Therefore, the maximum allowable development of the land planned PR in the B2 compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP. In addition, there are approximately seven acres planned Commercial Services (CS), which allows heavy commercial uses and compatible light industrial uses not serving day to day needs. The proposed General Plan Update does not specify a FAR for the CS land use designation, but does specify FARs for Mixed Use (MU) – 3.0, Village Center (VC) – 2.0,

and Rural Community Center (RCC) – 2.0. The expected FAR for CS would likely be substantially less than those identified in the General Plan Update because the CS land use designation is more industrial in nature than commercial and would likely use more yard area for storage and truck access. For the purposes of this analysis, a FAR of 0.5 is assumed to apply to the CS land use designation. Based on the Occupancy Levels chart in Exhibit C1 of the ALUCP, the CR land use designation is assumed to be comprised of an average of the following use types: garage, parking -300 square feet per occupant (sq. ft./occ.); mechanical equipment room- 300 sq. ft./occ.; and warehouses - 300 sq. ft./occ; or an average of 300 square feet per occupant. Based on an FAR of 0.5, 1 acre of land planned CR could result in approximately 72 occupants. Therefore, the maximum allowable development of the land planned CR in the B2 compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 275 acres within the B1 compatibility zone are planned RL3-8, RL, RL1, RE, RE2.5-5, RE3-5, or RR5-20 and would allow greater than one dwelling unit per ten acres, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 96 acres of land planned CR, CS, CS/IG or PR within this compatibility zone, which could allow a range of uses that could result in approximately 72 occupants per acre, which would conflict with the ALUCP.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. Approximately 38 acres within the A compatibility zone are planned RL1, RE, RE2.5-5, or RR5-20 and would allow greater than zero dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 46 acres of land planned CR, CS, or PR within this compatibility zone which could allow a range of uses that could result in approximately 72 occupants per acre, which would conflict with the ALUCP.

Dinsmore Airport. There are current conflicts between existing land uses in the Dinsmore Airport land use compatibility zone, and the GPU proposes changes that may result in additional conflicts that could increase hazards to people.

D (Other Airport Environs) Compatibility Zone

- No density limitations, therefore, no impacts associated with the General Plan Update land use map. Hazards to flight are prohibited and deed notices are required for residential development.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. There are no proposed land use designations within the C compatibility zone that would allow in excess of 4 dwelling units per acre, so there are no conflicts associated with the General Plan Update.
- Non-residential Uses. Other than land held by Six Rivers National Forest that is planned "P", and U.S. Forest Service activities may not be subject to the ALUCP, there are no proposed non-residential land use designations within the C compatibility zone that could exceed the maximum allowable number of persons per acre.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 28 acres within the B1 compatibility zone are planned RCC, which would allow up to 4 dwelling units per acre (if community water and packaged wastewater treatment are available, which they currently are not), which is substantially greater than one dwelling unit per ten acres and would conflict with the ALUCP. In addition, 27 acres planned RR5-20 would allow up to one dwelling unit per five acres, which also exceeds the minimum allowable residential density within the B1 compatibility zone.
- Non-residential Uses. The airport (PF) and land planned "P" and held by Six Rivers National Forest are located within the B1 compatibility zone. Approximately 28 acres are planned RCC. Uses within the RCC land use designations would allow a range of non-residential uses that could exceed the maximum allowable number of persons per acre in the B1 compatibility zone.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. Approximately 12 acres within the A compatibility zone are planned RCC; 15.5 acres are planned RR20, six acres are planned RR40, and 3 acres are planned T, all of which would allow greater than zero dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. Approximately 12 acres are planned RCC. The RCC land use designation would allow a range of non-residential uses that could exceed the maximum allowable number of persons per acre in the A land use designation.

Garberville Airport. There are existing conflicts between existing land uses in the Garberville Airport land use compatibility zone, and the GPU proposes changes that may result in additional conflicts that could increase hazards to people.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. Approximately 66 acres within the C compatibility zone are planned RE1-5 and would allow greater than four dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 8 acres of land planned Public Recreation (PR) within the C compatibility zone. The PR land use designation allows assembly uses which, based on Exhibit C1 of the ALUCP, could accommodate up to one person per 7 square feet. Therefore, the maximum allowable development of the land planned PR in the B2 compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 173 acres within the B1 compatibility zone are planned RL, RE1-5, or RA5-20 and would allow in excess of one dwelling unit per ten acres, which would conflict with the ALUCP.
- Non-residential Uses. There are no proposed non-residential land use designations within the A compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. Approximately 0.4 acres within the A compatibility zone are planned RE1-5 and 23 acres are planned RA5-20, and would allow greater than zero dwelling units per acre, which would conflict with the ALUCP.

- Non-residential Uses. There are no proposed non-residential land use designations within the A compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

Kneeland Airport. There are existing minor conflicts between existing land uses in the Kneeland Airport land use compatibility zone. The existing conflicts consist of resource production related land use designations that could allow residential development within the Runway Protection Zone. The GPU does not propose any changes that would result in additional conflicts or hazards to people.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. There are no proposed land use designations within the C compatibility zone that would allow in excess of 4 dwelling units per acre, consistent with the ALUCP.
- Non-residential Uses. There are no proposed non-residential land use designations within the C compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. There are no proposed land use designations within the B1 compatibility zone that would allow in excess of 4 dwelling units per acre.
- Non-residential Uses. There are no proposed non-residential land use designations within the B1compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. Approximately 36 acres within the A compatibility zone are planned AG or T and would allow greater than zero dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There are no proposed non-residential land use designations within the A compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

Murray Field Airport. There are existing minor conflicts between existing land uses in the Murray Field Airport land use compatibility zone. The existing conflicts consist of resource production related land use designations that could allow residential development within the Runway Protection Zone. All Murray Field Airport Land Use Compatibility Zones are within the Coastal Zone, a significant portion of which is within the City of Eureka. There are no proposed changes within the inland areas that would result in additional hazards to people.

D (Other Airport Environs) Compatibility Zone

- No density limitations, therefore, no impacts associated with the General Plan Update land use map. Hazards to flight are prohibited and deed notices are required for residential development.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. There is approximately 53 acres of land planned RE2.5-5 within the Coastal Zone that would allow residential development at densities that conflict with the C compatibility Zone.

- Non-residential Uses. There are no proposed non-residential land use designations within the C compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. There are no proposed land use designations within the B1 compatibility zone that would allow in excess of 4 dwelling units per acre.
- Non-residential Uses. There are no proposed non-residential land use designations within the B1compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. Approximately 15 acres within the A compatibility zone are planned AE and would allow greater than zero dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There are no proposed non-residential land use designations within the A compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

Rohnerville Airport. There are existing conflicts between existing land uses in the Rohnerville Airport land use compatibility zone and the GPU proposes changes that may in result in additional conflicts that could increase hazards to people.

D (Other Airport Environs) Compatibility Zone

- No density limitations, therefore, no impacts associated with the General Plan Update land use map. Hazards to flight are prohibited and deed notices are required for residential development.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. Approximately eight acres within the C compatibility zone are planned RE2.5-5, 31 acres are planned RL and 1.2 acres are planned Residential Medium Density (RM). These land use designations would allow in excess of 4 dwelling units per acre, which would conflict with the ALUCP.
- Non-residential Uses. There is approximately eight acres of land planned Commercial General (CG) or Commercial Services (CS) within the C compatibility zone. These land use designations allow development that could exceed 150 persons per acre. Therefore, the maximum allowable development of the land planned CG or CS in the C compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B2 (Extended Approach Departure Zone) Compatibility Zone (0.5 DU/acre, 60 persons per acre)

- Residential Uses. Approximately one acre within the B2 compatibility zone is planned RL, which would allow in excess of 2 dwelling units per acre and conflict with the ALUCP. This is a sliver of land that likely relates to a mismatch between the northern B2 boundary line and the location of SR 36. This is likely a mapping issue and not a conflict with the B2 Compatibility Zone. There are approximately six acres planned RE1-5, which would also allow residential development in excess of the B2 compatibility zone limitation, which would conflict with the ALUCP.

- Non-residential Uses. There are no proposed non-residential land use designations within the B2 compatibility zone that would exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. Approximately 38 acres within the B1 compatibility zone are planned RL, RE2.5-5, and RA5-20 and would allow in excess of one dwelling units per ten acres, which would conflict with the ALUCP.
- Non-residential Uses. There are approximately 56 acres of land planned Commercial Recreation (CR) or Industrial General (IG) within the B1 compatibility zone. These land use designations allow development that could exceed 150 persons per acre. Therefore, the maximum allowable development of the land planned CR or IG in the B1 compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. In addition to over 86 acres of land planned Agricultural Exclusive (AE), there are small fragments of several residentially planned parcels would allow greater than zero dwelling units per acre within the A compatibility zone, which would conflict with the ALUCP.
- Non-residential Uses. There are no proposed non-residential land use designations within the A compatibility zone that could exceed the maximum allowable number of persons per acre prescribed by the ALUCP.

Eureka Municipal Airport. There is no airport land use compatibility zone for the Eureka Municipal Airport. All land within the assumed airport influence area of the Eureka Municipal Airport is located within the Coastal Zone. The General Plan Update plans the land surrounding this airport Industrial/Coastal-Dependent, (MC). Land designated Natural Resources (NR) is located to the north and west along the beach and dune area. Land designated Public Facility (PF) and Residential Estates (RE0-2) defines the Fairhaven area approximately 0.25 miles to the east of the runway.

Land designated Industrial/Coastal-Dependent would allow heavy industrial, warehousing, office, and other uses are normally acceptable, subject to occupancy limitations, in the B through D compatibility zones around airports. Land planned RRE0-2 would be appropriate in the B3 Extended Approach Departure Zone and the C through D compatibility zones.

Shelter Cove Airport. There are no proposed changes to the area within the airport land use compatibility zone for the Shelter Cove Airport as part of the General Plan Update. Non-Coastal Zone, or inland areas, of Shelter Cove are located within D (Other Airport Environs) Compatibility Zone, which contains no density limitations. There are no airport land use conflicts within inland areas.

D (Other Airport Environs) Compatibility Zone

- No density limitations, therefore, no impacts associated with the General Plan Update land use map. Hazards to flight are prohibited and deed notices are required for residential development.

C (Common Traffic Pattern) Compatibility Zone (4 DU/acre, 150 persons per acre)

- Residential Uses. Approximately 20 Coastal Zone acres within the C compatibility zone are planned RL and 15 acres are planned Residential Medium Density (RM),

and would allow in excess of 4 dwelling units per acre, which would conflict with the ALUCP. There are no land use conflicts within inland areas.

- Non-residential Uses. There are approximately six acres of land planned Commercial Recreation (CR) within the C compatibility zone. This land use designation allows development that could exceed 150 persons per acre. Therefore, the maximum allowable development of the land planned CR in the C compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP. There are no land use conflicts within non Coastal Zone areas around the Shelter Cove airport.

B1 (Extended Approach Departure Zone and Adjacent to Runway) Compatibility Zone (0.1 DU/acre, 60 persons per acre)

- Residential Uses. Approximately one acre within the B1 compatibility zone is planned RL and would allow in excess of one dwelling unit per ten acres, which would conflict with the ALUCP. There are no land use conflicts within non Coastal Zone areas around the Shelter Cove airport .
- Non-residential Uses. There are approximately 14 acres of land planned Commercial Recreation (CR) within the B1 compatibility zone. This land use designation allows development that could exceed 60 persons per acre. Therefore, the maximum allowable development of the land planned CR the C compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP. There are no land use conflicts within non Coastal Zone areas around the Shelter Cove airport .

A (Runway Protection Zone) Compatibility Zone (0 DU/acre, 10 persons per acre)

- Residential Uses. There are no proposed land use designations within the A compatibility zone that would allow residential development in excess of zero dwelling units per acre prescribed by the ALUCP. There are no land use conflicts within non Coastal Zone areas around the Shelter Cove airport.
- Non-residential Uses. There are approximately 12 acres of land planned Commercial Recreation (CR) or Commercial General (CG) within the A compatibility zone. These land use designations allow development that could exceed 10 persons per acre. Therefore, the maximum allowable development of the land planned CR or CG in the A compatibility zone could exceed the maximum allowable number of persons per acre prescribed by the ALUCP. There are no land use conflicts within non Coastal Zone areas around the Shelter Cove airport.

Hoopa Airport. The Hoopa Airport is a limited-use public airport that is located on the Hoopa Reservation and is owned and operated by the Hoopa Valley Indian Tribe. The Airport Land Use Compatibility Plan indicates that the plan specifically pertains to the Hoopa Airport, but the ALUCP does not contain compatibility zones or specific policies for this airport.
The land around the airport is planned Tribal Lands. Humboldt County may have the authority to regulate land use activities on less than about three percent of the land area within two miles of the Hoopa Airport runway. Governance Chapter Policy GP-P23, Tribal General Plans, states that within reservation boundaries, the County shall utilize the tribal government's general plan for policy guidance where the County may need to exercise land use or permitting authority on non-trust lands.

Analysis of Relevant General Plan Update Policies

All new development that occurs consistent with the General Plan Update, and located within an airport land use plan, would be subject to zoning restrictions designed to address safety

hazards for people residing or working in such areas. Safety Element Policy S-P24, Airport Safety Combining Zone, would apply the Airport (AP) combining zone to address airport safety and hazards in a manner consistent with the ALUCP. See Noise, Section 3.6.3.4, Airport Noise, for an analysis of potential noise impacts around airports associated with the General Plan Update.

The General Plan Update Safety Element addresses airport safety and land use compatibility. The Safety Element Goal S-G5, Airport Safety, is intended to ensure that land use and development in the vicinity of airports minimizes exposure to unsafe levels of noise and aircraft hazards consistent with the applicable Airport Land Use Compatibility Plan. Safety Element Policy S-P22, Airport Land Use Compatibility Criteria, regulates and plans land use around airports according to the Airport/Land Use Safety Compatibility Criteria (Table 14-A, as amended), which identifies acceptable uses according to the height of the structures (among other criteria), and Standard S-S14, which states that development within the jurisdiction of ALUCPs shall conform to the ALUCP. Safety Element Policy S-P24, Airport Safety Combining Zone, directs that County to use the Airport Safety Combining Zone within airport influence areas to ensure consistent application of restricted heights within defined airport flight obstruction areas. Airport safety is further maintained by Policy S-P23, Obstruction-free Approach Surfaces, which defines the maintenance of obstruction-free approach surfaces at all airports identified on the Approach and Clear Zone plans consistent with FAA requirements as principally permitted.

Conclusion

Development in the vicinity of airports would be required to comply with safety, noise, and compatibility standards contained in the Safety Element which are intended to reduce the likelihood of accidents affecting land uses on the ground. Airport Safety policy S-P21 provides for consistency between the ALUCP and General Plan through regular review of the ALUCP to ensure that it accurately defines planning areas around airports and establishes land use policies and standards appropriate for the public safety and protection of airport operations. Policy S-P22 would regulate land use around airports according to the *Airport/Land Use Safety Compatibility Criteria* and require the County to update these criteria consistent with amendment to the ALUCP. Other policies would facilitate the maintenance of obstruction-free approach surface. Safety Policy S-P24, directs the utilization of an airport safety combining zone to ensure consistent application of the Airport Land Use Compatibility Criteria matrix. However, there is no implementation measure that requires the update of the General Plan Safety Element to be consistent with changes to the ALUCP.

The General Plan Update land use map would result in conflicts around the Arcata/Eureka, Garberville, Kneeland, Murray Field, and Shelter Cove Airports. Airport land use compatibility zones do not exist for the Eureka Municipal and Hoopa Airports, so precise land use compatibility cannot be determined.

Implementation of General Plan Update Safety Element policies and programs that pertain to aviation hazards, as well as compliance with applicable federal, state, and local airport land use compatibility regulations, would reduce potential aviation hazard impacts. However, the analysis above identifies General Plan Update land uses that would conflict with airport land use compatibility plans and could represent a safety hazard for people. Therefore, the following mitigation measures would be required to make the Land Use Diagram consistent with the ALUCP in order to reduce potential impacts to a less than significant level.

Mitigation

3.7.4.2a. Mitigation Measure. To ensure consistency between the ALUCP and the General Plan, prior to adopting the Land Use Diagram:

> Prior to adopting the *General Plan Update, amend land use maps to ensure that maximum allowable residential densities and maximum allowable building occupancies are consistent with the Recommended Compatibility Zones contained in the March 1993 Airport Land Use Compatibility Plan.*
>
> Or, *The following standard shall be added:*
>
> **S-SX. Airport Land Use Compatibility Zone Overlay.** An Airport Land Use Compatibility Zone for all public use airports shall be established that matches the Recommended Compatibility Zones contained in the March 1993 Airport Land Use Compatibility Plan, as amended, for Humboldt County Airports, and that limits the maximum allowable residential density and building occupancy for each land use designation subject to such zones, to the Airport/Land Use Safety Compatibility Criteria of the Airport Land Use Compatibility Plan (Table 14-A).

3.7.4.2b. Mitigation Measure. To ensure consistency between the ALUCP and the General Plan, the following implementation measures shall be added:

> ***S-IMx4. Update Airport/Land Use Safety Compatibility Criteria.*** *The County shall update Airport/Land Use Safety Compatibility Criteria (Table 14-A), consistent with amendments to the ALUCP.*
>
> **S-IMx5. Airport Safety Review Combining Zone.** Amend the Zoning Maps to apply an Airport Safety Review Combining Zone, indicated by "AP", that matches the outer boundaries of the Recommended Compatibility Zones contained in the March 1993 Airport Land Use Compatibility Plan, as amended, for Humboldt County Airports. Until such time as the Zoning Maps are amended, places a note on the record for each parcel in Humboldt County's online permit management system that lies within the outer boundaries of the Recommended Compatibility Zones.

Level of Significance after Mitigation

Mitigation Measure 3.7.2.2.a requires actions which ensure consistency between the ALUCP and the General Plan. Mitigation measure 3.7.2.2.b requires the County to update *Airport/Land Use Safety Compatibility Criteria* consistent with amendments to the ALUCP. Application of these policies would address potentially significant impact by ensuring compatible land uses within the vicinity of airports. With the addition of the above mitigation measures, impacts related to airport hazards from new development allowed under the General Plan Update would be **less than significant.**

Impact 3.7.4.3: Emergency Response Plan

Projected during the General Plan Update could result new land uses in currently undeveloped or underdeveloped unincorporated areas of the County, which could impair implementation of

or physically interfere with the County's emergency response plan or impair the use of emergency evacuation routes.

This impact analysis addresses item "g" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.7.3 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

c) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Development projected to occur during the General Plan Update planning period could establish new uses in currently undeveloped or underdeveloped areas. This development could adversely affect the County's ability to implement its emergency response plan or impair the use of evacuation routes during an emergency condition. Impairment or interference with an adopted emergency response or evacuation plan would result in an adverse physical effect to people, or the environment, by potentially increasing the loss of life and property in the event of a disaster.

Development that accommodates large concentrations of people or special needs individuals, such as stadiums or hospitals, in an area with increased hazards, such as a flood or tsunami inundation area, could cause adverse effects related to the implementation of the Multi-Jurisdictional Hazard Mitigation Plan or a Dam Evacuation Plan. Failure to provide reasonable access for emergency equipment and evacuation of civilians can also result in the major loss of life, property, and natural resources. The proposed General Plan Update land use diagram does not substantially change the arrangement of land uses from the prior Framework General Plan and does not proposed large concentrations of people in areas with increased hazards.

The Emergency Operations Plan identifies the County's the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies in, or affecting, Humboldt County and establishes an organizational structure, assigns responsibilities, outlines procedures, and details a recovery process. The Humboldt Operational Area Hazard Mitigation Plan evaluates risks associated with natural hazards and provides goals, objectives and actions to reduce impacts from these hazards. In addition, the County Office of Emergency Services has prepared a draft Tsunami Emergency Response Plan that is used to guide emergency operations in the event of a tsunami. This draft plan has been modified several times in the last few years with information and experience gained from large tsunami events in other countries.

Implementation of the proposed General Plan Update does not propose to change the plans or policies of the emergency operations plan, the hazard mitigation plan, or any other emergency plan, although it is possible that land uses and development implemented under the General Plan Update may require the updating of these emergency plans. Construction activities associated with development occurring under the General Plan Update would have the potential to interfere with emergency plans and procedures if appropriate authorities are not properly notified. The construction of multiple projects during the same period of time, and/or multiple roadways used for emergency routes being concurrently blocked, could also have the potential to interfere with emergency plans and procedures

Pursuant to Section 6.1 Application Check, of Chapter 2, Administration, Procedures, Amendments and Enforcement of the Humboldt County Zoning Regulations, the Planning Department refers information relating to planning applications to appropriate agencies and County departments that may have relevant authority or expertise. Referral agencies related to emergency response include fire districts, water and wastewater providers, CAL FIRE, North

Coast Unified Air Quality Management District, and the Humboldt County Departments of Public Works, Environmental Health, and the Sheriff's Office, depending upon the characteristics of the project. The responses to such referrals will indicate whether a project could potentially impact emergency response and if it would, will include measures to reduce the impact to be included as part of the project approval, thereby providing assurance that natural hazards and impacts to emergency response are minimized.

Analysis of Relevant General Plan Update Policies

The General Plan Update would result in the impairment to the implementation of emergency response or evacuation plans. The GPU includes policies, standards and implementation measures to ensure implementation of the Plan does not adversely impact emergency response. Policy S-P27, Pre-disaster Planning and Mitigation, requires that the County proactively reduce known hazards through pre-disaster planning and mitigation efforts. Policy S-P29, Emergency Operations Capability, requires that the County maintain the systems necessary to implement the Humboldt County Operational Area Emergency Operations Plan. Policy S-P30, Tsunami Ready Program, and Standard S-S4 Tsunami Emergency Response Plan, support efforts to make low-lying communities conform to the Tsunami Ready program of the National Weather Service and require that the Tsunami Emergency Response guide interagency response efforts. In addition, S-IM8, Local Hazard Mitigation Plan, and S-IM9, Emergency Operations Plan, demonstrate the County's continuing commitment to pre-disaster mitigation and emergency operations planning.

Standard S-S17, Humboldt County Operational Area Office of Emergency Services (OES), requires that local emergency management and response operations shall be consistent with Humboldt County Operational Area Emergency Operations Plan and Humboldt County Ordinance 2203. Standard S-S18, Consistency with State and Federal Framework, further requires that the County emergency response efforts be consistent with the California Emergency Services Act, the federal National Response Framework and the National Incident Management System (NIMS).

Conclusion

The implementation of these General Plan Update policies would help ensure that adequate emergency access, evacuation, and management procedures are in place, and public safety providers and emergency responders are properly prepared to respond to a major emergency. These policies and programs, in concert with existing project review procedures, would reduce the risks of land uses interfering with or impairing emergency response times and the ability to execute evacuations during emergencies. Therefore, impacts to the Humboldt County emergency response or evacuation plans would be **less than significant**.

Mitigation

None required.

Impact 3.7.4.4: Wildland Fire Risk

Implementation of the General Plan Update could allow establishment of urban land uses, including residences, within high fire danger areas including the wildland urban interface, which could result in increased fire related risk to people and structures

This impact analysis addresses items "h" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.7.3 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

d) 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 where residences are intermixed with wildlands.

In addition to the potential loss of life and property, wildfires may result in the loss or permanent change of natural resources. Although wildfires are considered a natural process necessary to the functioning of many ecosystems, a wildfire's aftermath typically leaves land scorched and exposed. Lightning causes about 28 percent of the wildfires in Humboldt County, based on the CAL FIRE FRAP Fire Perimeter Database. Locating urban land uses adjacent to, or within, an area containing wildland vegetation such as forests, shrubs, or grasslands (the wildland urban interface) can result in increased fire related risk to people and structures.

The areas with the highest hazard for wildfires are found in foothills and mountainous areas of eastern Humboldt County and in grasslands located throughout the County. However, areas of high fire danger follow the forested areas throughout the County and extend even to the coast and the edges of the urbanized Humboldt Bay Area.

Table 3.7-6. Housing Units Projected within High Fire Hazard Severity Areas.

	High & Very High in Watershed		Dwellings (Projected Growth 2028)				
Planning Watershed	**Acres**	**Percent**	**Urban**	**Rural**	**Ag**	**Timber**	**Total**
1-South Fork Eel	197,678	9.28%	119	11	3	3	**135**
2-Lower Eel	141,524	6.64%	11	2	4	3	**20**
3-Middle Main Eel	135,651	6.37%	0	6	9	2	**16**
4-Lower Klamath	329,110	15.44%	5	1	0	6	**12**
5-South Fork Trinity	190,124	8.92%	0	0	0	1	**1**
6-Lower Trinity	73,036	3.43%	9	1	0	1	**11**
7-Van Duzen	227,038	10.65%	0	9	9	6	**25**
8-Redwood Creek	175,627	8.24%	0	1	2	4	**7**
9-Cape Mendocino	303,974	14.26%	133	8	7	4	**151**
10-Trinidad	61,308	2.88%	0	1	0	4	**5**
11-Mad River	210,364	9.87%	78	6	5	7	**96**
12-Eureka Plain	85,756	4.02%	292	3	0	3	**299**
Total	**2,131,190**	**100.00%**	**648**	**48**	**40**	**44**	**779**

Table 3.7-5, Housing Units Projected within High Fire Hazard Severity Areas, indicates that most of Humboldt County is located within high or very high fire hazard severity areas. Approximately 779 new dwelling units are projected to be developed within high and very high wildfire hazard areas during the General Plan Update planning period. Approximately 83 percent of this development would occur within or directly adjacent to urban areas.

As indicated in the setting discussion above, 72 percent of wildfires in Humboldt County are caused by human activity. Adding additional development into the wildland urban interface areas would add additional ignition sources, add to fire suppression complexity and cost, and put additional lives and property at risk from wildfire.

CAL FIRE has responsibility for vegetation fires within SRA lands, which comprise much of the rural privately owned lands within the unincorporated areas. Fire departments serving the unincorporated areas support CAL FIRE by providing initial response to wildfire incidents. New development within SRA lands would be required to comply with the County Fire Safe Regulations contained in Title II – Land Use and Development Code, Division 11. The Fire Safe Regulations are incorporated in the review process for development applications for lands within the State Responsibility Area. These regulations were prepared pursuant to Public Resource Code Section 4290, which requires the adoption of regulations implementing minimum fire safety standards related to defensible space within SRA land. The Fire Safe Regulations are available at the Humboldt County Planning and Building Department, and on the Department website at: http://www.humboldtgov.org/DocumentCenter/Home/View/278. In addition, recent changes to the Subdivision Map Act require that all subdivisions of parcels located in the State Responsibility Area (SRA) or a very high fire hazard severity zone receive structural fire protection from a public agency or from another entity organized solely to provide fire protection services that is monitored and funded by a county or other public entity (Government Code Section 66474.02).

Analysis of Relevant General Plan Update Policies

With respect to wildland fire risk, the General Plan Update includes policies, standards and implementation measures intended to reduce the exposure of people or structures to wildland fire losses. The Safety Element emphasizes reducing risk and potential for loss through coordinated planning. Policy S-P1, Reduce the Potential for Loss, requires that the County plan land uses and regulate new development in a manner that reduces the potential for loss of life, injury, property damage, and economic and social dislocations resulting from natural and manmade hazards, including wildland fire risk. Further, S-P12 Joint Planning and Implementation, requires that the County plan collaboratively with local fire agencies and companies, CAL FIRE, and federal fire organizations on fire prevention and response strategies and that implementation be coordinated to maximize efficiency.

The General Plan also emphasizes the use of subdivision design and the application of appropriate standards as strategies to lessen wildland fire risk. Policy S-P13 Subdivision Design in High and Very High Fire Hazard Zones, requires that subdivisions within SRA and high and very high fire severity classification areas shall consider designs and layout to reduce the risks of fire and improve defensibility. Policy, S-P15, Conformance with State Responsibility Areas (SRA) Fire Safe Regulations, require that all development within SRA high and very high fire severity classification areas conform to Fire Safe Regulations, which provide for emergency access; signing and building numbering; private water supply reserves for emergency fire use; and vegetation modification and conform to Fire Safe Regulations. Standards S-S9, SRA Fire Safe Regulations, S-S10 and S-S11 California Building and Fire Codes, and S-S12, Fire Hazard Severity Zone Maps, establish criteria that are applied to projects subject to wildland fire hazards to ensure that the above policies are fully implemented.

The General Plan Update carries out broader fire planning that is intended to improve the provision of fire protection services and improve public awareness of the level of fire protection service available throughout the County. Policy S-P16, Level-of-Service Standards, establishes collaboration between the County and other fire protection agencies to develop level-of-

service standards for the provision of all emergency response services and to make such standards available to the public.

Other General Plan Update policies intended to reduce wildland fire risk include: Policy S-P18, Hazard Fuel Reduction, which encourages the use of prescribed burning and other types of hazardous fuel reduction land management activities; Policy S-P19, Fire Safe Education, which directs the County to expand fire prevention and mitigation education capacity in the County; and Policy S-P20, Fire Service Provider Support, which makes information from the County available to fire service providers regarding the creation of districts, increasing organizational capacity, developing funding streams, and improving Insurance Services Office (ISO) ratings to help reduce insurance costs.

The Land Use Element, Section 4.6 Forest Resources, contains policies and programs that are intended to lessen wildfire risk where residential uses are planned adjacent to forest land. Policy FR-P16, Planned Compatible Uses and FR-P18, Fire Safety Hazards would reduce conflicts and fire safety hazards adjacent to forestlands. Standard FR-S2, Forestland-Residential Interface (FRI) would establish standards that are intended to reduce conflicts with timber operations and improve fire safety.

The Community Infrastructure and Services Element contains a series of policies, standards, and programs that are aimed at expanding the capacity of local fire service providers. This Element also ensures that new development is provided with adequate levels of fire protection. These policies direct the County to proactively coordinate with service providers, monitor service capacity in relation to planned development, and encourage the establishment of funding mechanisms to support services and provide the infrastructure needed to serve the development allowable under the GPU. A detailed description of these policies can be found in Section 3.4, Public Services, Impact 3.4.3.2, Fire Protection.

Conclusion

The proposed policies, standards and implementation measures listed above would lessen the exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Coordinated planning with fire protection agencies and conformance with SRA Fire Safe Regulations, which are implemented by, S-P15, Conformance with State Responsibility Areas (SRA) Fire Safe Regulations and S-S9, SRA Fire Safe Regulations t would ensure the provision of adequate water for fire protection that and new development is planned and designed in a manner that can best be protected in the event of a fire. The identification of existing service levels, the establishment of service standards, and fire safety education, would provide guidance to property owners and the County regarding the most appropriate areas to plan and implement development. However, adding additional development within areas of high and very high hazard would expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts in this regard would be **potentially significant**.

Mitigation

3.7.4.5a. Mitigation Measure. To lessen impacts resulting from the exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, the following mitigation is required. Amend Standard FR-S2 Forestland-Residential Interface (FRI), Section E to read as follows:

FR-S2. Forestland-Residential Interface (FRI). Require new residential subdivisions adjacent to TPZ and public forestlands to include forested buffers and building setbacks between residential uses and adjacent timberlands to minimize use conflicts and safety hazards and, if necessary, require fire breaks around all or a portion of the development in consultation with CALFIRE.

For residential development, require compliance with fire safe standards, and ongoing fire protection management programs **developed by qualified experts**.

For residential development in high and very high fire severity zones, require **the establishment and maintenance of ~~a~~** fire break**s** and open space adjacent to forestlands, consistent with CALFIRE recommendations**, and ongoing fire protection management programs developed by qualified experts** to ensure defensible space.

Level of Significance after Mitigation

The proposed mitigation would require that fire protection management programs that demonstrate that fuel breaks are established and maintained o protect residential development from wildfire. . However, for development other than through a subdivision, there is no guarantee that local fire protection will be available to structural fire protection or crucial initial response to wildfire incidents. Therefore, the proposed mitigation would lessen impacts related to wildland fire risk the General Plan Update, but not to a less-than significant level. **This impact is significant and unavoidable**.

NOTE: Impacts relating to flooding and tsunami risk are analyzed in Section 3.10, Hydrology and Water Quality, Impact 3.10.3.4, Housing within a 100-year Flood Hazard Area or Expose People or Structures to Flooding from Levee or Dam Failure, Tsunami, or Mudflow.

3.8 Geology and Soils

This section provides background information regarding the hazards relating to the geology and soils present within the County, the regulations and programs relating thereto, and an assessment of the potential impacts of implementing the proposed General Plan Update. No specific key policy issues relating to geology and soils conditions have been identified through the General Plan Update process. Existing geology and soils conditions are described in Chapter 10: Geologic, Seismic, and Soil Hazards, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a discussion of bedrock geology and geologic hazards in the County. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://humboldtgov.org/571/Background-Reports, is incorporated herein by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.8.1 Geology and Soils - Environmental and Regulatory Setting

Geologic, Seismic, and Soil Hazards

Humboldt County is located within a seismically active area of California. The County is located within the two highest seismic risk zones of the California Uniform Building Code. Cape Mendocino (offshore of the County) experiences the highest concentration of earthquake events in the continental United States. In addition to causing ground shaking, an earthquake can trigger other natural disasters such as fire, landslides, and flooding, resulting in loss of life and property damage. Seismic hazards in the County include earthquake ground shaking, surface fault rupture, liquefaction, and tsunami potential in the coastal zone areas. Geologic hazards that are not specifically related to earthquakes include landslides and unstable soils.

Bedrock 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. The Coast Ranges province is comprised mainly of the Franciscan complex inland, sand, and other alluvial deposits located closer to the coast. The Klamath Mountains 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, covering over a million acres in the County, and the Tertiary-Cretaceous Coastal Belt rocks, covering 340,000 acres. The Franciscan Complex is a suite of rocks that originated on the deep sea floor and were later pushed up against the continental margin along the coast of California through plate tectonic forces. The following paragraphs summarize the geology of each planning watershed. Additional geologic data is provided for the planning watersheds in Volume II of the Natural Resources and Hazards report.

Eel River Basin. The Eel River basin is a mountainous area uplifted in the post-Miocene era and underlain by a deformed, faulted, locally sheared and, in part, metamorphosed accumulation

of subducted continental margin deposits. About 99 percent of the bedrock underlying the basin is sedimentary and metasedimentary.

The four planning 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 Cenozoic Sedimentary rocks.

Klamath-Trinity Basin. The Klamath-Trinity Basin, composed of the Lower Klamath, Lower Trinity, and South Fork Trinity planning watersheds, is the only basin with notable amounts of plutonic and metavolcanic rocks. 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 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. The basin includes the Mad River, Redwood Creek, Eureka Plain, and Trinidad planning watersheds which all differ in 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. 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 the surface trace of faults. Secondary seismic hazards are caused by the interaction of ground shaking with soft or unstable soils, resulting in liquefaction, settlement, and landslides. Tsunamis are also addressed in this section, as a secondary effect of seismic activity.

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. 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 preexisting 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. As a result of this unique geologic setting, the North Coast is vulnerable to several types of earthquakes from a variety of sources. Because a triple junction has to 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 particular type of seismic hazard that is specifically addressed by the California Alquist-Priolo Earthquake Fault Zoning Act. This act generally requires disclosure and avoidance. Humboldt County has a number of fault zones mapped under this law. The County utilizes a combining zone designation (G) 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.

The Alquist-Priolo Special Studies Zones Act of 1972 is the primary state legislation related to earthquake fault zones. The Act seeks to reduce fault rupture hazards by regulating development near active faults and preventing construction of buildings used for human occupancy on the surface trace of active faults. According to the Act, no buildings intended for human occupancy may be constructed on or within 50 feet of an active fault trace. For the purposes of the Act, an active fault is one that has ruptured in the last 11,000 years. Surface rupture is the most easily avoided seismic hazard. The Act only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. 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.

Seismicity. The County is located within the two highest of five seismic risk zones specified by the California Uniform Building Code, and offshore Cape Mendocino has the highest concentration of earthquake events anywhere in the continental United States. 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 300–500 year intervals.

The following is a brief description of each of the major fault zones that are present in Humboldt County from the Natural Resources and Hazards Report:

> 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. The forces are very different north of the triple junction, where the Gorda plate and its northern extension, the Juan de Fuca plate, collide with the North American plate. The Gorda plate slowly descends beneath the North American plate along the Cascadia Subduction Zone that extends approximately 750 miles north to the Canadian border. It is the first of a string of subduction zones to ring the Northern Pacific. Downward and eastward motion of the Gorda plate along this subduction zone dates back to at least 6 million years ago and continues today; this movement produced the volcanic Cascade Range in Washington, Oregon, and northern California.

Near its southern end, the subduction zone curves onshore, exposing nine major thrust faults along the Humboldt County coastline in the vicinity of 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 good 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.

The above described seismic setting has the potential to cause significant 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 ground-shaking; (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 Humboldt 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 and Structural Damage. The fault systems in Humboldt County are historically very active with movement on the fault occurring in the last 200 years according the Natural Resources and Hazards Report, "Ground Shaking and Structural Damage", Page 10-12), and thus are considered to have the potential to cause future earthquakes, surface rupture, and ground failure. 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. Figure 3.8-1, Probabilistic Ground Shaking, shows the areas within Humboldt County that are more likely to experience high levels of ground acceleration, or shaking, during a seismic event over the next 50 years.

About 25 percent of all earthquake energy released in California during historic times has occurred along the Humboldt County coast. 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.

Recent work by the United States Geological Service (USGS) on ground shaking severity has led to the preparation of new building codes for some areas. State regulations regarding seismic hazards are contained in Title 24, Part 2, of the California Uniform Building Code. Recordings conducted during the 1989 Loma Prieta earthquake confirmed previous USGS projections that ground shaking is much more violent on soft sediments than on bedrock. According to the USGS, these records provided a firm basis for revising building codes to reflect the need for extra strength in structures built on soft ground. Because earthquake-resistant design and construction are essential to reducing earthquake losses, these Code revisions are a major step toward greater earthquake safety.

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.

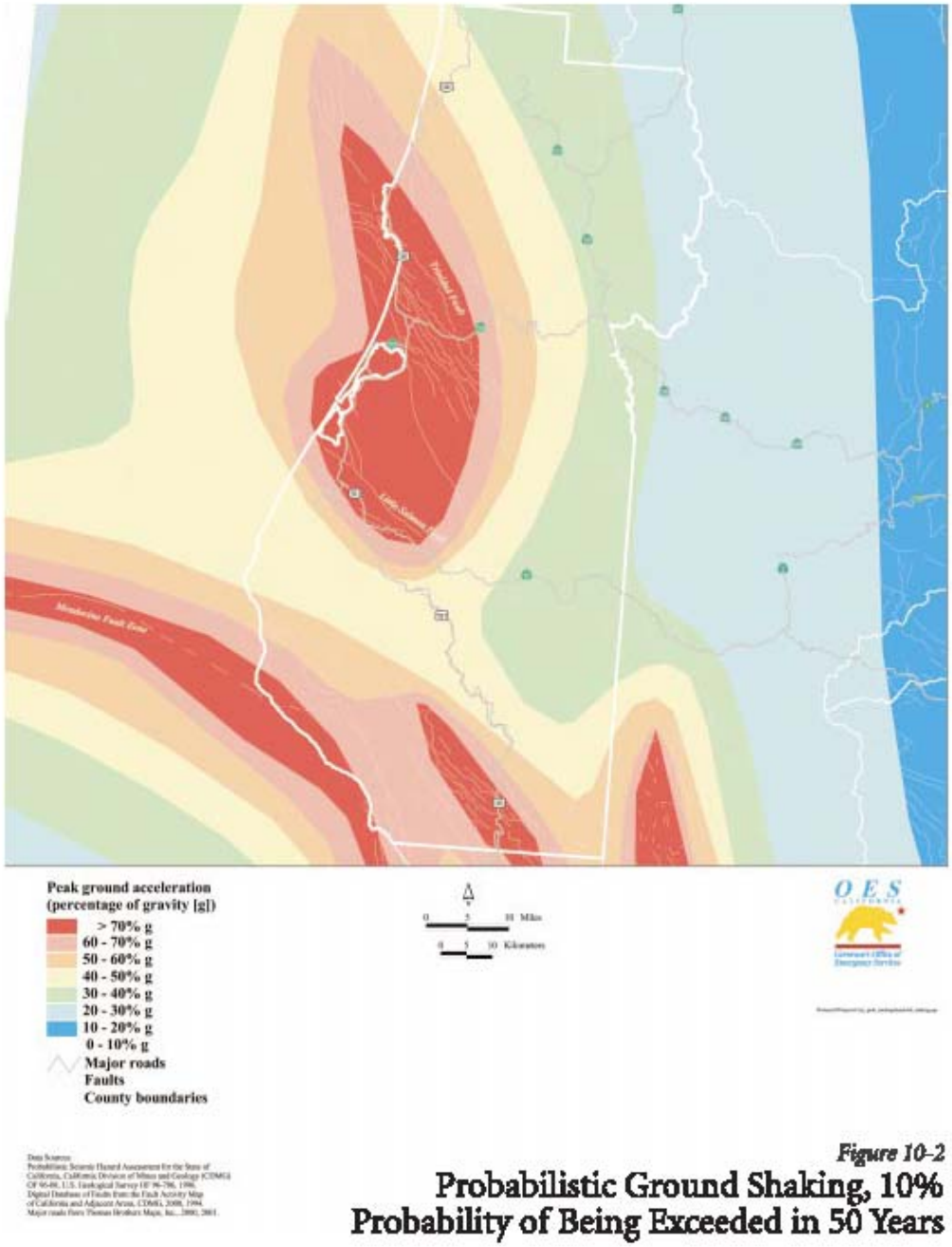
Liquefaction. Ground shaking gives rise to two secondary natural hazards, liquefaction and landsliding (landslides are discussed under Soil and Slope Hazards below). When shaken strongly, unconsolidated sandy deposits that are saturated with water can liquefy and form a slurry. This process is called "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 are located near Humboldt Bay, coinciding with the presence of the bay's muds and sands.

Figure 3.8-1. Probabilistic Ground Shaking, 10 Percent Probability of Being Exceeded in 50 Years, 2002 Natural Resources and Hazards Report.



Tsunamis. A tsunami, or large sea wave, may be produced by movement of the ocean floor resulting from either a nearby or distant earthquake. Tsunamis (and storm surges) are coastal flooding concerns; although rare, they are potentially catastrophic events. Tsunamis have historically been rare in California. Since 1812, California has experienced fifteen tsunamis with wave heights greater than three feet. Seven of these were destructive and eleven initiated from distant earthquakes near Alaska, Chile and Japan. The worst damage in California resulted from the 1964 Alaskan earthquake, some 1,500 miles away. The earthquake generated a tsunami that caused 12 deaths and severely damaged the harbor area at Crescent City in Del Norte County.

A tsunami resulting from the April 1992 Cape Mendocino earthquake reached Eureka in about 20 minutes, with wave heights of about one foot. The tsunami reached Crescent City in 50 minutes and was detected in Oregon, the San Francisco Bay Area, Santa Barbara, and Hawaii. Although not destructive, this event illustrates both how quickly a wave can arrive at nearby coastal communities and how long the danger period can last. The first wave arrived at Crescent City in less than an hour, but the highest waves, about one-and-a-half-feet tall, arrived nearly four hours later. Abnormally large waves continued for more than eight hours.

On March 11, 2011, a tsunami was triggered by the 9.0 Tōhoku earthquake in Japan that exceeded 8.0 feet in Crescent City. This tsunami destroyed the Crescent City harbor, sinking 35 boats and resulting in between $12 and $16 million in damage. Earthquakes in Russia's Kuril Islands in 2006 and 2007 resulted in tsunami runups of approximately seven feet in Crescent City. The 2006 tsunami in Crescent City was reported to behave like a river surging back and forth and resulted in approximately $9.2 million in damage to the harbor.

Table 3.8-1, Tsunamis That Have Affected Humboldt County, displays information relating to tsunamis that have occurred in Humboldt County, and is derived from Table 18-1, Tsunamis That Have Affected North Coast California, from the Hazard Mitigation Plan. Although not in this table, Humboldt County experienced a small tsunami following the February 27, 2010 earthquake in Chile that resulted in unusual wave action in Humboldt Bay and was observed at the North Spit tidal gauge.

Table 3.8-1. Tsunamis That Have Affected Humboldt County.

Date	Origin of Tsunami	Impacted Areas	Runup (meters)	Observations/comments
3/19/1855	N. California	Humboldt Bay	Observed	Water in the bay agitated for 1 hour
4/25/1992	Northern CA Cape Mendocino	Humboldt Bay	0.3 Observed	Waves arrived at Humboldt Bay about 20 minutes after ground shaking.
		Clam Beach	0.6	Water level changed several feet
		Trinidad		Cars were struck on the beach
3/11/11	Japan	Humboldt Bay and coastline	Observed	

Source: Humboldt Operational Area Hazard Mitigation Plan (HMP), 2007; Humboldt County Community Development Services, 2011.

Very large earthquakes in other areas of the Pacific Ocean may generate tsunamis that could affect Humboldt County. Tsunami waves in the Pacific Ocean travel at hundreds of miles per hour and can reach California several hours after the earthquake. The International Tsunami Warning System monitors ocean waves after any Pacific earthquake with a magnitude larger than 6.5. If waves are detected, warnings are issued to local authorities who can order evacuation of low-lying areas, if necessary.

Smaller tsunamis have occurred along the North Coast and local earthquakes can produce damaging tsunamis that give very little warning time. The geologic record indicates that the Cascadia Subduction Zone has been a near-shore source for a number of significant tsunami events affecting Humboldt County, the most recent occurring about 300 years ago. The coastal area that could be affected by a tsunami is shown in the Natural Resources and Hazards Report Volume 1, Figure 10-4. This area is called the tsunami "run-up zone."

Soil and Slope Hazards

Soil Types

Agricultural Soils. There are a variety of soil types in Humboldt County. 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. 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 most superlative old growth redwood groves are found on forest soils.

Grassland Soils. The general characteristics of grassland soils vary widely. They range from shallow loamy soils to deep clay soils. Their permeability ranges from moderate to slow. The general nutrient level of these grassland soils is higher than that of the adjacent forest soils. The major portion of these soils is intermingled with other soils in the Douglas fir zone beyond the fog belt. Some of these soils are formed on Franciscan parent material. Many of these are found in the shear zone or fault gouge material or on the melange material of the Franciscan Formation. This parent material weathers rapidly, forming a grey-blue clay subsoil (commonly called "blue goo") that tends to slip when wet. Thus, because of the parent material, these soils are found in landslide topography.

Woodland Soils. Most of the woodland soils are inland beyond the cool, foggy belt. They are intermingled with the conifer forest soils of the Douglas fir belt 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 melange, one should expect these soils to be relatively unstable.

In contrast to the information known or available on the County's bedrock geology, the available soils information is quite detailed. Soil-vegetation maps prepared by the California State Cooperative Soil-Vegetation Survey are available for Humboldt County at the 7.5-minute scale. These maps describe vegetation and soils, including parent rock materials, soil depth, erosion, and slope.

Slope Stability and Landslides

Slope stability refers to the landslide susceptibility of slopes composed of natural rock, soils, artificial fill, or combinations thereof. 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.

The characteristics listed above are representative of the many complex variables contributing to the formation of landslides. The prediction of slope failure at a specific site, therefore, requires an analysis of all possible factors. Relative slope stability maps originally prepared as part of the Framework General Plan provide general identification of the relative slope stability hazard associated with various bedrock types. These maps do not identify the hazards at particular sites but indicate the relative likelihood of site instability.

Steep slopes, which are shown in Natural Resources and Hazards Report Volume 1, Figure 10-3, occur in a large portion of the County, including 775,203 acres in the 30–50 percent range and 531,179 acres with over 50 percent slopes. Slope information for each planning watershed is shown in Natural Resources and Hazards Report Volume 1, Table 10-2, (Appendix D). available at http://humboldtgov.org/571/Background-Reports.

Soil instability is often reflective of the parent bedrock material. Soils found in Humboldt's landslide topography often include mélange materials of the Franciscan Formation, which breaks down into clay subsoil that tends to slip when wet.

Landslides include earthflows, debris slides and flows, and translational/rotational slides. Many landslides are complex and are subject to more than one type of landslide process. Landslides are not depicted on a countywide basis in the Natural Resources and Hazards Report, but both active and dormant slides are shown on the constraints maps in Chapter 14 of the Natural Resources and Hazards Report Volume 1. Active slides are those areas that are presently moving or have recently moved, as indicated by the presence of distinct topographic features (e.g., sharp barren scarps, cracks, and tipped trees) where major revegetation has not occurred. Dormant slides demonstrate little evidence of recent movement; slide features have been modified by weathering and erosion and vegetation has been reestablished.

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 (Natural Resources and Hazards Report, Page 10-19). 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. Additional

details on stability issues in specific planning watersheds are provided in Volume II of the Natural Resources and Hazards Report.

Septic Suitability

A septic system is a biological method of wastewater treatment that can be very effective when it has been carefully designed and installed, as well as properly used and maintained. Septic systems can be sized to treat wastewater generated by single or multiple family dwellings as well as commercial and industrial facilities. Septic systems are designed to provide partial treatment of wastewater, with disposal of liquid wastewater to the soil in such a manner that it is further treated by soil organisms so that contaminants do not reach groundwater or streams.

Septic systems are used throughout Humboldt County in areas without municipal wastewater systems. Section 3.3 Utilities and Service Systems, estimates the number of houses within the service area of municipal wastewater system and the number of houses that likely utilize septic systems, or on-site wastewater systems, by planning watershed. It is estimated that there were approximately 17,653 homes utilizing on-site systems in 2010, with the largest number of systems in the Eureka Plain (4,068). See Table 3.3-7. Wastewater Service by System Type in Humboldt County in Section 3.3 (Utilities and Services) for a listing of the approximate number of septic systems by watershed.

A septic system typically consists of a septic tank and a leaching area. The tank is usually 1,000-2,000 gallons in size and is designed to trap solids and grease and provide initial, primary treatment of wastewater. Treatment in the septic tank is anaerobic (without oxygen) and produces a raw effluent that is still very high in bacteria and pathogens, dissolved solids and organics, ammonia, and organic nitrogen. The liquid then typically flows by gravity to a leaching area where it soaks into the soil, and where most of the treatment takes place. The total size of tank and leaching area needed is determined by the expected amount of wastewater flow into the system and capabilities of the soil to absorb water.

An important septic system design factor is the characteristics of the soil that will be used to filter and clarify the 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. A septic system may have a limited or extended lifespan or can immediately fail if such analysis is not conducted.

3.8.2 Geology and Soils - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update 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.

Items "a" is discussed in Impact 3.8.3.1, Exposure to Seismic-Related Hazards. Item "b" is discussed in Impact 3.8.3.2, Soil Erosion or the Loss of Topsoil. Items "c" and "d" are discussed in Impact 3.8.3.3, Soil Stability. Item "e" is discussed in Impact 3.8.3.4, Septic Suitability.

3.8.3 Geology and Soils - Impacts and Mitigation Measures

Impact 3.8.3.1: Exposure to Seismic-Related Hazards

Implementation of the General Plan Update would result in new land uses and development being located in portions of the unincorporated County that are subject to seismic ground shaking, and could therefore expose people or structures to hazards including fault rupture, seismic-related ground failure, landslides and tsunamis.

This impact analysis addresses item "a" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.8.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact 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.

Implementation of the General Plan Update would result in land uses and development in portions of the unincorporated area subject to ground shaking resulting from earthquakes. The County's seismic setting has the potential to cause significant ground shaking resulting in the following: (1) surface fault rupture hazards along the San Andreas fault, Cascadia Subduction Zone, and/or other active or potentially active faults in the County; (2) serious liquefaction hazards, particularly around the muds and sands of Humboldt Bay; ; and (3) significant landslide hazard countywide

Surface Fault Rupture

Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. The San Andreas Fault zone, Mendocino fracture zone, and the southern end of the Cascade subduction zone all meet within the offshore and coastal regions of Humboldt County, at what is known as a "triple junction." As a result, portions of Humboldt County are particularly vulnerable to surface fault rupture.

As indicated in the setting section above, pursuant to the Alquist-Priolo Special Studies Zones Act of 1972, active faults, which are those that have ruptured in the last 11,000 years, , are to be regulated. Based on Figures 10a through 10c, Humboldt County Bedrock and Faults, as noted in the 2002 *Natural Resources and Hazards Report* (Appendix D), known faults occur within most Humboldt County Planning Watersheds. However, Alquist-Priolo Zones are only mapped in the Trinidad, Mad River, Eureka Plain, Lower Eel and Van Duzen Planning Watersheds. .

The presence of active branches of a fault cannot be determined without site-specific geological investigation. However, areas that are planned for urban levels of development and contain Alquist-Priolo zones include portions of the McKinleyville Urban Development Area, Humboldt Hill Urban Development Area, the Hydesville Water Service Area, and areas around Arcata and Fortuna. As indicated above, Alquist-Priolo zones extend 200 to 500 feet on both sides of active fault traces. Proposed development within such areas requires the preparation of a detailed geologic fault evaluation report to limit potential hazards related to seismic activity. Therefore, Zoning Regulations along with the findings from the site-specific fault investigations prohibits a structure for human occupancy to be placed within fifty (50) feet of a trace of an active fault and requires the development and redevelopment of structures for human occupancy within the Alquist-Priolo Zone to conform to the recommendations and conclusions of the geologic report that has been concurred with by the County reviewing geologist.

The impacts of ground shaking on existing and future buildings are moderately low for most building types and settings. Most residential buildings in the County are one- or two-story wood frame structures, which are expected to perform adequately during earthquake events. The County expects that developers will continue to build this style of residential building because of construction costs. With the exception of McKinleyville and unincorporated areas directly surrounding the City of Eureka larger structures, which might be more susceptible to failure, are more likely to be found in the cities located around Humboldt Bay. Large structures within the cities are outside of the project area (unincorporated County) of these policy proposals. Ground shaking may have a substantial impact on the circulation system of the County. Freeway overpasses and bridges may be particularly susceptible to failure due to ground shaking. For the

past several years, Caltrans has been implementing, and will continue to implement, earthquake retrofit projects for state highway overpasses and bridges.

The severity of the ground shaking impact is dependent on the distance of a structure to the earthquake source, the magnitude of an earthquake, and the underlying deposits. It would be expected that for any given earthquake event, the ground shaking will be greatest where the soils are prone to significant or strong seismic wave amplification. Based on Figure 3.8-1, Probabilistic Ground Shaking, 10 Percent Probability of Being Exceeded in 50 Years, the Trinidad, lower portion of the Mad River, Eureka Plain, Lower Eel, lower Van Duzen, and upper portion of the South Fork Eel Planning Watershed, could be subject to high levels of ground shaking within the next 50 years. As a result, the areas surrounding Humboldt Bay (Manila, Samoa, South Eureka, and Humboldt Hill), and McKinleyville and Glendale areas, may experience loss of life and property due to strong seismic shaking. Within these areas, as well as other areas the County subject to the same seismic hazards, the California Uniform Building Code applies factors to building design in order to increase building strength..

Liquefaction

Implementation of the General Plan Update would result in planned growth areas that would place some new development in areas susceptible to seismic-related ground failure and settling. In general, flat land areas underlain by deposits susceptible to liquefaction would experience this type of ground failure. The setting section above indicates that areas of high liquefaction potential are located near Humboldt Bay, where soils include bay muds and sands.

Should the soils underneath a site experience liquefaction, various types of ground failure could occur, including lateral spreading, lurching, differential settlement, and flow failures, as well as non-liquefaction failure in weak natural deposits and man-made structural fills. These types of ground failures would cause damage to infrastructure, cause building damage or collapse, and result in damage to nonstructural building features. In addition, seismically triggered ground failures would create substantial obstacles for emergency responders in the event of an earthquake. Ground failures would cause roads to fail or cover roads with debris, blocking access and evacuation routes. This is most likely to occur around Humboldt Bay or in the Mad and Eel River bottoms, although ground failures could occur anywhere in Humboldt County.

Landslides

Implementation of the General Plan Update could expose people and structures to landslide related hazards. Landslides are common occurrence in Humboldt County and have caused substantial damage. Landslides commonly occur during periods of intense rainfall and are triggered when the soil's capacity to hold water is exceeded. Landslides can be slow or rapid, moving debris and mudflows that can cause substantial loss, injury or death. A significant number of landslides could occur at the same time during a strong earthquake. Typically, these landslides are located on unstable slopes, or are preexisting landslides that are seismically triggered and move as earthquake energy moves through the ground. In addition to these more common triggers, landslides can be caused by erosion, or human-induced causes such as improper grading, broken water lines, overwatering, or improper drainage control.

Landsliding is a major hazard concern in Humboldt County that cannot be eliminated. Many existing roads in hillside areas would continue to be affected by this hazard and in many cases, they require constant maintenance. Many existing communities are currently affected by this hazard or could be in the future. The most notorious was an area of instability along U.S. 101, commonly referred to as the Confusion Hill slide, which would close US-101 in both directions for

extended periods of time. Caltrans constructed two bridges over the Eel River, completed in October 2009, at a total cost of over $50 million, bypassing the slide area. A massive slide blocked both lanes of U.S. 101 north of Garberville on March 30, 2011. It took several days to open the highway to one-way traffic.

Section 14.5 of the *Natural Resources and Hazards Report* shows the acreage of each Community Planning Area that is constrained by slopes greater than 30 percent and the acres of active or dormant landslides. Unstable or steep slopes are common throughout the County. Landslide are present in portions of the McKinleyville, Fieldbrook-Glendale, Blue Lake, Jacoby Creek, Eureka, Fortuna, Hydesville-Carlotta, Avenues (Stafford, Redcrest, Miranda), and Garberville-Redway-Benbow Community Planning Areas.

Landslides and locations of potential debris-flows are present throughout the County. It is possible in most cases to reduce this impact to future development by employing design and construction methods based on finding developed through site-specific geologic investigations.

Tsunamis

Tsunamis are a threat to all communities situated along the west coast of the United States. Tsunamis are of special concern in Humboldt County due to its proximity to the Cascadia Subduction Zone. Implementation of the General Plan Update could result in new land uses and development in close proximity to the Pacific Ocean, Humboldt Bay, and the low-lying areas, and will therefore potentially expose people and structures to the risk of tsunamis generated primarily by high-magnitude earthquakes.

In Humboldt County, the most destructive tsunamis would damage or destroy any communities, structures, access routes, and utilities in low-lying areas such as the communities around Humboldt Bay and the Eel and Mad River deltas as well as Redwood Creek delta. Many structures in coastal communities are located above low-lying areas and many homes are located above likely tsunami inundation runup elevations. However, the low-lying areas of the communities described above could be adversely affected by a tsunami. A substantial number of homes in Manila, Samoa, and Fairhaven face a high level of risk, as they are located on the low-lying sand spit between Humboldt Bay and the Ocean. Existing and new development could be devastated without adequate emergency preparedness. However, even if such communities are prepared for evacuation, buildings in low-lying areas could be destroyed. In addition to the areas described above, the Humboldt County coast has many recreational use areas that could expose visitors to this hazard.

While a fair amount of investigation regarding tsunami risk has been undertaken, a probabilistic mapping of tsunami risk suitable for land use planning remains undone. Studies have been undertaken associated with PG&E's dry cask storage unit at King Salmon on Humboldt Bay, and for the Town of Samoa Master Plan project. Additionally, an interagency group called the Redwood Coast Tsunami Work Group has publicized a tsunami evacuation map for the Humboldt Bay region. These studies indicate the potential for a tsunami from 10 to 30 feet above mean sea level, possibly higher, to impact the Humboldt County coast, affecting an area similar to, but slightly larger than, the FEMA 100-year flood plain. Of note is that the potential for the highest tsunami waves comes from a near-source Cascadia Subduction Zone event, with a very short response time on the order of 15 minutes, possibly less.

Analysis of Relevant General Plan Update Policies

The primary goal of the General Plan Update Safety Element is to prevent unnecessary exposure to hazards and minimize loss to communities. The Safety Element contains Standard S-S1, Geologic Report Requirements, which requires that reports address geologic hazards and geologic conditions, and requires that the report be prepared in compliance with County Land Use and Development regulations for Geologic Hazards. These regulations (Humboldt County Code, Title III, Division 3, Chapter 6, Section 336-5) require proposed development (that is the subject of the geologic report) to be sited, designed and constructed in accordance with the recommendations of the report in order to minimize risk to life and property on the project site and for any other affected properties. Standard S-S2, Landslide Maps, requires the use of California Division of Mines and Geology, North Coast Watersheds landslide mapping as information in the review of developments. Standard S-S3 requires use of California Mines and Geology Board Policies and Criteria as standards of implementation within Alquist-Priolo Fault Hazard Zones. Standards S-S1 through S-S3, including Building Regulations, and Alquist-Priolo Zoning Regulations which are fundamental to these standards reduce the potential impacts in this category by preventing development in hazards areas or by requiring that development adhere to appropriate standards to address hazards.

The Safety Element also contains policies that would lessen the potential effects of the General Plan Update due to rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and tsunami through planning and coordination**.** Policy S-P6, Structural Hazards, would apply and enforce state adopted building codes and Alquist-Priolo zone requirements to new construction in an effort to protect life and property. Through Policy S-P7, Improved Information, Humboldt County would encourage the development of detailed scientific analysis of Cascadia Subduction Zone earthquake risks, probabilities, and anticipated effects to inform future land use planning. Policy S-P8, Earthquake Mitigation Planning, sets the standard for the potential for a local earthquake in excess of magnitude 9.0 (Richter scale) to be considered in disaster planning, risk assessment, and pre-disaster mitigation efforts. Through Policy S-P9, Cascadia Event Disaster Response, the County shall maintain readiness for a comprehensive response to a major earthquake consistent with the nationwide emergency management hierarchy and the adopted Emergency Response Plan for the Humboldt Operational Area. Finally, through Policy S-PX1, Site Suitability, new development may be approved only if it can be demonstrated that the proposed development will neither create nor significantly contribute to geologic instability or geologic hazards.

As noted above, Standard S-S1, Geologic Report Requirements, specifies that reports prepared consistent with County Building Regulations addressing geologic hazards and geologic conditions be prepared as part of the review of discretionary development and ministerial permits. This standard lessens potential environmental effects relating to surface fault rupture, strong seismic ground shaking, and landslides. Standards S-S2, Landslide Maps, and S-S3, Alquist-Priolo Fault Hazard Zones, would utilize California Division of Mines and Geology Landslide Mapping and Policies and Criteria for Alquist-Priolo Fault Hazard Zones as North Coast Watersheds landslide mapping. The use of mapping from these sources would identify areas subject to hazards and the application of regulations specified by the standards would ensure that potential impacts associated with known hazards are reduced.

Conclusion

The General Plan Update could expose a significant number of persons to the geologic hazards which exist throughout the County. Pursuant to Policy S-S1, Geologic Report Requirements, and S-S3, Alquist-Priolo Fault Hazard Zones, development planned for hazardous areas would require

detailed assessments and mitigation under the Plan. The Policies and Standards referenced above combined with the hazard awareness and emergency preparedness policies and programs of the General Plan Update would minimize the exposure of people and development to the adverse effects of surface fault rupture within an Alquist-Priolo Earthquake Fault Zone. These policies and programs would reduce the number of new structures built on active fault traces and improve building construction within such areas. However, while these measures would reduce the exposure of people and structures to the adverse effects of surface fault rupture for minor to moderate events to a less-than significant-level, they would not do so for severe events. Therefore, this impact is **potentially significant**.

Mitigation

No feasible mitigation measures are available to reduce the exposure of people and structures to the effects of severe surface fault rupture events.

Level of Significance after Mitigation

Humboldt County is subject to: serous liquefaction and subsidence hazards; the highest concentration of earthquake events anywhere in the continental U.S. and is located the closest county to the Cascadia Subduction Zone which can produce earthquakes of magnitude 9 and devastating tsunamis; significant landslide hazards countywide; and fault rupture zones associated the San Andreas, Little Salmon, and Mad River faults are present in the County which can generate highly destructive earthquakes. Although it is possible to limit impacts associated with minor to moderate events from these hazards through the policies, standards, and regulation described above, it is not feasible to limit impacts from the most significant hazards. Therefore, this would remain **a significant unavoidable impact.**

Impact 3.8.3.2 Soil Erosion or the Loss of Topsoil

Development of roads, storm drainage infrastructure, homes, and commercial structures consistent with the General Plan Update could result in increased erosion and the loss of topsoil.

This impact analysis addresses item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.8.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

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

Development of roads, storm drainage infrastructure, homes, and commercial structures consistent with the General Plan Update could result in increased erosion and the loss of topsoil. Erosion is frequently accelerated by site preparation activities such as excavation and grading, and cuts and fills. Exposed rock or soil surfaces associated with development-related site preparation can lead to increased erosion. Erosion potential can also be enhanced by changing the permeability or runoff characteristics of the soil, or by modifying or creating new drainages. Once development has been completed, slopes that are not effectively contoured, compacted, or revegetated may also be susceptible to erosion.

Erosion can have adverse effects on water quality from increased sediment loads carried in runoff, and can result in slope instability both during and after construction activities have been completed. Unless specific erosion controls are in place, people and structures could be exposed to increased risk of injury or damage resulting from mudslides, landslides, or other

downslope movement of soil or rock. Development in hilly areas and along river and stream banks is most susceptible to erosion-related effects.

As indicated in Section 10, Geologic, Soil and Seismic Hazards, of the *Natural Resources and Hazards Report*, slope stability and erosion are a major concern in Humboldt County. For example, over 90 percent of the land within Cape Mendocino, South Fork Eel and Lower Trinity Planning Watersheds are at a slope of 15 percent or greater. The degree of slope and instability of the soils in these areas contributes to hazards associated with erosion.
Approximately 13 percent of peak housing development that is projected to occur during the General Plan Update planning period, or 137 units, is expected occur on resource lands or lands planned for rural residential development. In many instances, rural residential development or residential development within resource lands involves the construction of, or improvements to, unpaved access roads and driveways and the disturbance of previously undeveloped land for parking, structures, and on-site utilities. In addition, in most cases land planned rural residential or for timber production is in hilly topography. Development in such areas would be expected to contribute to increases in erosion such that water quality could be substantially impacted, and could result in soil erosion in greater quantities than land planned for urban development. Proposed development in urban areas, especially non-discretionary development would not be expected to involve offsite improvements on previously undeveloped and would therefore require less ground disturbance.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies to protect soils in agricultural areas, as well as on slopes, to avoid erosion. The Water Resources Element Policies WR-P8, Erosion and Sediment Discharge, and WR-P36, Erosion and Sediment Control Measures specifies that erosion and sediment control measures, as appropriate, be incorporated into development design. Policy WR-Px2, Mitigate Controllable Sediment Discharge Sites, requires that discretionary development involving a site identified as part of the TMDL Controllable Sediment Discharge Inventory must be conditioned to mitigate sediment. This policy, in combination with Standard WR-S7, Total Maximum Daily Loads (TMDLs) Implementation, would require that discretionary development be conditioned to reduce or prevent further impairment consistent with applicable TMDLs. Standard S-S1, Geologic Report Requirements, requires that site-specific reports addressing geologic hazards be prepared for both discretionary and ministerial projects. Additionally, the implementation measures of the General Plan Update include provisions for applying grading and zoning ordinance requirements to address soil erosion and to require erosion control measures for all grading activities.

Conclusion

The General Plan Update requires that site-specific reports addressing geologic hazards be prepared and that grading standards and best management practices be employed to reduce sedimentation and avoid erosion. However, adding additional development areas of soil instability would increase erosion such that water quality could be substantially negatively impacted, or substantial soil erosion could result. Therefore, impacts in this regard would be potentially significant.

Mitigation

Mitigation Measure 3.8.3.2.a. To lessen impacts relating to water quality resulting from increased erosion, the following mitigation is required:

Implement Mitigation Measures 3.10.3.1.a and 3.10.3.1.b from Impact 3.10.3.1: Degrade Water Quality or Exceed Waste Discharge Requirements in Chapter 3.10, Hydrology and Water Quality.

Level of Significance after Mitigation

Adoption of the additional or revised policies described above would minimize soil erosion impacts of future land uses and reduce this impact to a **less than significant level**.

Impact 3.8.3.3. Soil Stability

Implementation of the General Plan Update could result in new development being located within a geologic unit or on soil that is unstable or could become unstable as a result of the development, thereby causing landslides, lateral spreading, subsidence, liquefaction, or collapse, or on expansive soil which could create substantial risks to life and property.

This impact analysis addresses items "c" and "d" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.8.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

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.

Buildout of the General Plan Update would result in the development of new structures within a geologic unit or on soil that is unstable or that would become unstable as a result of the new development, potentially resulting in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. This potential impact is similar to the Impact 3.8.3.1 Exposure to Seismic-Related Hazards, and Impact 3.8.3.2 Soil Erosion or the Loss of Topsoil, which analyze potential impacts to development in the unincorporated area located in areas subject to ground shaking, ground failure, or resulting from landslides, erosion, or other unstable slope conditions resulting from earthquakes. However, under Policy S-PX1, Site Suitability, new development may be approved only if it can be demonstrated that the proposed development will neither create nor significantly contribute to or be impacted by geologic instability or geologic hazards.

Humboldt County has adopted the California Building Code (CBC). The CBC provides soil classification guidelines for expansive soils. If a structure would be located on expansive soils, as defined by the CBC criteria, then special design considerations would be required. Title III, Land Use and Development Division 3, Building Regulations Chapter 6 - Geologic Hazards may require a preliminary soils report and geologic investigation, respectively. Preliminary soils and geologic investigation reports, typically, would report the presence of expansive soils. Where geologic hazards and other conditions are present (such as average slopes on the site are less than 15 percent and the building site is not on fill or marshlands), the Building Regulations provide discretion to the Building Official to waive geologic report requirements.

Analysis of Relevant General Plan Update Policies

Potential impacts resulting from development within unstable areas are addressed through geological report requirements for development projects as specified under standard S-S1,

Geologic Report Requirements. Geological reports specify standards and construction requirements necessary to ensure that development does not occur in unstable areas or that specific construction techniques are required to address site stability.

Conclusion

Implementation of the General Plan Update policy and programs would require geologic reports, where necessary, and the avoidance of areas with expansive soils or geotechnical engineering to reduce impacts of expansive soils. This impact would be **less than significant**.

Mitigation

None required.

Impact 3.8.3.4. Septic Suitability

Implementation of the General Plan Update could result in new development utilizing septic systems that may be proposed in areas with soils that are not suitable for wastewater treatment.

This impact analysis addresses item "e" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.8.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

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.

Development within urban development areas would likely be served by municipal wastewater treatment systems. Approximately 30 percent of projected development during the General Plan Update planning period is projected to occur outside areas served by wastewater systems, and would need to be served by on-site septic systems. Potential development utilizing septic systems may be proposed in areas with soils not suitable for wastewater treatment.

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. Existing County regulations require new development to demonstrate to the County Public Health Branch Land Use Program that soils on the site are suitable for the use of a standard septic system. 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.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies and standards that address both proposed new systems and existing failing septic systems. Impacts of such activities could be significant if not properly addressed. Under Policy GP-P6, Use of On-Site Sewage Systems within Urban Development Areas, the utilization of on-site sewage disposal systems shall not be acceptable for new subdivisions in the Urban Development Area, unless the Planning Commission makes specific factual findings that: 1) the extension of services is physically infeasible; or 2) the area is not planned for service in the service provider's Municipal Service Review and other written long-term plans; or 3) the services are not reasonably available in a timely manner. This policy limits the possible use of septic systems and therefore, limits the potential for septic failure. Policy

RL-P2, Water Withdrawal, requires that the cumulative impacts of water withdrawal from surface and groundwater sources and cumulative impacts from on-site sewage disposal systems shall be assessed during the zoning and subdivision, and during discretionary review of land designated for rural residential development in critical watersheds. The application of this policy ensures that the installation of new septic systems would not significantly contribute to the further degradation of soils or water supplies.

The General Plan Update contains policies to maintain septic regulations consistent with the Basin Plan and to establish programs to abate failing septic systems that represent a health hazard. Under Policy WR-Px6, Alternative Disposal Systems, the County supports programs and ordinance revisions that modify the permit process for alternative disposal systems to make such systems more accessible to individual households under conditions that do not threaten public health. Policy IS-P20, On-Site Sewage Disposal Requirements, requires that regulations governing construction and maintenance of on-site sewage disposal systems are maintained to protect health and safety, and to reflect changes in state law which would include the Basin Plan. This policy also recognizes and allows alternative onsite treatment systems that meet state standards. Policy WR-P14, Pathogen and Nutrient Discharge from Septic Systems, supports programs to reduce coliform bacteria and nitrate discharges from septic systems.

There are two Implementation Measures that address septic systems. Implementation Measure WR-IM5, Septic Systems, would require that the County pursue the abatement of failing septic systems that represent a health and safety hazard. Implementation Measure WR-IM7, Basin Plan Septic Requirements, directs the County to update and amend existing County septic regulations to reflect the latest Basin Plan standards for design and maintenance of on-site wastewater systems.

Conclusion

The General Plan Update would require that new on-site wastewater disposal systems meet the current requirements of the Basin Plan and state law. Therefore, potential for impacts resulting from development in areas incapable of adequately supporting the use of septic systems would be a **less than significant impact**.

Mitigation

None required.

3.9 Mineral Resources

This section provides background information regarding mineral resources within the County, the regulations and programs that provide for their protection and development, and an assessment of the potential impacts of implementing the proposed General Plan Update. Existing mineral resource conditions are described in Chapter 7, Mineral and Energy Resources, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a discussion of mineral (including sand and gravel extraction. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours or for download at http://humboldtgov.org/571/Background-Reports, is incorporated herein by reference and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.9.1 Mineral Resources - Environmental and Regulatory Setting

Mineral Resources

The public depends on several categories of minerals found in the County for a variety of everyday uses. For example, non-metallic industrial minerals such as sand and gravel are used to make concrete for construction of buildings and asphalt to pave roads. Importing minerals long distances results in a high ratio of transportation cost to the value of the mineral. A common assumption is that the cost of transporting sand and gravel typically doubles for each 35 miles it is transported. But in addition to monetary costs, mineral transport has adverse impacts on the circulation system, as well as impacts related noise and air pollutant emissions. The local availability of mineral resources for local projects helps reduce these impacts. The predominant mining activity in the County is the extraction of aggregate resources (stone, sand, and gravel).

Humboldt County has significant mineral resources. About eighty-five extraction sites around the County produce sand and gravel, metals, stone, and clay. Mining provides an input resource to a number of key activities in the construction industry, primarily the raw materials for concrete used in foundations. Mining materials are also used for road construction, maintenance, and repair. Other important uses include fill materials, snow and ice control, railroad grade ballast, and as a filtration system for onsite sewage disposal systems.

However, Humboldt County is one of 16 counties within California where the State Geologist has not classified the land based on the known or inferred mineral resource potential of that land, pursuant to SMARA classifications. The Mineral Land Classification process identifies lands that contain economically significant mineral deposits. The primary goal of mineral land classification is to ensure that the mineral resource potential of lands is recognized and considered in land use planning. The classification process includes an assessment of the quantity, quality, and extent of aggregate deposits in a study area.

Sand and Gravel. Sand and gravel extraction constitute the major portion of mining activity in the County, both in terms of quantity of material produced and value of extracted resource. The volume of in-stream gravel and sand extracted in 2015 was 272,240 cubic yards, 68 percent of the 400,919 cubic yards approved for extraction. According to Section 7.1, Mineral Extraction of Chapter 7, Mineral and Energy Resources of the Natural Resources and Hazards Technical Report, the majority of gravel and sand extracted activity took place along the Eel River-Van Duzen River complex (76 percent), and the Mad River (22 percent). The remainder was extracted from Willow Creek and the Trinity River.

Gravel extraction requires either an individual permit from the US Army Corps of Engineers covering a single operator, or a Letter of Permission (LOP) covering a group of operators that have not pursued individual permits. Both individual permits and LOPs are discretionary actions by the US Army Corps of Engineers. Because issuing the individual permit or LOP could affect threatened, endangered, or special status species, the Corps will conduct consultation with the National Marine Fisheries Service and/or the US Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act, depending on the species potentially affected. These agencies will then issue Biological Opinions describing their findings related to species effects from the proposed project.

Rock and Metals. Rock extraction sites—mines, pits, and quarries–-are located throughout the County. Mines and quarries in Humboldt County primarily produce shale, stone (base and subbase), and clay. General Plan Update Figure 10.1, Rock and Mineral Extraction Sites of the Mineral Resources Chapter of the Conservation and Open Space Elements displays the location of mining sites within the County. Almost all of these, except the clay quarries, are hard rock quarries. Information on extraction totals is considered proprietary. However, there are 32 active hard rock quarries permitted in the County, with a permitted annual potential yield of approximately 660,000 cubic yards per year. Extraction amounts vary depending on local demand. Rock quarries significantly augment the in-stream sand and gravel mining operations in the County. These quarries provide rock products of various sizes that may not be obtainable from in-stream operations or may be able to provide sand and gravel at more competitive rates due to location or reduced permitting expenses. Most recent surface mining applications in the County have been for upland rock quarry operations due to these factors.

Local Regulation. To address state, federal, and County permitting requirements in a coordinated manner and to implement mitigations required in program environmental impact reports for in-stream gravel mining, the County established the County of Humboldt Extraction Review Team (CHERT) through the adoption of Resolution 96-37. The CHERT consists of four members appointed by the Humboldt County Board of Supervisors with expertise in hydrology, fluvial geomorphology, fisheries, and river ecology. CHERT members serve as agents of the County for the purpose of providing technical expertise and reviews of mining proposals for in-stream gravel operations within the County.

All activities of CHERT are performed in accordance with the provisions of the Public Resources Code, Division 2, Chapter 9, Section 2774 and requirements of the California Government Code governing conflicts of interest, including Section 87100 et seq. CHERT prepares a post-extraction information report on the previous season's mining activities that is available to the public and provides recommendations for extraction quantities and methods, disturbance minimization measures, and potential mitigations. The CHERT is also concerned with possible adverse impacts to infrastructure such as levees, bridges, and the water district facilities. The Corps of Engineers and the California Department of Fish and Wildlife also makes use of the CHERT review process for assessing gravel extraction effects, including impacts to listed salmonids and designated critical habitat.

Surface mining is not specifically identified as a primary and compatible use in the Framework General Plan or inland Zoning Regulations, except for the Rural Residential Agriculture Zone where Surface Mining is identified as a conditional use type. However, during the review of mineral extraction projects, the County has found surface mining to be a compatible temporary use. Humboldt County Ordinance 2117 implements the provisions of the Surface Mining and Reclamation Act of 1975 (Public Resources Code Sections 2710 and following, hereafter SMARA) and establishes county-wide surface mining regulations. These regulations are intended to protect the quality of the County's environment, limit land uses that would be incompatible with preservation and use of natural resources, and to assure the community of adequate supply of these resources for present and future generations. A conditional use permit and reclamation plan and adherence to development standards is required for surface mining operations. These regulations apply to all surface mining throughout the County.

In the 1980s and early 1990s numerous surface mining conditional use permits were issued with a permit term of fifteen years, subject to renewal. More recently, a number of these permits have come up for renewal, and through the renewal notification and hearing process it has become apparent that there are more concerned neighboring property owners than existed at the time of initial permit issuance. In one instance, approximately 72% of parcels adjacent to an active extraction operation or haul route changed ownership since the initial permit issuance. A number of these ownership changes represent the sale of vacant parcels that were later developed for residential uses. The new residents consider the mining operations incompatible with residential uses. This issue has brought to the forefront the need to address compatibility of surface mining operations with adjacent uses, and the need to advise potential future property owners of existing mining operations.

3.9.2 Mineral Resources - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on mineral resources if it would:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Items "a" and "b" are discussed in Impact 3.9.3.1, Loss of Known Mineral Resources.

3.9.3 Mineral Resources - Impacts and Mitigation Measures

Impact 3.9.3.1: Loss of Known Mineral Resources

Implementation of the General Plan could include land use map changes or policies that would result in the loss of availability of a known mineral resource of value to the region and the residents of the state or the loss of a mineral site delineated in the local general plan, specific plan or other land use plan.

This impact analysis addresses items "a" and "b" of the significance criteria described in 3.9.2. Section 2531.2 of the current General Plan identifies sand, gravel, and quarry sites that will be reviewed when processing permits to avoid land use incompatibilities. Permitted mineral extraction sites within the unincorporated County are generally identified in General Plan

Update Figure 10.1, Rock and Mineral Extraction Sites, of the Mineral Resources Chapter of the Conservation and Open Space Elements. There are 146 Assessor's Parcels mapped as part of the current County SMARA geographic information system database. This database provides information regarding the extraction site location, mine identification number, operator, number of the County issued permit, and some information regarding the activities at the site.

However, not all areas of Humboldt County have been comprehensively investigated by the state or the County for the purpose of identifying potential mineral deposits. Development consistent with the General Plan Update could occur in locations where the presence or extent of an important mineral resource has not been clearly delineated and access to those minerals could be restricted or eliminated due to development.

Analysis of Relevant General Plan Update Policies

The General Plan Update Conservation and Open Space Elements Mineral Resources Chapter contains policies, such as Policy MR-P1, Production and Conservation, which encourages the production and conservation of minerals, while preserving to the maximum extent feasible environmental resource values. Policy MR-P3, Identify Mineral Deposits, directs the County to maintain an inventory of the County's mineral deposits and mining sites. This policy, in combination with Policy MR-P8, Future Development Planning, would help ensure that incompatible uses are not planned adjacent to mineral extraction sites and that future development will not interfere with the utilization of identified mineral deposits. Implementation Measure MR-IM2, Mapping of Mineral Deposits and Mine Sites, requires that the County maintain GIS maps of the County's known mineral deposits and mining sites; however, this this mapping requirement does not include unknown mineral deposits (i.e. there is no requirement to search for and map unknown deposits).

Standard MR-S3, Permitted Land Use Designations, specifies that mining operations subject to SMARA are conditionally permitted in all land use and zoning designations. This standard would resolve any current ambiguities regarding the inland zoning districts within which aggregate extraction or surface mining is permitted. Further, Standard MR-S5, Forest and Agricultural Borrow Pits, specifies that, subject to the issuance of a grading permit (if required by County Code), borrow pits to support farming activities, and timber road construction and maintenance operations, are a principally permitted use when operated within SMARA exemption parameters and the activity is otherwise consistent with the Conservation and Open Space chapter of the General Plan Update.

The General Plan Update includes additional policies intended to protect existing mining sites. Policy MR-P2, Right to Mine, requires that discretionary projects in the vicinity of vested and permitted surface mining extraction sites or along existing haul routes record a notice of the right to mine against the property for which a discretionary permit is sought. This notice advises current and future owners that the existing mining operations have a permitted right to continued mining operations. Implementation Measure, MR-P9, Location of Mineral Haul Routes, directs the design of mineral haul routes to avoid incompatible areas, when feasible. MR-IM4, Combining Zone, directs the County to establish a mineral resources (MR) combining zone to facilitate implementation of the County's regulations for surface mining, conservation, and reclamation. This measure is intended to ensure compatibility of adjacent uses and would apply the combining zone to parcels with permitted surface mining operations. It also provides for notification to parcels within 1,000 feet of permitted surface mining extraction sites and along existing haul routes.

Conclusion

The General Plan Update seeks to identify mineral resources within the County as well as support their conservation, development, and utilization. These objectives are achieved through the implementation of policies that require the identification and inventory of mineral deposits and mining sites and that protect the right to mine. In addition to mapping mineral deposits and mining sites, policies and programs in the General Plan Update provide for notification to surrounding uses around mining operations in order to avoid issues relating to land use compatibility. The implementation of the policies and programs identified above and compliance with applicable surface mining and reclamation laws will limit the potential for loss of significant mineral resources. Therefore, this impact would be would be **less than significant.**

Mitigation

None required.

3.10 Hydrology and Water Quality

This section provides background information regarding hydrology and water quality conditions within the County, and an assessment of the potential impacts of implementing the proposed General Plan Update. Existing hydrology and water quality conditions are described in Chapter 1, Water Resources and Volume II: Detailed Watershed Characteristics and Regulatory Framework Analysis of the *Natural Resources and Hazards Report*, September 2002, which includes a discussion of watersheds and surface water, groundwater, stormwater, the regulatory framework, and policy issues. Existing utilities and service systems conditions are described in the Community Infrastructure and Services Technical Report, 2008 (Appendix Q), and in the Water Resources Technical Report, 2008 (Appendix P), which include discussions of water and wastewater system condition and capacity, storm water, and water quality. These reports, which are available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://humboldtgov.org/571/Background-Reports, are incorporated herein by reference and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.10.1 Hydrology and Water Quality - Environmental Setting

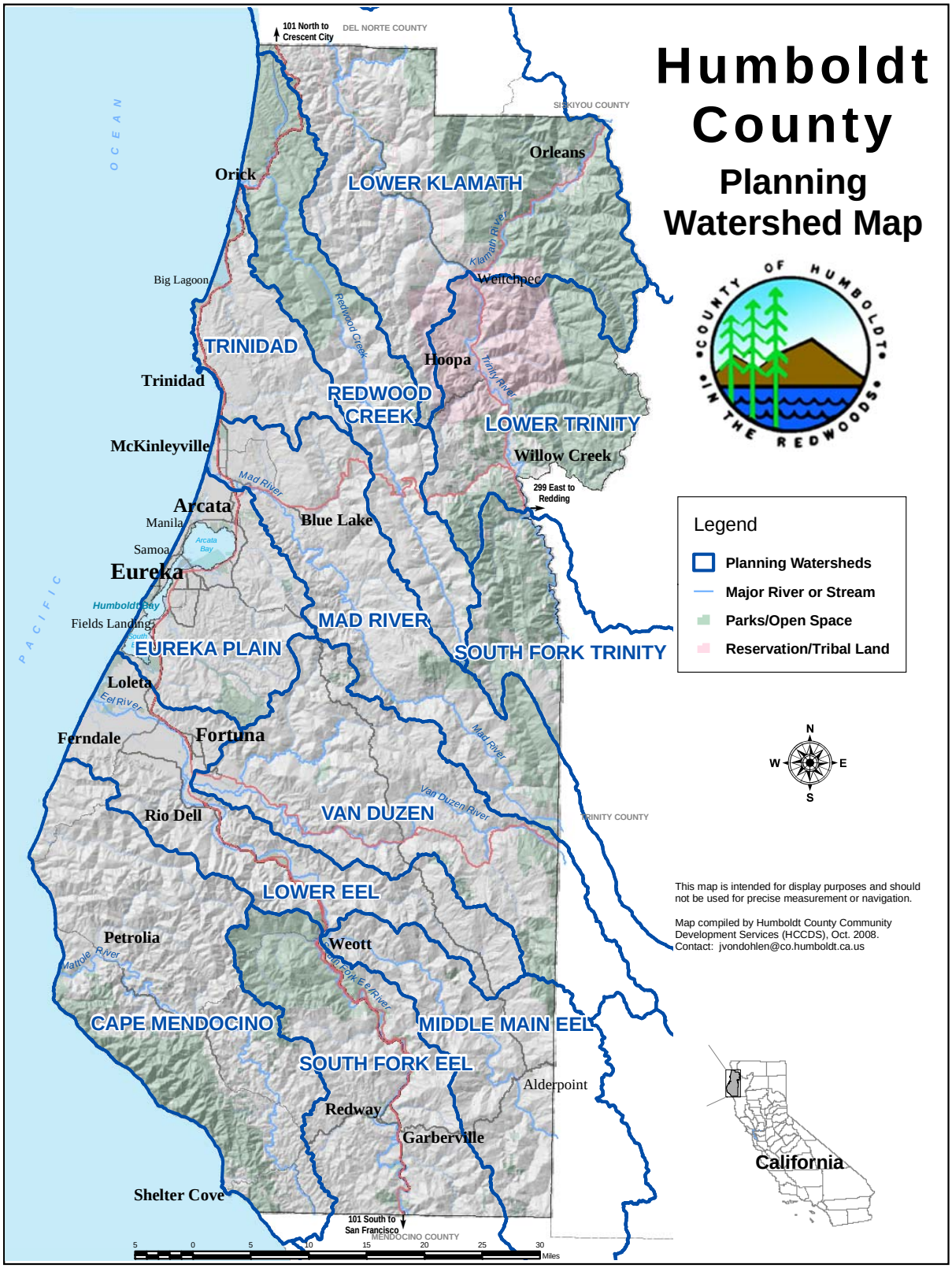
Humboldt County Watersheds

A watershed is an area of land within which all rain and snowfall drains or seeps into a particular stream, water body, or aquifer. Humboldt County is part of the California Water Resource Control Board's Klamath-North Coast Hydrologic Basin Planning Area, which includes all watersheds draining into the Pacific Ocean from the Oregon border south through the Russian River Basin. Land use planning utilizing watershed mapping allows the environment to be studied along its natural lines of division, particularly in the case of water, biological, forest, agricultural, and in some cases cultural resources. A map of the planning watersheds that are used in the General Plan Update is shown below in Figure 3.10-1. A discussion of their water quality concerns, can be found later in this section.

Humboldt County Water Quality

Nonpoint source pollution, also known as polluted runoff, is the leading cause of water quality impairments in California and the nation. Nonpoint sources, including natural sources, are the major contributors of pollution to impacted streams, lakes, wetlands, estuaries, marine waters, and ground water basins. Unlike pollution traceable to a single location or "point" (such as a wastewater treatment plant), nonpoint source pollution comes from many diffuse sources and is principally caused by stormwater, snowmelt, or agricultural runoff moving across and diffusing into the ground (Natural Resources and Hazards Report, Page 1-40). The runoff picks up natural and human pollutants and deposits them throughout the natural watershed in rivers, lakes, coastal areas, and aquifers.

Figure 3.10-1. Humboldt County Planning Watershed Map.



The United States Environmental Protection Act (US EPA) states that nonpoint source pollution is the leading cause of water quality problems. In California, nonpoint source pollution is estimated to represent 80 percent of the state's water pollution. Its effects on specific waters vary and may not always be fully assessed, but overall it has harmful effects on drinking water, recreation, fisheries, and wildlife. Nonpoint source pollution can result from a wide range of human activities, including agriculture, forestry, transportation, boating and other marine activity, and general urban activity. Suspended sediments are the largest mass of pollutants (Natural Resources and Hazards Report, Page 1-40).

Septic systems are individual wastewater treatment systems typically comprised of a septic tank and leach field, and utilized where community wastewater treatment systems are not available. Septic systems can be sources of nonpoint source pollution and are in use in each planning watershed within the County. If not properly designed or maintained, septic systems can percolate inadequately treated sewage into surface or groundwater and result in contamination. See Section 3.8, Geology and Soils, for a detailed description of existing septic systems in Humboldt County.

Total Daily Maximum Load. Section 303(d) of the federal Clean Water Act and 40 CFR §130.7 require states to identify water bodies that do not meet water quality standards and are not supporting their beneficial uses. These waters are placed on the Section 303(d) List of Water Quality Limited Segments, also known as the 303(d) List of Impaired Water Bodies. The 303(d) List identifies the pollutant or stressor causing impairment and establishes a schedule for developing a control plan to address the impairment. Placement on this list generally triggers development of a pollution control plan called a Total Maximum Daily Load (TMDL) for each water body and associated pollutant/stressor on the list.

The TMDL process leads to a "pollution budget" designed to restore the health of a polluted body of water and provides a quantitative assessment of water quality problems, contributing sources of pollution, and the pollutant load reductions or control actions needed to restore and protect the beneficial uses of an individual water body impaired from loading of a particular pollutant. More specifically, a TMDL is defined as the sum of the individual waste load allocations for point sources, load allocations for non-point sources, and natural background such that the capacity of the water body to assimilate pollutant loading (the loading capacity) is not exceeded. In other words, a TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, which will insure the protection of beneficial uses. This calculation also includes a margin of safety and consideration of seasonal variations. In addition, the TMDL contains the reductions needed to meet water quality standards and allocates those reductions among the pollutant sources in the watershed.

Table 3.10-1, Humboldt County 2006 303(D) List of Quality Limited Segments, below shows water bodies in Humboldt County that have been identified as impaired:

Table 3.10-1. Humboldt County 2006 303(D) List of Water Quality Limited Segments

TMDL Listed Water Bodies in California Water Body	Basin	TMDL Stressor	Size Affected	TMDL Completion Date
South Fork Trinity	Klamath-Trinity	Sedimentation/Siltation/ Temperature	1161 miles	2001*
Lower Trinity	Klamath-Trinity	Sedimentation/Siltation	1256 miles	2001*
Klamath River	Klamath-Trinity	Nutrients/ Organic Enrichment/Low Dissolved Oxygen Temperature	609 miles	2010 and *2019*

Table 3.10-1. Humboldt County 2006 303(D) List of Water Quality Limited Segments

TMDL Listed Water Bodies in California Water Body	Basin	TMDL Stressor	Size Affected	TMDL Completion Date
Mattole River	Mattole	Sedimentation/Siltation/ Temperature	503 miles	2003* **
Redwood Creek	Mad-Redwood	Sedimentation/Siltation/ Temperature	332 miles	1998*
Mad River	Mad-Redwood	Sedimentation/Siltation/ Temperature/Turbidity	654 miles	2007* **
Freshwater Creek	Eureka Plain	Sedimentation/Siltation	84 miles	*2011*
Freshwater Creek	Eureka Plain	Sedimentation/Siltation	12.5 miles	*Unknown*
Jacoby Creek	Eureka Plain	Sediment	19 miles	*2019*
Elk River	Eureka Plain	Sedimentation/Siltation	88 miles	*2011*
Humboldt Bay	Eureka Plain	PCB's	16075 Acres	*2019*
Lower Eel	Eel River	Sedimentation/Siltation/ Temperature	426 miles	2007* **
South Fork Eel	Eel River	Sedimentation/Siltation/ Temperature	943 miles	1999* **
Middle Main Fork Eel	Eel River	Sedimentation/Siltation/ Temperature	674 miles	2005* **
Van Duzen River	Eel River	Sedimentation/Siltation	585 miles	1999*
Clam Beach, Luffenholtz Beach, Moonstone County Park, Trinidad State Beach	Trinidad	Indicator Bacteria	2.54 miles	2019

20012 CWA Section 303(d) List Of Water Quality Limited Segments, North Coast Regional Water Quality Control Board

* On November 29, 2004, the North Coast Regional Water Quality Control Board (RWQCB) adopted via Resolution R1-2004-0087 the Total Maximum Daily Load Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region, also known as the Sediment TMDL Implementation Policy. The Sediment TMDL Implementation Policy is the TMDL implementation plan for the North Coast Region's sediment impaired Waterbodies that do not have a Board-approved implementation Plan (Action Plan). The Resolution also directs RWQCB staff to develop a Work Plan that sets priorities for addressing excess sediment at a watershed-specific scale and describes how and when available authorities and permitting and enforcement tools will be used. The Regional Water Board Staff Work Plan to Control Excess Sediment in Sediment-Impaired Watersheds was completed in June 2008 via Resolution R1-2008-0057.

** Temperature TMDLs have been completed and approved by the USEPA in the year shown. However, these TMDLs do not yet have Action Plans approved by the RWQCB, and RWQCB staff do not currently have a schedule for completing these temperature TMDL Action Plans.

The North Coast Regional Water Quality Control Board (RWQCB) has developed a *Work Plan to Control Excess Sediment in Sediment-Impaired Watersheds* (April 2008), available at: http://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/sediment_workplan/. The Work Plan was developed by RWQCB staff to fulfill the RWQCB's direction under the TMDL Implementation Policy Statement for Sediment Impaired Receiving Waters in the North Coast Region (Resolution No. R1-2004-0087). The resolution directed RWQCB staff to develop a Work Plan that sets priorities for addressing excess sediment at a watershed-specific scale and describes how and when available authorities and permitting and enforcement tools will be used to improve water quality.

As part of that effort, the RWQCB is currently developing "Measures to Control Excess Sediment," a proposed Basin Plan amendment for developing an in-stream flow water quality objective. The objective will likely be a qualitative objective to ensure that natural hydrologic connectivity is maintained and protected in a manner that produces the seasonal patterns and ranges of flow necessary to support beneficial uses. In its current form, the proposed amendment will include a prohibition against the discharge or threatened discharge of excess sediment from human

activities to waters of the state. Excess sediment is defined as soil, rock, and sediments discharged to waters of the state in an amount that could be deleterious to beneficial uses or cause a nuisance. The proposed amendment also includes an implementation plan with guidance for landowners and for RWQCB staff. Under the implementation plan, new projects will be encouraged to prevent, minimize and monitor sedimentation and use adaptive management.

The following is a discussion of water quality within the twelve Humboldt County Planning Watersheds that is summarized from the Natural Resources and Hazards Report.

South Fork Eel. The Eel River, including the Lower, Middle Main, and South Fork Eel, supports one of the largest remaining native coho salmon populations and one of the largest coastal Chinook populations in California. The South Fork Eel is designated by the USEPA as sedimentation, siltation, and temperature impaired and is considered to have more serious water quality problems than the river segments that feed it. High seasonal rainfall combined with a rapid runoff rate on unstable soils delivers large amounts of sediments to the river. Due to heavy winter rainfall running through highly unstable soils, the Eel River may transport more sediments than any other river of its size in the world. These sediments are deposited throughout the lower gradient reaches of the system. In addition, pursuant to California Water Code Section 1205, the Eel River has been declared by the RWQCB as "fully appropriated," finding that the supply of water in the stream system is being fully applied to beneficial uses where the previous water rights decisions have determined that no water remains available for appropriation.

Lower Eel. See South Fork Eel Planning Watershed above.

Middle Main Eel. The Middle Main Eel is designated as sedimentation, siltation, and temperature impaired by the USEPA. The following nonpoint source pollution issues were identified by the RWQCB staff and relate directly to concerns about the Eel River cold water fishery: stream sedimentation; past and current timber harvest practices; potential impacts from dairies and grazing; herbicide application on private and public lands; and inter-basin transfers of water. In addition, the state has declared the Eel River to be fully appropriated.

Lower Klamath. The Lower Klamath Watershed includes several important spawning tributaries for salmon and steelhead and, in combination with the Trinity River watershed, supports one of the largest runs of Chinook salmon in the state, second only to the Sacramento River watershed. Issues affecting the Lower Klamath include water quality conditions associated with the operation of the Klamath River dams, as well as timber and mining operations. Also important is the possible removal of the Klamath River dams and the struggle for scarce water resources among various interests, including Native American tribes; farmers; commercial and sport fishermen; and local, state, and federal resource managers. In addition, the state has declared the Klamath River to be fully appropriated.

South Fork Trinity. The South Fork Trinity River drains an area containing steep, unstable slopes adjacent to some of the most rapidly eroding terrain in the United States. Vegetation within the portion of this watershed located in Humboldt County consists primarily of timberlands and oak woodlands, with limited areas of chaparral. Unstable geology and erosion-producing land use practices have been blamed for the many mass-wasting events triggered by the 1964 flood, which have adversely affected the South Fork's fishery. Unpaved roads generate about twice the levels of sediment loading as timber harvesting. Roads are the most significant component of management-related sediment production. In addition, the state has declared the South Fork Trinity River to be fully appropriated.

Lower Trinity. The Trinity supports several anadromous fish populations, including Chinook salmon, coho salmon, and steelhead trout, and has the second largest run of Chinook salmon in the state in combination with the Klamath River. Sources of pollution include abandoned mine sites in the Hoopa Valley and sedimentation from natural sources, roads, and timber operations. The state has declared the Trinity River to be fully appropriated.

Van Duzen. The Van Duzen watershed maintains an aquatic habitat that supports coho and Chinook salmon, steelhead trout (particularly summer stocks), rainbow trout, pacific lamprey, as well as other species. The deposition of sediment, especially within the lower mainstream channel, can restrict passage of salmon and steelhead to spawning and rearing reaches, especially during low flow years. As a result, this watershed is 303(d) listed for sedimentation and siltation. The state has also declared the Van Duzen River to be fully appropriated.

Redwood Creek. Redwood Creek is sedimentation, siltation, and temperature impaired according to the 303(d) list. Land management patterns and practices have contributed to increased erosion beyond natural rates through landsliding and gullying and stream bank erosion. Close to 45 percent of the sediment load in Redwood Creek is directly related to soil erosion from dirt roads. The resultant erosion causes sediment to enter the stream, filling deep pools and depositing silt in spawning gravels.

Cape Mendocino. The Mattole River is designated as sediment and temperature impaired by the USEPA. The North Coast Watershed Assessment Program found that summer stream temperatures in much of the Mattole Basin are not within the range of temperatures that fully support healthy salmon and steelhead populations. The reduction of stream flow caused by human diversions results in increased in water temperatures in some areas that is not supportive of salmon and steelhead populations. Aggradation from fine sediment and the lack of logs and stumps in some stream channels has reduced channel diversity needed to support salmon and steelhead populations.

Trinidad. Water supply is an important issue in this watershed. The Luffenholtz watershed, the source of water for the City of Trinidad, is designated as a critical watershed area due to capacity and water quality concerns. The Westhaven Community Service District water system is barely able to meet current maximum day demands. The coastal beaches between Westhaven and Trinidad, including Clam Beach, Moonstone County Park, Luffenholtz Beach, and Trinidad State Beach, are impaired by indicator bacteria.

Mad River. The Mad River supports runs of anadromous salmonids including Chinook salmon, coho salmon, and steelhead and cutthroat trout. Except for cutthroat trout, all anadromous salmonids in the Mad River are federally protected. The Mad River is listed on the 303(d) list of impaired waters for sediment and temperature impairment. The primary pollution issues for the watershed are forestry-related, along with urbanization and associated industrial and public point sources (such as discharges of municipal effluent). In addition, the state has declared the Mad River to be fully appropriated.

Eureka Plain. According to the 303(d) list of impaired waters, water quality issues within the watershed include sedimentation and siltation within the Freshwater and Elk watersheds and the presence of dioxin toxin equivalents in Humboldt Bay. The upper hillslope areas of the watershed, while populated to varying degrees, are primarily occupied by timber production and harvesting activities, with coast redwood as the predominant harvested species. Freshwater streams support production of anadromous salmonids, including steelhead and cutthroat trout, coho and Chinook salmon. The deltas of the Elk River and Mad River Slough support commercial and sport shellfish production and harvesting. Past practices and continued problems with

harvesting techniques and road construction have added to stream sedimentation, in varying degrees, in all the drainages in the watershed. Storm water runoff from all watersheds draining to the Bay convey indicators of bacterial contamination that impacts shellfish harvest. Seasonal and rainfall-based shellfish harvesting closures are used to mitigate the effects of nonpoint source runoff. A shellfish Technical Advisory Committee was established in November of 1995 to address nonpoint source runoff issues. In addition, the state has declared Jacoby Creek to be fully appropriated.

Humboldt County Hydrology

Surface Water. Surface water in Humboldt County is captured within each of the watersheds that are defined above. Surface water originates as precipitation in the form of rain or snow, and flows on the surface through streams or rivers or is stored in lakes and ponds. The USEPA also defines water that flows below ground level as ground water under the influence of surface water if it has a significant occurrence of insects or other macroorganisms, algae, organic debris, or large-diameter pathogens; or if it exhibits significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Surface water conditions in Humboldt County are generally described in the discussion of planning watersheds above. Further detail regarding surface water conditions within each of the Humboldt County planning watersheds can be found in the *Natural Resources and Hazards Report*.

Groundwater. The western portion of Humboldt County is defined as part of the California Coastal Basin Aquifer. Individual aquifers in Humboldt County are located 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 (see Table 3.10-3, below). 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, and 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 Figure 3.10-2 Groundwater Basins in Humboldt County and Table 3.10-3 Humboldt County Ground Water Basins for detailed information regarding Humboldt County groundwater resources.

Several communities rely on local aquifers as water sources, including the City of Arcata. Arcata reports that aquifers in its planning area are generally less than 100 feet deep. While there are approximately 60 small groundwater contamination sites in the city, the municipal water supply is not threatened. Groundwater quality is not expected to change in the near future, as few new homes and businesses are expected to withdraw water from wells. The City's water system in north Arcata is currently drawing one million of the approximately two million gallons per day which the local aquifer can provide.

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. According to the USGS, 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.

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 significant

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 are 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.

State law passed in 2014 (AB 1739), the Sustainable Groundwater Management Act (SGMA), is intended to achieve sustainable management of groundwater resources for long-term reliability for multiple benefits while avoiding undesirable results. The State Department of Water Resources (DWR) assigned priority ratings to groundwater basins throughout the state. 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 (HCPWD) has been acting as the lead for compliance with the SGMA for the Eel River groundwater basin. The HCPWD coordinated the formation of the Eel River Valley Groundwater Working Group to assist with a groundwater program in response to SGMA. The HCPWD 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 or not 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 without the formation and administration of a Groundwater Sustainability Agency. The Eel River Valley Groundwater Basin Groundwater Sustainability Plan Alternative was submitted prior to the January 31, 2017, deadline and is under consideration by DWR.

Figure 3.10-2. Groundwater Basins in Humboldt County.

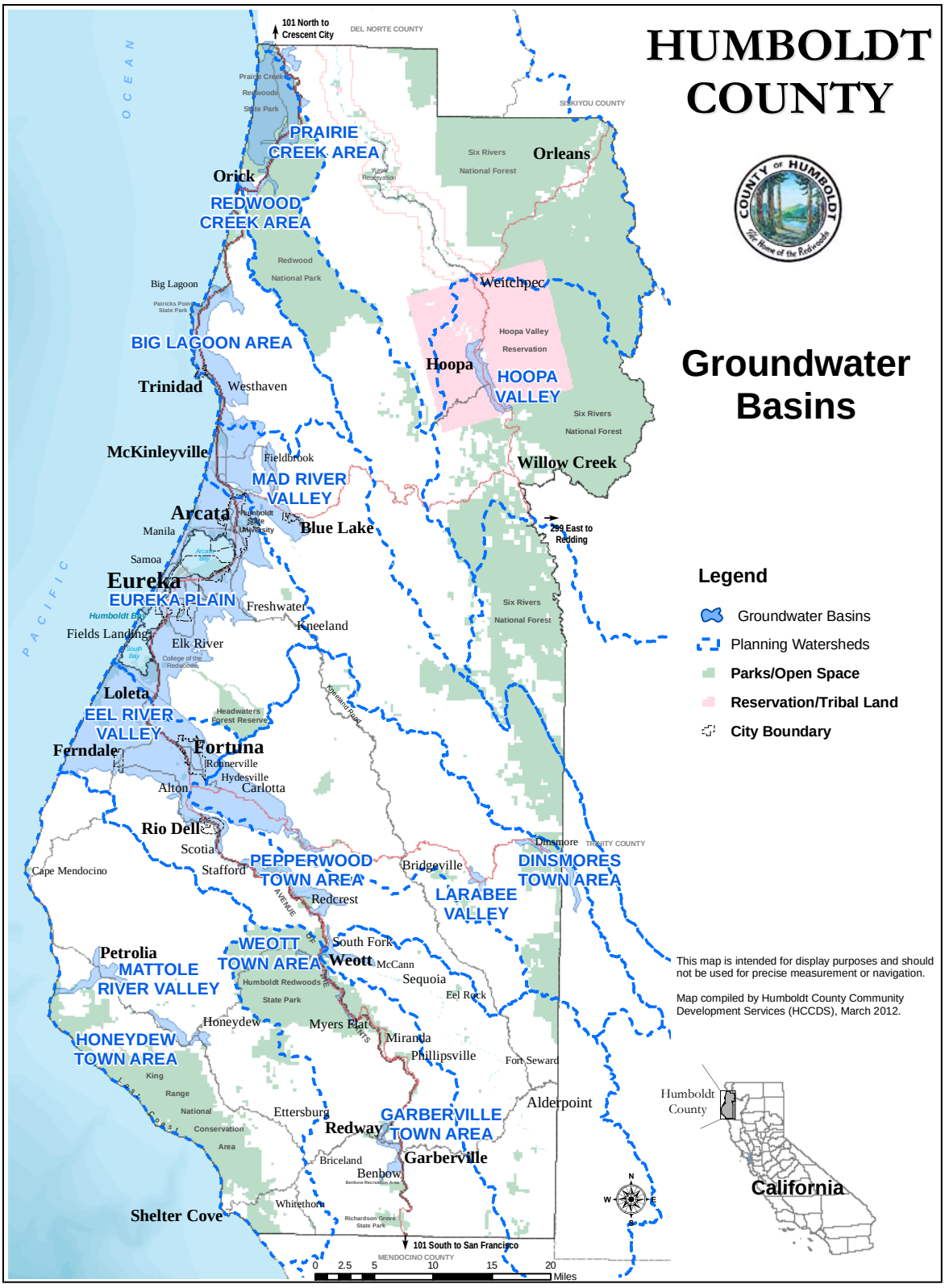


Table 3.10-3. Humboldt County Ground Water Basins.

Basin	Planning Watershed	Area (Acres)	Rain (Inches)	Extraction (Acre Feet)	Useable Storage	Well Yields (GPM)	Useable Storage	Well Completion Reports		Municipal Water Providers
								Municipal or Ag	Domestic	
Garberville	South Fork Eel	2,100	57 - 63	67	Not Available	Not Available	Not Available	Not Available	8	Garberville SD, Redway CSD
Weott	South Fork Eel	3,650	55 - 61	110	Not Available	Not Available	Not Available	Not Available	1	Weott CSD, Myers Flat MWA
Pepperwood	Lower Eel	6,290	45 - 53	947	Not Available	Not Available	Not Available	Not Available	Not Available	None
Eel River Valley	Lower Eel	73,700	41 – 55	100,000	49,000	<1,200	49,000	12	219	Loleta CSD, Del Oro Water Co. Hydesville CWD, Riverside CSD, City of Rio Dell, City of Fortuna
Big Lagoon	Trinidad	34,000	53 - 65	240	Not Available	Not Available	Not Available	Not Available	60	Big Lagoon CSD, Westhaven CSD
Dinsmore	Van Duzen	2,300	57 - 61	124	Not Available	Not Available	Not Available	Not Available	13	None
Larabee Valley	Van Duzen	970	63	Not Available	Not Available	Not Available	Not Available	Not Available	1	None
Hoopa Valley	Lower Trinity	3,900	59 - 63	316	19,200	<300	19,200	1	47	None
Redwood Creek	Redwood Creek	2,000	59 - 69	580	Not Available	Not Available	Not Available	1	11	Orick CSD
Prairie Creek	Redwood Creek	20,000	59 - 75	4	Not Available	Not Available	Not Available	Not Available	Not Available	None
Mattole	Cape Mendocino	3,150	63 - 75	147	Not Available	Not Available	Not Available	Not Available	49	None
Honeydew	Cape Mendocino	2,370	71 - 79	20	Not Available	Not Available	Not Available	Not Available	2	None
Dows Prairie School	Mad River	14,000	39 - 53	2,100	10,500	Not	10,500	6	289	None

Basin	Planning Watershed	Area (Acres)	Rain (Inches)	Extraction (Acre Feet)	Useable Storage	Well Yields (GPM)	Useable Storage	Well Completion Reports		Municipal Water Providers
								Municipal or Ag	Domestic	
Area (Mad River Valley)						Available				
Mad River Lowland (Mad River Valley)	Mad River	25,600	39 - 53	25,000	6,335	<120	6,335	1	32	City of Arcata
Eureka Plain	Eureka Plain	37,400	37 - 47	6,100	Not Available	400	Not Available	12	162	Humboldt CSD, City of Eureka

CSD – Community Services District
Source: California's Groundwater Bulletin 118 - Update 2003 Basin/Subbasin Descriptions by Hydrologic Region.

Stormwater

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 due to stormwater runoff is a particularly important issue. The Federal Water Pollution Control Act, commonly referred to as the Clean Water Act (CWA), prohibits the discharge of pollutants into waters of the United States unless the discharge complies with a National Pollutant Discharge Elimination System (NPDES) permit. Section 402(p) of the 1987 amendments established a framework for regulating municipal, industrial and construction stormwater discharges under the NPDES program. In California, the State Water Resources Control Board (SWRCB) and the nine RWQCBs issue NPDES permits. In 1999, USEPA established regulations, known as Phase II NPDES program, requiring permits for stormwater discharges from Small Municipal Separate Storm Sewer Systems (MS4; the USEPA categorizes MS4s as either "small," "medium," or "large"),and from construction sites disturbing between one and five acres of land. The Phase II requirements were developed for regulating water quality affected by smaller municipalities and construction projects not covered by the Phase I NPDES permitting requirements.

The HCPWD is responsible for storm drainage within the unincorporated areas of the County and also maintains flood control levees along the Eel River at Sandy Prairie, the Mad River at Blue Lake, and Redwood Creek at Orick. The *Community Infrastructure and Services Technical Report* found that, 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 significant number of culverts (estimated in the thousands) under County roadways. These culverts are located throughout the County's many drainage swales, creeks and streams.

In February 2013, the State Water Resources Control Board adopted the current version of the 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 but 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. Humboldt LID Stormwater Manual V2.0 and associated documents are available on the North Coast Stormwater Coalition website, http://northcoaststormwatercoalition.org/.

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)l. 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 onsite and offsite 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.

Timber and agricultural production are important industries in Humboldt. Timber and agricultural practices have the potential to impair water quality and contribute to water quality violations in Humboldt County. These practices include timber harvesting, grazing, and dairy operations. These land use activities can also be sources of nutrients and contribute to temperature impairments.

Timber harvest and management activities are subject to the Z'berg-Nejedly Forest Practice Act of 1973, or the Forest Practice Act. The California Department of Forestry and Fire Protection (CAL FIRE) regulates timber harvest activities pursuant to the California Forest Practice Rules (Title 14, California Code of Regulations, Chapters 4, 4.5 and 10), which implement the Forest Practice Act. The Forest Practice Rules contain regulations regarding direct and cumulative impacts to watersheds from sediment, water temperature, organic debris, chemical contamination, and peak flow. A timber harvest plan must comply with the quantitative or narrative water quality objectives set forth in the RWQCB Water Quality Control Plan for the North Coast Region, or Basin

Plan. Activities which are not exempt from the local regulation pursuant to Public Resources Code Section 4516.4 are subject to County grading, excavation, erosion, and sedimentation control regulations.

The Humboldt County Resource Conservation District (HCRCD) is a special district that was formed in 1987 to assist private landowners in voluntary planning, design, and installation of soil and water conservation practices in Humboldt County. Recognizing the potential water quality effects of agricultural operations, the HCRCD has received grants to help local dairies improve their operations and water quality by implementing state of the art water quality management systems. The grant provides funding to support practices and demonstrations such as manure distribution, heavy use area protection, roof runoff management, and waste storage structures. The HCRCD provides design services, permitting help, and on selected projects, cost share payments to a dairy operator for project implementation. The HCRCD recently began providing custom nutrient management plans to local dairy operators. The purpose of nutrient management plans is to adequately supply nutrients for plant production and to properly utilize manure or organic by-products as a plant nutrient source, while minimizing agricultural nonpoint source pollution of surface and ground water resources.

Flooding. Flood hazards in Humboldt County are attributable to rivers and streams, dam failure, and coastal high water hazards (tsunamis and flood tides), with river flooding being by far the most prevalent. Flooding is a concern for many waterways in Humboldt County, including the Eel River (including the Van Duzen and South Fork), the Mad River, Eureka Plain (especially Freshwater and Jacoby Creeks), and the Trinity River.

Seventy percent of precipitation in Humboldt County occurs from November to March, and major floods have resulted from a succession of intense rainstorms during these months. The two worst floods in Humboldt County history occurred in December 1955 and December 1964, causing tens of millions of dollars in damage and numerous fatalities.

The 1955 flood occurred following weeks of above-normal precipitation in the County, with rainfall measurements in Cummings reaching as high as 24 inches over three days. Flood damage in the Eel River Basin exceeded $22 million, with one reported fatality and 43,000 acres flooded. Heavy debris carried by high velocity river flows is faulted for much of the damage.

Heavy rains accompanied by runoff from an unusually large snowpack led to the flooding of the Mad and Eel Rivers in 1964. Total damages reached $100 million, with entire communities (including Pepperwood, the site of the 1955 fatality) being destroyed and 19 fatalities recorded. Millions of board feet of lumber, thousands of acres of prime farmland, and 4,000 head of livestock were also lost.

Floods are commonly described as having a 10-, 50-, 100-, or 500-year recurrence interval, meaning that floods of these magnitudes have (respectively) a 10, 2, 1, or 0.2 percent chance of occurring on average in any given year. These measurements reflect averages of likelihood of occurrence, but it is possible that two or more rare floods (with a 100-year or higher recurrence interval) could occur within a short period of time.

Assigning recurrence intervals to the discharges of historic floods is valuable both as a rough comparison among the magnitudes of different flood intervals on a given waterway, as well as a way of showing the intensity of a storm over a large area. The recurrence intervals shown for various waterways in Humboldt County in December 1964 point to the relative effects the storm had on different watersheds. For example, flooding along the Eel River was much more severe than along Jacoby Creek, even when factoring in their size difference.

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 in order to continue participation in the federal flood insurance program.

Humboldt County's 100-year floodplains are shown in Natural Resources and Hazards Report Volume 1, Figure 11-1. 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.

Other flooding concerns include ocean storm surges and dam failure. Storm surges occur when coastal storms produce large ocean waves that sweep across coastlines, inundating low-lying areas and causing flooding. If a storm surge occurs at the same time as high tide, flooding is more extensive. Dams provide some degree of flood control but also present a possible hazard in the event of failure. Hazards from dam failure are those associated with the downstream inundation that would occur given a major structural failure of a nearby impoundment. Such failures would most likely be caused by geologic phenomena including seismic events and slope stability problems. Five dams are located in adjacent counties on rivers that drain into Humboldt County, and the failure of any one of these structures could significantly impact Humboldt County. Trinity Dam and Ruth Dam pose the most substantial risk due to their large volumes and, in the event of a failure, short downstream warning times. The County maintains emergency response plans for the Trinity, Ruth (Matthews), Scott, Copco, and Iron Gate dams. Chapter 8, Dam Failure, of the 2014 Humboldt Operational Area Hazard Mitigation Plan, provides a detailed discussion of dam failure hazards and potential impacts to Humboldt County resulting from dam failure. The Humboldt Operational Area Hazard Mitigation Plan is available on the internet at http://humboldtgov.org//506/Local-Hazard-Mitigation .

3.10.2 Hydrology and Water Quality - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines, Appendix G. The proposed General Plan Update would result in a significant impact related to hydrology and water quality if it would:

a) Violate any water quality standards or waste discharge requirements.
b) 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 level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

c) 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.
d) 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.
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
f) Otherwise substantially degrade water quality.
g) 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.
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.
i) 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 dam.
j) Inundation by seiche, tsunami, or mudflow.

Items "a", "c" and "f" are discussed together in Impact 3.10.3.1, Degrade Water Quality or Exceed Waste Discharge Requirements, Item "b" is discussed in Impact 3.10.3.2, Deplete Groundwater Supplies or Interfere With Groundwater Recharge, Items "d" and "e" are discussed in Impact 3.10.3.3, Alter the Existing Drainage Patterns or Exceed the Capacity of Stormwater Drainage Systems, and Items "g" through Items "j" are discussed as part of Impact 3.10.3.4, Housing within a 100-year Flood Hazard Area or Expose People or Structures to Flooding from Levee or Dam Failure, Tsunami, or Mudflow.

3.10.3 Hydrology and Water Quality - Impacts and Mitigation Measures

Impact 3.10.3.1: Degrade Water Quality or Exceed Waste Discharge Requirements

Implementation of the General Plan Update could result in increased stormwater runoff; mobilization of sediment, household chemicals, metals, hydrocarbons, nutrients and other pollutants; sanitary sewer overflows; and vegetation removal; all of which can have potentially significant impacts on water quality.

This impact analysis addresses items "a", "c", and "f" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.10.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Violate any water quality standards or waste discharge requirements.
c) 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.
f) Otherwise substantially degrade water quality.

Development allowed under the General Plan Update would result in impervious surfaces in the form of new structures, roadways, parking areas, and supporting. New surfaces such as roofs; concrete or asphalt sidewalks, parking lots or roads; as well as areas of compacted soil would

likely be impervious to rainwater. Stormwater moves over impervious surfaces and collects natural and human generated substances such as sediment, nutrients, and trace metals, and carries them to the drainage system and eventually to wetlands, streams, rivers, and coastal waterways. Impervious surfaces increase the amount of stormwater runoff and significantly impede or prevent the natural percolation of rainwater into the soil, resulting in higher levels of mobilized sediment and other pollutants entering receiving water bodies as a nonpoint source pollutant, thereby decreasing the quality of receiving waters.

Based on DOF projections, approximately 1,721 new housing units will be constructed by the planning period population peak, 2028. Approximately 90 percent of those units are expected to be located within more urbanized areas (Community Planning Areas and Coastal Zone Areas), and approximately 10 percent would be located within rural areas outside community planning areas.

In an analysis comparing the stormwater runoff between lower and higher density development, the USEPA found that "with more dense development, runoff rates per house decrease by approximately 74 percent from the least dense scenario; for the same amount of development, denser development produces less runoff and less impervious cover than low-density development; and for a given amount of growth, lower-density development uses more of the watershed" (Protecting Water Resources with Higher-Density Development, US EPA, Findings/Discussion page 26).

Projected growth during the General Plan Update planning period may result in the use of materials and substances that could impair water quality. Land Use activities could involve the storage and handling of materials and substances such as automotive fluids, fertilizers, and household cleaners that, if used improperly, could be mobilized by stormwater and impair water quality. Sediment sources, besides construction sources noted above, could include landslides, roads and parking lots, unprotected slopes, and disturbed areas. Organic compound sources derive from automotive fluids on roads and parking areas, pesticides and herbicides. Nutrients include fertilizer in lawns and gardens, food waste, discharges from septic and sewer systems, and sediment. Trace metals sources include oil and grease, compounds on roads and parking lots, roofing, construction sites, and industrial and commercial uses. Land use activities can also result in the removal of vegetative cover along watercourses, which can result in increased water temperatures with detrimental effects on fish and other aquatic organisms.

Increases in receiving water temperatures can also result from the intensification of stormwater flows which would be a consequence of an increase in impervious surfaces. Impervious surfaces act as heat collectors that warm urban runoff as it passes over them. Elevated temperatures can also be caused by increased flows that result in wider and shallower stream channels. Elevated temperatures disrupt aquatic organisms that have finely tuned temperature limits, such as trout, salmon and the insects on which they feed, by decreasing the amount of dissolved oxygen in the water column which can lead to a shift in algae growth.

New development under the General Plan Update would involve construction activities which typically involve soil disturbance resulting from grading, excavating and trenching within a project site. Stormwater runoff from construction sites can contain sediments mobilized due to of these activities. Spills or leaks from heavy equipment and machinery, staging areas, or building sites can also enter runoff. Typical pollutants may include petroleum products and heavy metals from equipment, and construction materials such as paints, solvents, and cleaning agents. Sediment from erosion of graded or excavated surface materials, leaks or spills from equipment, or inadvertent releases of construction materials may degrade water quality if runoff containing the sediment enters receiving waters in sufficient quantities to exceed water quality objectives.

Based on the 303(d) list above, most watersheds within Humboldt County are impaired by sedimentation, siltation, and temperature. In addition, Humboldt Bay is impaired by polychlorinated biphenyls (PCBs), which have been demonstrated to cause cancer and other serious non-cancer health effects, and coastal beaches between Westhaven and Trinidad are impaired by bacteria. Water quality in streams would be further affected by polluted runoff from urban and rural growth during the General Plan Update planning period. The loading of pollutants typically increases in the downstream direction as development density increases towards the bottom of the watershed. The local receiving waters (e.g., Humboldt Bay, the Eel River delta, and the Pacific Ocean) would be affected substantially more when the urbanized areas of separate watersheds that outlet to the same receiving water body.

Water quality could also be affected by the reuse of treated wastewater from sewer plants and graywater for agriculture, landscaping, and as a replacement for other non-potable water demands, which has been identified as a way to reduce water consumption. Depending on the extent of treatment that is applied to the wastewater, over-application can result in excessive runoff entering waterways, or the leaching of constituents contained in the wastewater (such as salts, nutrients, estrogenic substances, and pharmaceuticals) to the groundwater.

Water quality may also be degraded where historical development on small lots has resulted in a high concentration of older septic systems that may not have been designed and constructed using current standards, or are not regularly maintained or upgraded. Organisms associated with human waste may become present in surface water and groundwater when the septic treatment process is not completed due to a faulty system. Septic systems are utilized on rural properties throughout the County and in numerous, less dense urban areas that do not have municipal wastewater systems, such as Orick, Willow Creek, and Westhaven.

Section 3.8, Geology and Soils, describes the existing conditions relating to the use of on-site septic systems in Humboldt County and the existing programs in place to regulate the development of use of such systems. Pursuant to Assembly Bill 885, a bill passed in 2000 relating to onsite sewage systems (AB 885), the SWRCB has developed statewide regulations for onsite wastewater treatment systems. Pursuant to Assembly Bill 885, Humboldt County has prepared a Draft Local Agency Management Program (LAMP) for managing onsite wastewater (septic) treatment systems. Humboldt County is writing one to comply with the state mandate contained in the Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy , State Water Resources Control Board Resolution NO. 2012-0032, http://www.waterboards.ca.gov/water_issues/programs/owts/board_adopted_policy.shtml)).

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies intended to reduce sediment in runoff water and protect soils in agricultural areas, as well as on slopes. These same policies direct new development into areas with suitable soils and serve to minimize erosion. General Plan Update implementation measures would result in an update to the grading and zoning ordinance to address soil erosion and to require erosion control measures for all grading activities. By appropriate designation of land uses, the General Plan Update would reduce sedimentation impacts associated with new development activities. The County has adopted several ordinances to address the potential for increased sedimentation from new development, including grading, excavation, erosion, and sedimentation control, geological hazards, and Streamside Management Area (SMA) regulations, which would be amended, pursuant to WR-IMx1, Update Water Quality Regulations, to reflect policies contained in the Water Resources and Conservation and Open Space Elements.

Water Resources Element. The following Water Resources Element policies, standards and implementation measures are intended to reduce water quality impacts. Water Resources (WR) Policy WR-P3, Proactive Protections, directs the County to focus regulatory attention and educational efforts in specified watersheds where threats to water quality (such as the sources of sediment, siltation, and temperature analyzed above) would have potentially significant cumulative effects. Policy WR-P4, Critical Municipal Water Supply Areas, would require that the County designate all or portions of watersheds as "Critical Water Supply Areas" if cumulative impacts from land uses within the area have the potential to significantly impact the quality or quantity of municipal water supplies. Policy WR-P5, Critical Watershed Areas and would require that the County designate all or portions of watersheds as "Critical Watersheds" if cumulative impacts from land uses within the area have the potential to create significant environmental impacts to threatened or endangered species, including coho salmon or steelhead habitat. Pursuant to Standard WR-S3, Development within Critical Watershed Areas, performance standards that would apply to ministerial and discretionary development would be adopted by ordinance, and would require that projects be designed to avoid the take of endangered or threatened species by reducing cumulative impacts to aquatic habitat to below levels of significance. Discretionary development would also be subject to supplemental permit conditions. WR-P5 WR-S3has the potential to apply to all planning watersheds within Humboldt County as each contains either coho salmon or steelhead habitat that could be affected by cumulative impacts from land uses within the watershed.

Policy WR-Px2, Mitigate Controllable Sediment Discharge Sites, requires that discretionary development involving a site identified as part of the TMDL Controllable Sediment Discharge Inventory be conditioned to mitigate (meaning to eliminate or avoid) sediment. Policy WR-P8, Erosion and Sediment Discharge, states that all projects requiring a grading permit must comply with performance standards adopted to minimize erosion and the discharge of sediments into surface runoff, drainage systems, and water bodies. Standard WR-S8, Erosion and Sediment Discharge, requires that ministerial and discretionary project must conform to grading ordinance standards for erosion and sediment control. Policy WR-P9, County Facilities Management**,** requires design, construction, and maintenance of County buildings, roads, bridges, drainages, and other facilities to minimize stormwater runoff erosion and discharge of sediments and other pollutants. Policy WR-P36 Erosion and Sediment Control Measures, requires that erosion and sediment control measures be incorporated into development design and improvements. Policy WR-P30, Natural Stormwater Drainage Courses, requires that natural drainage courses be retained and protected from development impacts that would alter the natural drainage courses, increase erosion or sedimentation, or have a significant adverse effect on flow rates or water quality. Policy WR-P30 further requires that natural vegetation within riparian and wetland protection zones be maintained to preserve natural drainage characteristics and that storm water discharges be dissipated so that they do not contribute to additional erosion, and filtered and cleaned of pollutants where feasible.

Policy WR-P31, Downstream Stormwater Peak Flows, requires that peak downstream stormwater discharge shall not exceed the capacity limits of off-site drainage systems or cause downstream erosion, flooding, habitat destruction, or impacts to wetlands and riparian areas. Further, WR-P31also requires that new development must demonstrate that post-development peak flow discharges will mimic natural flows to watercourses and avoid impacts to Beneficial Uses of Water. Policies WR-P34, Commercial and Industrial Activities, WR-P35, Oil/Water Separation, and WR-P39, Reduce Toxic Runoff, are intended to minimize storm water contamination from commercial, industrial, and residential uses and from new parking lots.

Policy WR-P38, Storm Drainage Impact Reduction, requires the use of Low-Impact Development (LID) standards to reduce the quantity and increase the quality of stormwater runoff from new developments in watersheds with known significant cumulative impacts from stormwater runoff. For all other watersheds, the policy requires the preparation of storm drainage development guidelines with incentives to encourage LID standards to reduce the quantity and increase the quality of stormwater runoff from new developments. This policy would allow the County to facilitate development that incorporates project elements to reduce storm water flow and would therefore reduce sedimentation, siltation, and the transmission of pollutants through the storm water system. In addition, Implementation Measure WR-IM25, Drainage Ordinance, requires that the County develop and maintain an ordinance that regulates stormwater drainage consistent with the General Plan.

Standard WR-S7, Total Maximum Daily Loads (TMDLs) Implementation, specifies that discretionary development within watersheds containing impaired water bodies as defined under Section 303(d) of the federal Clean Water Act and governed by TMDL implementation plans shall be conditioned to reduce or prevent further impairment consistent with applicable TMDLs. This standard, along with Policy WR-P38, Storm Drainage Impact Reduction, will limit further degradation of impaired waters that could occur because of discretionary projects, but would not reduce or prevent further degradation from ministerial permits. Implementation Measure WR-IM10, TMDL Controllable Sediment Discharge Inventory and Reduction Program**,** requires the County to map impaired water bodies as defined under Section 303(d) of the federal Clean Water Act with associated impairment parameters, water quality objectives, and pollution budgets contained in TMDL implementation plans, and to seek funding to identify controllable sediment discharge sites and establish a program to prioritize, treat, monitor, and subsequently reevaluate such sites.

Implementation Measure WR-IMx, Graywater Re-use Standards, requires the County to update and amend the existing County Code to implement the revisions to the State California Plumbing Code, Title 24, Part 5, Chapter 16A regarding Graywater Standards, as reflected in SB1258. Implementation Measure WR-IMx1,Update Water Quality Regulations, requires the County to amend the Grading, Excavation, Erosion, and Sedimentation Control Regulations and Division 1, Planning Zoning Regulations Chapter 6 - General Provisions and Exceptions Section 314-61.1 Streamside Management Area Ordinance to reflect the new erosion, sediment control, vegetation, restoration, and stormwater drainage policies and standards contained in the Water Resources Element, and the Biological Resources Chapter of the Conservation and Open Space Elements and evaluate as part of the five-year Housing Element Update to determine if additional measures are needed to protect water quality. Implementation Measure WR-IMx2, Unpermitted Development Ordinance for Critical Watersheds, requires the County to prepare an ordinance to provide increased enforcement capabilities for un-permitted development within critical watershed areas if the development impacts water resources, and to work with the State Departments of Water Resources, and Fish and Wildlife, to address illegal water diversions and over-subscribed water right allocations.

Conservation and Open Space. The Biological Resources Section of the Conservation and Open Space Element contains policies relating to SMAs, and which also relate to wetland, and riparian buffer areas. These policies establish setbacks, maintain natural vegetation, and allow filtration and infiltration of stormwater. Planned development within and adjacent to SMAs and other wet areas would be subject to protections contained in Biological Resources (BR) Policies BR-P4, Development within Stream Channels, BR-P5, Streamside Management Areas, BR-P6, Development within Streamside Management Areas, and Policy BP-P7, Wetland Identification. These policies would require that the County continue to identify SMAs and other data regarding intermittent streams with in-channel wetland characteristics and riparian vegetation

(SMAs are further defined in Standard BR-S5, Streamside Management Areas Defined). These policies as well as associated standards limit development within stream channels and SMAs to essential non-disruptive projects consistent with Standard BR-S6, Development in Stream Channels, and BR-S7, Development within Streamside Management Areas, and where mitigations have been provided to minimize any adverse impacts.

When permitted development occurs within SMAs, Standard BR-S9, Erosion Control, is imposed to limit potential impacts due to sedimentation. In addition, the presence of wetlands near project areas shall be determined during the project review process and wetlands, as defined by Standard BR-S11, Wetlands Defined, would be protected pursuant to Standard BR-S10, Development Standards, consistent with the standards for SMAs, including buffers and setbacks where appropriate. Policy BR-P11, Agency Review, requires that the County request Department of Fish and Wildlife, and other appropriate trustee agencies, to review development plans within streamside management and sensitive habitat areas, and National Marine Fisheries Service or U.S. Fish and Wildlife Service to review development plans within critical habitat areas where a federal permit or funding is involved. This policy also states that recommendations to reduce potential impacts below levels of significance shall be considered during project approval.

Safety Element. Safety Element policies would also contribute to the protection of water quality. Safety (S) Policy S-P1, Reduce the Potential for Loss, would require that new development be planned to reduce the potential risks resulting from natural and manmade hazards such as steep slopes and unstable soils areas, which would have secondary benefits to the environment, especially in terms of reduced sedimentation from erosion and improved water quality. Standard S-S1, Geologic Report Requirements, would require the preparation of geologic reports that would disclose site conditions that could contribute to sedimentation and siltation.

Impact 3.3.1 Wastewater Services in Section 3.3, Utilities and Services, provides a detailed analysis of wastewater treatment plant capacity. A number of WWTPs in Humboldt County are currently not meeting North Coast RWQCB permit requirements for wastewater treatment and disposal. Regarding these existing permit violations, the North Coast RWQCB has issued orders that contain programs and timelines for permit compliance, and monitors the efforts of operators to meet North Coast RWQCB requirements. The Community Infrastructure and Services Element of the General Plan Update was developed to provide policies and programs to ensure service capacity keeps pace with development, thereby minimizing the chance for a sanitary sewer overflow with accompanying water quality impacts. If it were not feasible to increase capacity, several policies would ensure that approved development is limited to available permitted capacity. Policy IS-P1, Coordination with Service Providers, requires that the County cooperate with wastewater system operators to system needs and service limitations consistent with the Plan and capital improvement plans. Policy IS-P4, Requirements for Discretionary Development, requires that service needs be assessed with discretionary development and to only approve development where service can be adequately provided or would otherwise not impact health, welfare and safety or future infrastructure plans. Policies IS-P8, Infrastructure and Services Capacity, and IS-P9, Capacity of Facilities and Land Use Decisions, require that the County monitor wastewater service capacity in coordination with service providers.

Impact 3.8.3.4, Septic Suitability in Section 3.8, Geology and Soils, provides a detailed analysis of development on soils incapable of adequately supporting the use of septic systems. That analysis identifies a series of policies that ensure that waste discharge associated with the use of on-site septic systems complies with state laws and addresses the siting of proposed new systems and the identification of existing failed septic systems. Policies that lessen the potential effects of

new on-site septic systems include IS-P20, On-Site Sewage Disposal Requirements, Policy WR-P14, Pathogen and Nutrient Discharge from Septic Systems, RL-P2, Water Withdrawal, and, Implementation Measure; WR-IM5, Septic Systems. Policy WR-Px6, Graywater and Alternative Disposal Systems, call for supporting programs and ordinance revisions that modify the permit process for graywater and other alternative disposal systems to make such systems more accessible to individual households. Implementation Measure WR-IM5, Septic Systems, directs the County to pursue the abatement of failing septic systems that have been demonstrated to represent a health and safety hazard.

Conclusion

A significant portion of Humboldt County drains to watersheds that are impaired by sedimentation, siltation, and temperature a. As a result, development that is projected to occur during the General Plan Update planning period could further degrade impaired water bodies. To address this, the General Plan Update focuses regulatory attention and protections in watersheds where future development would result in cumulative water quality impacts

The General Plan Update policies propose to lessen potential impacts by conducting planning on a watershed basis and focusing regulatory efforts within impaired watersheds; updating sediment and erosion control regulations to reflect the new Water Resources and Conservation and Open Space Element standards described above;, controlling the discharge of other pollutants (such as oils, fertilizers, pesticides and other chemicals, encouraging low-impact development design to reduce stormwater flows and improve water quality, and implementing a drainage ordinance to regulate stormwater drainage consistent with the General Plan.

While these policies and programs would reduce some of the adverse impacts to water quality associated with non-point source pollution from projected development r during the General Plan Update planning period, clear standards would need to be established to implement sediment and erosion controls, and additional implementation measures would be required to amend the grading ordinance, low impact development standards would be required to be mandatory within impaired watersheds. Without clear standards and additional storm drainage protections, especially within impaired watersheds, projected development during the planning period could substantially degrade water quality, result in substantial erosion or siltation on- or off-site, or violate water quality standards or waste discharge requirements. As a result, development under the GPU could result in potentially significant hydrology and water quality impacts.

Mitigation

Mitigation 3.10.3.1.a. The following policy and implementation measure shall be added to the Water Resources Element to lessen impacts resulting from erosion, sedimentation, and siltation:

> ***WR-Px. Continue to Implement Water Quality Regulations.*** *Continue to implement Division 3, Building Regulations, Section 331-12, Grading, Excavation, Erosion, and Sedimentation Control Regulations, and Division 1, Planning Zoning Regulations Chapter 6 - General Provisions and Exceptions Section 314-61.1 Streamside Management Area Ordinance.*

Mitigation 3.10.3.1.b. The following policy shall be modified to apply to all development in order the Water Resources Element to improve water quality within watersheds subject to TMDL Controllable Sediment Discharge Inventories:

WR-Px2. Mitigate Controllable Sediment Discharge Sites. ***Proposed*** ~~*Discretionary*~~ *development* ***applications*** *involving a site identified as part of the TMDL Controllable Sediment Discharge Inventory shall be conditioned to reduce sediment discharge.*

Level of Significance after Mitigation

The proposed mitigations would demonstrate that the County will continue to implement and strengthen existing regulations that are intended to reduce water quality impacts. Adoption of the additional or revised policies described in the above Mitigation Measures would therefore minimize water quality impacts of future land uses and development to the extent practicable. However, without quantifiable thresholds, there is no guarantee that even with the adoption and implementation of these mitigations would reduce this impact to a less than significant level. Therefore, this impact remains **significant and unavoidable**.

Impact 3.10.3.2: Deplete Groundwater Supplies or Interfere With Groundwater Recharge

Implementation of the General Plan Update would result in additional development that could impact groundwater recharge and supply.

This impact analysis addresses item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.10.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

b) 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 level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

As described in Impact 3.10.3.1, Degrade Water Quality or Exceed Waste Discharge Requirements, implementation of the General Plan Update would result in the construction of additional impervious surfaces that would increase stormwater flows. Impervious surfaces would also decrease the land area available for the infiltration of rainwater by the soil, thereby reducing groundwater recharge. The development of streets and drainage systems, as well as construction on hillsides that typically require the construction of retaining walls and subsurface drainage features, can also divert groundwater to surface drainage systems and further minimizes groundwater recharge.

Approximately 1,721 housing units are projected to be developed by the General Plan Update planning period population peak. Of the 1,721 new units, approximately 1,378 would be located within the groundwater basins listed in the Setting Section above, of which 133 would likely need to utilize on-site groundwater wells or surface water diversions. The following table lists the allowable units that could be constructed within each groundwater basin. It should be noted that additional non-residential development would also be expected to be developed within and these groundwater basins, with similar impacts.

Table 3.10-4. New Housing Units (2028) within Humboldt County Groundwater Basins.

Groundwater Basin	Predominant Planning Watershed[1]	Inside Service Area	Outside Service Area
Garberville Town Area	1-South Fork Eel	71	6
Weott Town Area	1-South Fork Eel	3	0
Eel River Valley	2-Lower Eel	80	5
Pepperwood Town Area	2-Lower Eel	0	1
Dinsmores Town Area	7-Van Duzen	0	1
Larabee Valley	7-Van Duzen	0	0
Prairie Creek Area	8-Redwood Creek	0	0
Redwood Creek Area	8-Redwood Creek	3	0
Honeydew Town Area	9-Cape Mendocino	0	0
Mattole River Valley	9-Cape Mendocino	0	0
Big Lagoon Area	10-Trinidad	0	3
Mad River Valley	11-Mad River	292	17
Eureka Plain	11-Mad River	729	167
Total		**1,177**	**201**

1. Groundwater basins as mapped by the Department of Water Resources and cross planning watershed boundaries.
Source: Humboldt County Planning and Building Department, 2017

Approximately 75 percent of projected residential development would occur within the service area of the Humboldt Bay Municipal Water District (HBMWD), including approximately 86 percent of planned development within the Eureka Plain Planning Watershed and 96 percent within the Mad River Planning Watershed. The HBMWD Groundwater Management Plan (April, 2006) indicates that "groundwater recharge is achieved by inundation of the recharge areas in the Mad River channel" through the District's operation of Matthews Dam and Ruth Lake (Section 5.3, Operation of Matthews Dam and Ruth Lake). As a result, additional development within the basin would not have a direct impact on the volume of groundwater available to HBMWD, but additional development adjacent to the Mad River channel could have an impact on the quality of the groundwater. In addition, planned development within the Eureka Plain and Mad River Planning Watersheds could impact the recharge of the Mad River Valley and Eureka Plain groundwater basins not related to the HBMWD operation of Matthews Dam.

All of the water service areas directly overlie or are adjacent to one of the groundwater basins listed in the Setting Section above except the Miranda Community Services District (CSD), Resort Improvement District (RID) No. 1 (Shelter Cove), Willow Creek CSD (water and wastewater service areas), Alderpoint County Water District (CWD), Benbow Water Company, Orleans CSD, and Phillipsville CSD. Urban levels of development are planned within each of these service areas, and rural levels of development are also planned in areas that overlie other groundwater basins. Within watersheds dominated by permeable soils, the development of additional impervious surfaces and the conversion of forest and agricultural lands could reduce groundwater recharge areas. As a result, impacts to groundwater supplies and private well

production could occur in areas where groundwater wells are used by municipal, residential, and agricultural uses.

Table 3.10-4, New Housing Units within Humboldt County Groundwater Basins, above, displays available information about each Humboldt County groundwater basin and indicates that that Mad River Valley, Eel River Valley, and Eureka Plain are the most developed basins in terms of the number of municipal, agricultural, and domestic wells. 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 (http://www.water.ca.gov/waterdatalibrary), seems to indicate 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 associated with new housing units outside the boundaries of water services providers would not surpass the capacity of a particular aquifer under various future rainfall scenarios.

In addition, the development of new groundwater wells has the potential to intercept contaminated groundwater from historic land uses in the area. Applications for new well permits are submitted to the Department of Health and Human Services Public Health Branch, Environmental Health Land Use Program. The Land Use Program follows the procedures established in Title VI - Water and Sewage, Division 3, Wells, of the Humboldt County Code. The County Code applies the Department of Water Resources Water Well Standards (Bulletins 74-81 & 74-90 combined). Division 3, Wells, of the County Code and Bulletins 74-81 and 74-90 establish minimum application requirements and standards for well installation that are intended to protect the health, safety, and general welfare of County residents.

As described in the earlier section, the Eel River Valley Groundwater Basin (Basin) as "medium" priority requiring a groundwater sustainability planning. Humboldt County has prepared a Groundwater Sustainability Plan (GSP) Alternative in collaboration with stakeholders representing agricultural, municipal, and environmental interests, as the local response to the Sustainable Groundwater Management Act (SGMA).

The GSP Alternative found 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. 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.

Based on the GSP Alternative, Humboldt County concludes Humboldt County concluded, that the Basin is being managed sustainably for beneficial uses without undesirable results, and a GSP

Alternative is the most appropriate compliance option for achieving the goals of SGMA. This GSP Alternative includes a goal-setting framework that is appropriate for Basin conditions and the current state of scientific data and understanding, along with a monitoring plan and commitments for annual reporting and a five-year assessment.

Analysis of Relevant General Plan Update Policies

Potential impacts to new development supplied domestic water from on-site water wells resulting from the General Plan Update is addressed through the following policies, standards and implementation measures. Implementation Measure WR-IM11, Watershed Data, seeks funding to support studies relating to water quality and quantity as well as to identify and map important groundwater recharge areas. A number of other policies and programs that are intended to protect water resources, and groundwater in particular, include: WR-P1, Sustainable Management, directs that land use decisions conserve, enhance, and manage water resources on a sustainable basis. Policy WR-P2, Protection for Surface and Groundwater Uses, requires that impacts on beneficial uses are mitigated (meaning eliminated or avoided) during the review of discretionary permits. WR-P12, Groundwater Quality Protection, protects groundwater from contamination that could result from discretionary commercial and industrial development. Finally, Implementation Measure WR-IM12, Sustainable Groundwater Management Plans, supports the development of Sustainable Groundwater Plans consistent with state law.

The General Plan Update also contains policies intended to address groundwater supply associated with rural development reliant upon on-site sewage disposal. For the zoning and subdivision of all areas designated for rural residential development the Rural Land Chapter of the Land Use Element contains Rural Land (RL) Policy RL-P2, Water Withdrawal, which requires an assessment of the cumulative impacts of water withdrawal from surface and groundwater sources. Additionally, WR-P6, Subdivision Water Supply, requires that any subdivision of land shall be conditioned to require evidence of sufficient water supply during drought conditions to meet the projected demand associated with the proposed subdivision. Under this policy, sufficient water supply shall include the requirements of the proposed subdivision and existing and planned future uses. A written service letter from a public water system written in conformance with this policy is required prior to subdivision development. Subdivisions to be served through on-site water supplies or private water systems must provide evidence of sufficient water supply to the County Department of Environmental Health. Standard RL-S4, Subdivision Standards, establishes standards for rural subdivisions, including the use of current standards of the Division of Environmental Health as proof of adequate water for domestic use.

The Housing Element also contains Housing Policy H-P29, Reduce and Avoid Impacts to Biological Resources, which requires that the County refer all building permit applications that would result in the withdrawal of water from perennial streams or rivers, or from wells within 100 feet of a perennial stream or river, or from springs within 100 feet of a perennial stream or river, to the Department of Fish and Wildlife for comments and recommendations.

Finally, with Policy WR-Px1, Requirements for Water Storage in Flow Impaired Watersheds, the County will require new development that is proposed within flow impaired watersheds, that will not be served by public water, and that seeks to rely upon surface water, to install water storage capable of providing 100 percent of the necessary water storage volume for the summer low-flow season. In addition, a forbearance agreement eliminating water withdrawals during low-flow season is required as a performance standard for the project.

Although there is no indication that wells have yet been impacted, saltwater intrusion is a concern in coastal areas that utilize groundwater for municipal or agricultural purposes or that

may be subject to the effects of sea level rise. Policy WR-P13, Saltwater Intrusion, requires that discretionary projects involving groundwater withdrawals in proximity to coastal areas shall demonstrate that groundwater supplies will not be adversely affected by saltwater intrusion.

Under Implementation Measure WR-IM8, Watershed Planning, the County is tasked with maintaining relevant land use data on watershed basis to support watershed based management and decision-making processes. Consistent with that measure, Implementation Measure WR-IM11, Watershed Data, directs the County to seek and secure funding to evaluate the quality and quantity of water resources in each of the watershed basins, and to support studies that correlate the quality and quantity of water captured, stored, and contained within watersheds to the needs of beneficial water uses by residents, local industry, agriculture, and the natural environment. This measure also seeks to identify and map important groundwater recharge areas. In addition, through Implementation Measure WR-IM12, Sustainable Groundwater Plans, the County would support the development of Sustainable Groundwater Plans consistent with California Water Code.

Conclusion

Development allowed under the General Plan Update could result in significant impacts to groundwater recharge and groundwater supplies. To address this, the General Plan Update provides protections for groundwater basins within critical watersheds and assesses potential cumulative impacts to groundwater as part rural subdivisions and zone reclassifications.

In addressing depletion of groundwater supplies or interference with groundwater recharge, the General Plan Update approach was to develop a comprehensive set of policies, standards and implementation measures that would safeguard against depletion of or interference with groundwater as a consequence of new development that may occur under the Plan. Among these are policies directly related to groundwater supply protections such as: RL-P2, WR-P6, and RL-S4. Requirements for water storage in flow impaired watersheds is addressed by WR-Px1. Finally, a watershed approach to groundwater supply issues is included with Implementation Measures WR-IM8 and WR-IM11.

Most of the County's watersheds are listed on the 303(d) list of impaired water bodies because of high water temperatures associated with low streamflows, While WR-PX1 will reduce impacts of new development on temperature-impaired watersheds to less than significant levels by disallowing water withdrawl from streams during the dry months, the GPU does not include policies that encourage existing and new development to enhance groundwater storage capacity.

Mitigation

Mitigation 3.10.3.2.a. The following policy shall be added to the Water Resources Element to improve groundwater recharge capacity:

> **WR-Px. Enhance Groundwater Recharge Capacity**. Encourage watershed management practices that enhance infiltration of rainfall into the groundwater.

Level of Significance after Mitigation

Adoption of the policies, standards, and implementation measures identified above as well as Mitigation Measure 3.10.3.1.a would reduce adverse impacts to groundwater resources and

wells that may result from development allowed under the General Plan Update to a **less than significant level**.

Impact 3.10.3.3: Alter the Existing Drainage Patterns or Exceed the Capacity of Stormwater Drainage Systems

Implementation of the General Plan Update would result in additional impervious surfaces and soil compaction that could result in increased stormwater runoff that alters drainage patterns and that could exceed existing stormwater drainage capacity.

This impact analysis addresses item "d" and "e" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.10.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

d) 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.

e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

As described in Impact 3.10.3.1: Degrade Water Quality or Exceed Waste Discharge Requirements, implementation of the proposed General Plan Update would result in additional impervious surfaces and the compaction of soils adjacent to developed areas that would increase peak flow rates of stormwater runoff. In addition to reducing water quality, such development could alter drainage patterns and potentially increase runoff in volumes that would exceed the existing stormwater drainage systems in the County.

In undeveloped areas, rainfall collects and flows at a natural rate through the soil as subsurface flow and on the surface through natural drainages. In contrast, developed areas, where portions of the land surface are covered by impermeable surfaces, have less capacity to store rainfall. Impermeable surfaces such as roads, roofs, parking lots, and sidewalks store little water, reduce infiltration of water into the ground, and accelerate runoff to ditches and streams. Even in areas with low density development, where lawns and other permeable landscaping would be common, rainfall can saturate thin soils and produce overland flow which runs off quickly. Because of accelerated runoff from development or construction activities, the peak discharge, volume and frequency of floods could increase in nearby streams (U.S. Geological Survey Fact Sheet 076-03, Effects of Urban Development on Floods, https://pubs.usgs.gov/fs/fs07603/).

Specific construction projects are not contemplated as a part of the General Plan Update; however, there will be construction activities in support of growth projected to occur during the planning period. Land-disturbing construction activities associated with such development would likely include grading and excavation, construction of new building foundations, roads, driveways, and trenches for utilities, and could result in the localized alteration of drainage patterns. Temporary ponding and/or flooding could result from such activities, from temporary alterations of the drainage system (reducing its capacity for carrying runoff), or from the temporary creation of a sump condition due to grading.

Pursuant to the Humboldt County Code and the National Pollutant Discharge Elimination System (NPDES) permit program administered by the state, Stormwater Pollution Prevention Plans are prepared and Best Management Practices (BMPs) are required to be implemented for

construction sites greater than one acre. In compliance with grading permits, the development of future land uses as designated in the proposed General Plan Update would continue to implement BMPs, such as the following examples:

- Minimizing disturbed areas. Clearing of land is limited to that which will be actively under construction in the near term, new land disturbance during the rainy season is minimized, and disturbance to sensitive areas (e.g., steep slopes and natural watercourses) or areas that would not be affected by construction is minimized.
- Stabilizing disturbed areas. Temporary stabilization of disturbed soils is provided whenever active construction is not occurring on a portion of the site, and permanent stabilization is provided by finish grading and permanent landscaping.
- Protecting slopes and channels. Outside of the approved grading plan area, disturbance of natural channels is avoided, slopes and crossings are stabilized, and increases in runoff velocity caused by the project is managed to avoid erosion to slopes and channels.
- Controlling the site perimeter. Upstream runoff is diverted around or safely conveyed through the project and is kept free of excessive sediment and other constituents.
- Controlling internal erosion. Sediment-laden waters from disturbed, active areas within the site are detained.

Implementation of appropriate BMPs as part of compliance with construction permits would reduce the potential for the development of future General Plan Update land uses to 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 flooding on or off site.

Impact 3.10.3.1, Degrade Water Quality or Exceed Waste Discharge Requirements, above, provides a description of the regulations contained in f the Humboldt County Code that address nonpoint source pollution and sedimentation under Title III, Land Use and Development Division 3, Building Regulations Section 331-12, Grading, Excavation, Erosion, and Sedimentation, and Section 314-61.1 Streamside Management Area Ordinance. These regulations are intended to reduce erosion and sedimentation and protect stream courses and wetland areas.

Analysis of Relevant General Plan Update Policies

The proposed General Plan Update includes goals and policies that reduce the potential for the substantial alteration of existing drainage patterns through development, which could result in runoff and flooding on or off site. The Land Use Element, Water Resources Element and Safety Element, various goals and policies to reduce such impacts.

Community Infrastructure and Services Policy IS-P9, Capacity of Facilities and Land Use Decisions, evaluate the capacity and sizing of drainage facilities to determine adequacy for proposed land uses and discretionary development. Policy IS-P16, Drainage and Flood Control, and Implementation Measure IS-IM13, Drainage and Flood Control Plan, directs the County to develop and maintain a countywide drainage and flood control plan to guide capital improvements and maintenance. These policies and programs provide that drainage facilities are planned with development and limit the likelihood that runoff water would exceed the capacity of existing or planned stormwater drainage systems.

The Conservation and Open Space Element also contains protections to prevent alteration of existing drainage patterns by development that could result in flooding on or off site. Biological Resources Chapter Policy BR-P4, Development within Stream Channels, specifies that

development within stream channels shall only be permitted when there is no lesser environmentally damaging feasible alternative, and where the best feasible mitigation measures have been provided to minimize adverse environmental effects. Standard BR-S9, Erosion Control, requires that development within Streamside Management Areas minimize land clearing and vegetation removal; long slopes 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 and control concentrated runoff.

The Water Resources Element has a goal to utilize natural drainage and onsite infiltration, WR-G9, Storm Drainage, and contains specific policies and standards to minimize the alteration of existing drainage patterns through development which could result in flooding on or off site. Policy WR-P30, Natural Stormwater Drainage Courses, requires that natural drainage courses be retained and protected from development impacts on flow rates or water quality. Policy WR-P31, Downstream Stormwater Peak Flows, requires that peak stormwater discharge not exceed the capacity limits of off-site drainage systems or cause downstream erosion, or flooding. Additionally, under this policy new development shall demonstrate that post-development peak flow discharges will mimic natural flows to watercourses and avoid impacts to Beneficial Uses of Water. Policy WR-P32, New Drainage Facilities, specifies that where it is necessary to develop additional drainage facilities, they shall be designed to be as natural in appearance and function as is feasible; all drainage facilities shall be designed to maintain maximum natural habitat of streams and their streamside management areas and buffers; and detention/retention facilities shall be managed in such a manner as to avoid reducing streamflows during critical low-flow periods. Policy WR-P38, Storm Drainage Impact Reduction, requires the use of Low-Impact Development (LID) standards to reduce the quantity and increase the quality of stormwater runoff from new development and redevelopment projects in areas within the County's MS4 boundary or as triggered under other Regional Water Board permits. This policy also states that for all other watersheds, the County is directed to develop storm drainage development guidelines with incentives to LID standards to reduce the quantity and increase the quality of stormwater runoff from new developments. The County's intent to develop and utilize low impact development standards is further echoed in Implementation Measure WR-IM26, Low Impact Development Methods, which requires projects to utilize best management practices for Low Impact Development to meet surface water run-off standards.

Conclusion

The proposed General Plan Update policies described above reduce the potential for the substantial alteration of existing drainage patterns through development that could result in flooding on or off site and additional sources of pollution. The Community Infrastructure and Services Element provides for a drainage and flood control plan limit the likelihood that runoff water would exceed the capacity of existing or planned stormwater drainage systems. The Conservation and Open Space Element contains standards for erosion control and to control concentrated runoff. The Water Resources Element contains requirements for low impact development standards in urbanized areas and incentives for their use elsewhere; requires that natural drainage courses be retained, and establishes requirements for downstream peak stormwater flows by policy. Adoption of the policies, standards, and implementation measures identified above would reduce adverse effects relating to the alteration of drainage patters or increased runoff from development allowed under the General Plan Update to a **less than significant level**.

Mitigation

None required.

Impact 3.10.3.4: Housing within a 100-year Flood Hazard Area or Expose People or Structures to Flooding from Levee or Dam Failure, Tsunami, or Mudflow

Implementation of the General Plan Update would result in additional development located in areas subject to flooding, tsunami, and mudflows.

This impact analysis addresses item "g" through "j" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.10.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

g) 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.

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows.

i) 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 dam.

j) Inundation by seiche, tsunami, or mudflow.

A significant flood hazard exists along the County's major rivers. Population increases as anticipated in the General Plan Update may result in additional life and property being exposed to these hazards. Floodplain or floodway encroachment could alter flood-carrying capacity along watercourses, possibly creating additional hazards. Residential land uses designations planned in areas subject to flooding would have the highest potential to expose populations to risk of flooding.

Flooding can inundate and cause water damage to structures, bury structures, knock them off their foundations, or completely destroy them by the impact of high velocity water and debris, which can include sizable boulders. Impacts resulting from flooding include the loss of life and/or property; health and safety hazards; disruption of commerce, water, power, and telecommunications services; loss of agricultural lands; and infrastructure damage. Areas at the greatest risk of flooding include the lowlands near the Eel River (including the Van Duzen and South Fork), the Mad River, Eureka Plain (especially Freshwater and Jacoby Creeks), and the Trinity River. The following table contains a listing of projected new dwelling units on parcels that are within or touch the FEMA 100-Year Flood Zone or Floodway.

Table 3.10-5. Projected Additional Housing Units within 100-Year Flood Zone.

Planning Watershed	Projected Additional Housing Units - 2028
1 - South Fork Eel	20
2 - Lower Eel	4
3 - Middle Main Eel	0
4 - Lower Klamath	0
5 - South Fork Trinity	0
6 - Lower Trinity	0
7 - Van Duzen	0
8 - Redwood Creek	0
9 - Cape Mendocino	0
10 - Trinidad	0
11 - Mad River	30
12 - Eureka Plain	27
Total	**81**

Source: Humboldt County Planning and Building Department

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 (see Humboldt Operational Area Hazard Mitigation Plan Update Volume 1: Planning-Area-Wide Elements-Chapter 8. Dam Failure, Table 8-1. Dams in the Planning Area or with Inundation Areas that extend into the Planning Area (in order of storage capacity) http://www.humboldtgov.org/DocumentCenter/Home/View/1003). 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 five and one half hours on the Mad River (Robert W. Matthews Dam), about six hours on the Eel River (Van Arsdale Dam), and seven hours on the Trinity River (multiple dams, see Humboldt Operational Area Hazard Mitigation Plan Update Chapter 8. Dam Failure, Section 8.2.5 Warning Time). The Humboldt County Emergency Operations Plan contains response procedures that would be implemented in the event of dam failure. The potential effects of flooding from dam failure (additional to current baseline conditions) are not considered to be significant.

Mass movement (a collective term for landslides, debris flows, falls and sink holes, and which are caused by a combination of geological and climate conditions, as well as the encroaching influence of urbanization pursuant to Part 2, Chapter 12 of the Humboldt Operational Area Hazard Mitigation Plan, 2014, which provides more information regarding mass movement) are common in Humboldt County and occur particularly in response to intense, short-duration storms, and in combination with larger earthquakes. The most recent mass movement events in the County occurred during the winter storm of 2005-06. Humboldt County was declared and designated a county for "California Severe Storms, Flooding, Mudslides, and Landslides" by FEMA after this event. This designation was in large part due to the record high rains and winds of the 2005-06 winter storms resulting in thousands of large and small-scale landslides along every

major transportation corridor of the County (U.S. Highways 101, 299, 96 and 36). In the winter of 1996-97, a mudslide that started in timberlands above the community of Stafford was approximately 100 yards wide and destroyed seven homes. Mass movement is a major hazard concern throughout Humboldt County that cannot be eliminated. Based upon the projected distribution of development consistent with the General Plan Update, new development could occur within throughout the County that could be subject to impacts from mass movement. It would be possible to reduce this impact to future development through site-specific geologic investigations. In most cases, landslides can be mitigated using the findings of geologic investigations and current design and construction methods.

The Section 3.8.1 Geology and Soils -Environmental Setting of the Geology and Soils describes the seismic setting in Humboldt County, tsunamis that have occurred within the County in the past and the likelihood of tsunamis in the future. Impact 3.8.3.1, Exposure to Seismic-Related Hazards, analyzes tsunami hazard associated with the General Plan Update and determined that tsunamis are a significant hazard in Humboldt County due to its proximity to the Cascadia Subduction Zone. Implementation of the General Plan Update could result in new land uses and development in close proximity to the Pacific Ocean, Humboldt Bay, and the low-lying areas near the shore, and therefore would potentially expose people and structures to the risk of tsunamis generated primarily by high-magnitude earthquakes. Recent studies indicate there is potential for a tsunami from 10 to 30 feet above mean sea level, possibly higher, to impact the Humboldt coast, affecting an area similar to, but slightly larger than the FEMA 100-year flood plain. Of note is that the potential for the highest tsunami waves is from a near-source Cascadia Subduction Zone event, resulting in a very short response time, on the order of 15 minutes, possibly less.

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 (Section 3.17(B)(3)). Humboldt County was awarded a grant from the California Coastal Commission in 2014 to amend the Humboldt Bay Area Plan, which will include the completion (or substantial progress towards completion) of a Tsunami Safety Plan based on the Tsunami-Ready Guidelines of the National Weather Service, for each Humboldt Bay Area Plan community. The grant also includes developing tsunami safety mapping and policy options for updating the Local Coastal Plan tsunami hazards policy. The grant requires that the County incorporate tsunami inundation mapping, and review and revise as necessary tsunami hazard and risk analysis and policies developed for the Samoa Town Master Plan, as well as the ongoing work of other agencies conducting accurate tsunami inundation mapping for all potential annual occurrence rates for Humboldt Bay. This new tsunami hazard policy will likely serve as the template for updates to other Coastal Zone segments within the County.

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 Federal Insurance Rate Maps (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 the residence 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.

Analysis of Relevant General Plan Update Policies

The flood plain management measures in the General Plan Update will serve to reduce unnecessary exposure to flood hazards from new development, and may over time reduce the overall risk to the population. The dam failure contingency plans contained in the Hazard Mitigation Plan outline an emergency response that is designed to reduce the impacts on life and property in the event of dam failure. The Safety Element contains policies and standards that are intended to identify geologic hazards, such as the potential for mudflows, and specify mitigations to reduce risk to life and property.

The following Safety Element policies and standards address the potential for flood hazards. Policy S-P10, Federal Flood Insurance Program, requires the County to participate in the Federal Flood Insurance Program and maintain Flood Damage Prevention regulations in the County Code to regulate land uses in flood hazard areas in order to minimize loss of life and property and public flood-related expense. This policy ensures that all flood prone areas within the County would continue to be identified through the establishment of flood-risk zones. Policy S-P11, Flood Plains, requires that the County plan agricultural lands that are in mapped floodplains for continued agricultural use. This policy ensures that agricultural areas can continue to provide flood relief to developed areas that are outside the flood zone.

The Safety Element contains Standard S-S1, Geologic Report Requirements, which requires reports addressing geologic hazards and geologic conditions. This standard continues to implement current building regulations that minimize risks to life and property and assure stability and structural integrity in areas subject to geologic hazard. Standard S-S2, Landslide Maps, specifies the use of California Division of Mines and Geology, North Coast Watersheds landslide mapping as information in the review of developments. Policy S-PX2, Prohibition of Residential Subdivisions within Floodplain, prohibits an increase in residential density wholly within the 100 year floodplain unless the potential for loss of life and property can be reduced to less than significant levels. Additionally, Policy S-PX3, Construction Within Special Flood Hazard Areas, requires that construction within the 100-Year Flood Boundary comply with the County's Flood Damage Prevention Regulations. Regarding tsunami hazards, Safety Element Policy S-P8, Earthquake Mitigation Planning, states that the potential for a local earthquake in excess of magnitude 9.0 shall be considered in disaster planning, risk assessment, and pre-disaster mitigation efforts.

Conclusion

The Water Resources Element comprehensively deals with water management and conservation issues, and incorporates various policies and implementation measures that would serve to prevent potential impacts to water resources. The Water Resource Element and Safety Element policies (S-P10, Federal Flood Insurance Program; S-P11, Flood Plains; S-PX2, Prohibition of Residential Subdivisions within Floodplain; and S-PX3, Construction Within Special Flood Hazard Areas.) and standards (S-S5, Flood Regulations. S- S8, Flooding and Drainage Management Activities) would serve to further flood hazard delineation, thus supporting other plan elements designed to avoid placing housing in the 100-year flood hazard area. The policies, standards and implementation measures would serve to avoid exposing people or structures to a significant risk of loss, injury or death involving flooding, including flooding because of the failure of a levee or dam, or from inundation by seiche, or mudflow. However, the County does not yet

have equivalent policies to avoid damage from tsunami hazards. Mitigation is required to prevent damage from tsunami hazards.

Mitigation

Mitigation 3.10.3.4.a. The following Safety Element implementation measure shall be added to require the County address new development in tsunami hazard areas:

> ***S-S7. Tsunamis.*** *New development below the level of the 100-year tsunami run-up elevation shall be limited to public access, boating, public recreation facilities, agriculture, wildlife management, habitat restoration, and ocean intakes, outfalls, pipelines, and dredge spoils disposal.*

Level of Significance after Mitigation

Adoption of the policies, standards, and implementation measures identified above as well as Mitigation Measure 3.4.3.4.a, in concert with current and updated policies contained in the Hazards section of the certified Local Coastal Program and the Coastal Act, would reduce to a **less than significant level** adverse impacts relating to development within the 100-year flood hazard area as well as exposure to damage from the failure of a levee or dam, or inundation by tsunami, or mudflow**.**

3.11 Biological Resources

This section provides background information regarding biological resources within the County, the regulations and programs that provide for their protection, and an assessment of the potential impacts of implementing the proposed General Plan Update. Additional background on biological resources is described in Chapter 2, Biological Resources, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a more complete discussion of biological resources in Humboldt County including habitats, fisheries, special status species, and the existing policies concerning these resources. This report was developed utilizing the California Department of Fish and Wildlife (CDFW) and the California Natural Diversity Database (CNDDB), which includes federally listed or protected species. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours or for download at http://co.humboldt.ca.us/gpu/documentsbackground.aspx, is incorporated herein by reference and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.11.1 Biological Resources - Environmental and Regulatory Setting

Overview

Humboldt County is part of the Klamath/North Coast bioregion. In general, this bioregion is characterized by its rocky coastline, forested montane areas, and sparse human settlement. Much of the bioregion is covered by forest, including many important forest resources in Humboldt County. This mountainous region is also the wettest area in the State of California. The coastal climate is cool, moist, and tends to be foggy, while inland the climate is drier.

The Humboldt coastal area is rich in natural resources. Bays and estuaries and other tidal inlets provide a variety of habitats supporting many species of resident and migratory wildlife. Humboldt Bay, one of California's largest coastal estuaries, is second only to San Francisco Bay in size. The bay is an important habitat for many invertebrates, fish, birds, and mammals. Bay resources include Humboldt Bay National Wildlife Refuge, which was established in 1971 in recognition of the area's unique fish and wildlife values.

The inland area of Humboldt County is home to a wealth of fish and wildlife due to the region's ample rainfall and the mild, consistent climate. Additionally, relatively sparse development and high open space land potential has resulted in nearly 400,000 acres of the County's undeveloped forest and coastline habitats designated as parkland in the State and National Park systems, leaving large tracts of existing habitat untouched. The County is composed mainly of coastline and mountainous areas with dense coniferous forests interspersed with grass or chaparral covered slopes. Six wild rivers run through the County, providing habitats for fish and wildlife as well as important water resources.

Wildlife habitat can be broadly defined as any area that supports wildlife species. The relative lack of development and human disturbance in the area enhances the opportunity for wildlife species to live and reproduce without disturbance. It is often difficult to determine what elements in the landscape actually increase the value of a given habitat. The type of vegetation and the structure of the vegetative community are important characteristics of

habitat since wildlife species rely upon vegetation for food and cover. Slope, elevation, exposure, and accessibility by predators or humans can also have an impact on habitat suitability. Habitat requirements vary according to species, season, and climatic conditions. The varied wildlife habitat types present in Humboldt County provide opportunities for a diverse wildlife population. Habitat in Humboldt County supports fox, deer, elk, waterfowl, marine mammals, salmon, mountain lions, bears, and other fish and wildlife.

A number of biological communities characterize the unincorporated area of Humboldt County. These communities include coniferous forest comprised of Douglas fir, redwood and pine forest (61%), oak woodlands (23 %), grassland (10%), and other (6%) which includes coastal beach-dune vegetation, northern coastal scrub, chaparral, salt marsh, riparian, and freshwater marsh. The predominant vegetation type or community found in a certain region can generally be used to characterize habitats. The generalized vegetation types in Humboldt County are listed in Table 3.11-1, below. Chapter 2 of the Natural Resources and Hazards Report, Figures 2-5 through 2-16 in particular, show the detailed distribution of vegetation types throughout Humboldt County.

Table 3.11-1. Vegetation Types in Unincorporated Humboldt County.

Vegetation Type	Total Acres	% of Total
Agriculture-Crops	41,166	2%
Annual Grass	222,109	10%
Chaparral	30,452	1%
Coastal Scrub	13,699	1%
Fir Forest	760,611	34%
Oak Woodlands	502,066	23%
Pine Forest	170,492	8%
Redwood	425,670	19%
Riparian	49,968	2%
Wetlands	8,867	0%
Total	2,225,100	100%
Source: California Department of Forestry and Fire Protection, 2002.		

For additional information, see Section 3.10, Hydrology and Water Resources, for a general discussion of the habitats and geography of each planning watershed within the County. A summary of the habitat types and anadromous species can be found in Section 3.10 Hydrology and Water Resources, of this EIR.

Fish and Wildlife

The anadromous salmonids are species that help define California's north coast and form an integral part of the County's natural ecosystems, cultural heritage, and local economies. California's commercial salmon fishery is an estimated $100 million-a-year industry. Yet despite their importance, salmonids are also some of the County's most imperiled species. Most of the County's anadromous salmonid stocks have, for multiple reasons, precipitously declined over the past 100 years. Coho salmon, for example, has undergone a 70% decline in abundance since the 1960s, and is currently at 6% to 15% of its abundance during the 1940s (DFG 2004). The region's commercial and recreational fishing industry has been severely impacted by this decline. In 2006, the US Commerce Department declared a commercial fishery failure for coastal Oregon and California. As a result, a $60 million emergency disaster relief package for the pacific salmon Industry was approved.

As noted in the Natural Resources and Hazards Report, Humboldt County has numerous ecologically and economically important aquatic resources, including wetlands, lagoons, streams, rivers, estuaries and the Pacific Ocean. These resources have both regional and statewide significance. Humboldt Bay, for instance, is California's second largest estuary, and combined with surrounding agricultural lands and the Eel River estuary, is one of the most important migratory waterfowl stopovers along the Pacific Flyway. Humboldt County also has some of the largest and most ecologically important coastal lagoons in the state, and two of California's three largest river systems flow through the County. These streams, rivers and estuaries are habitat for more than 20 state and federal listed threatened and endangered species. Even smaller streams adjacent to urban areas can have significant fisheries values. For instance, CDFW 2005 stream survey data for Freshwater Slough records the presence of 28 fish species, many with important commercial and recreational fisheries value.

Many of the County's larger bodies of water, such as Humboldt Bay; Freshwater, Jacoby, and Redwood Creeks; and the Eel, Elk, Klamath, Mad, Mattole, Trinity and Van Duzen Rivers, are designated by the US Environmental Protection Agency as sediment-impaired pursuant to the Clean Water Act §303(d) or are otherwise impaired by high water temperatures, water diversions, loss of riparian habitat, or barriers to fish passage. A number of these waters, such as Humboldt Bay and its principal tributaries and the lower Eel, Mad, and Van Duzen Rivers, maintain important coho salmon populations that have been designated by CDFW as key populations to maintain or improve (CDFW 2004). Humboldt Bay and many of these important fish-bearing rivers and streams are situated in, or adjacent to, areas serviced by existing water and sewer services, and are therefore in the areas most likely to be impacted by future development.

Special Status Species

The California Department of Fish and Wildlife (CDFW) has developed a list of "special status species." Plant or animal species may be identified as "special status species" even if they are not officially listed as threatened or endangered. "Special Status" species fall under one or more of the following categories:

1. Officially listed or proposed for listing under the State of California and/or the Federal Endangered Species Acts;
2. State of California or federal candidate species for possible listing;
3. A California Department of Fish and Wildlife Species of Special Concern;
4. Species that may be considered endangered or rare under Section 15380(d) of CEQA guidelines;
5. A Bureau of Land Management, U.S. Fish and Wildlife Service or U.S. Forest Service Sensitive Species;
6. Species listed in the California Native Plants Society's Inventory of Rare and Endangered Vascular Plants of California;
7. Species that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extinction;
8. Population(s) of species in California that may be peripheral to the major portion of a species' range but are threatened with extinction in Humboldt or California;
9. Species closely associated with a habitat that is declining in California at an alarming rate (e.g. wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, valley shrub land habitats, vernal pools, etc.).

The following table shows a list of state and federal (CDFW, NMFS, USFWS) listed threatened or endangered animal and plant species in Humboldt County.

Table 3.11-2. Listed Threatened or Endangered Species in Humboldt County.

Scientific Name	Common Name	Status
AMPHIBIANS		
Rana Aurora	California red-legged frog	FT
BIRDS		
Brachyramphus marmoratus	marbled murrelet	SE, FT
Charadrius nivosus nivosus	western snowy plover	FT
Coccyzus americanus occidentalis	western yellow-billed cuckoos	SE,FT
Empidonax traillii	willow flycatcher	SE
Haliaeetus leucocephalus	bald eagle	SE
Passerculus sandwichensis beldingi	Belding's savannah sparoSE	SE
Riparia riparia	bank swallow	ST
Rallus longirostris obsoletus	California clapper rail	SE, FE
Strix nebulosi	great gray owl	SE
Strix occidentalis caurina	northern spotted owl	ST,FT
FISH		
Acipenser medirostris	green sturgeon	FT
Eucyclogobius newberryi	tidewater goby	FE
Oncorhynchus kisutch	coho Salmon	ST,FT
Oncorhynchus mykiss	steelhead	FT
Oncorhynchus tshawytscha	Chinook salmon	FT
Spirinchus thaleichthys	longfin smelt	ST
Thaleichthys pacificus	Pacific eulachon	FT
INSECTS		
Speyeria zerene behrensii	Behren's silverspot butterfly	FE
Gastropods		
Monadenia infumata setosa	Trinity bristle snail	ST
PLANTS		
Astragalus agnicidus	Humboldt milk-vetch	SE
Erysimum mensiesii	Menzies' wallflower	SE,FE
Howellia aquatilis	water howellia	FT
Layia carnosa	beach layia	SE,FE
Lilium occidentale	western lily	SE,FE
Noccaea fendleri ssp. Californica	Kneeland Prairie pennycress	FE

Source: CDFW, California Natural Diversity Database; January 2017 memo
ST – State threatened; SE – State Endangered; FT – Federally threatened; FE – Federally endangered.

There are other plant and animal species that have not been listed as threatened or endangered at the federal or state level, but which are still rare enough to be listed in the California Natural Diversity Database (CNDDB). These species, such as the golden eagle, great blue heron, osprey, and the pacific fisher, would meet the criteria for listing but have not yet been formally listed or selected as candidates. See Natural Resources and Hazards Report, Section 2, Biological Resources, Table 2-16 for a complete listing and mapping of these species in Humboldt County.

CDFW has also identified a number of Significant Natural Areas (SNAs). SNAs are designated sites that support extremely rare communities or species, populations of several special-status species, high-quality examples of special biological communities, or high species diversity. In addition to the specific sites identified as SNAs, other biological communities in the County require special protection. See the General Plan Biological Resources Maps at http://www.co.humboldt.ca.us/gpu/documents/maps.aspx for a mapping of these areas.

The *Natural Resources and Hazards Report* provides a summary of each planning watershed within the County. See The *Natural Resources and Hazards Report,* Section 2, Biological Resources, pages 2-22 through 2-34. Figures 2-5 to 2-16 of that report illustrate the distribution of vegetation types within each watershed. Tables 2-4 through 2-15 list the federal and state listed special status species in Humboldt County's planning watersheds. The Eureka Plain, Mad River, and Trinidad watersheds have the greatest number of federal and state listed species. The only species found consistently in every watershed is the state and federally threatened northern spotted owl.

Habitat Conservation Planning

In the 1982 amendments to the federal Endangered Species Act, Congress established a mechanism authorizing the U.S. Fish and Wildlife Service and the National Oceanographic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries, also referred to as NMFS) to issue to non-federal entities planning activities that have no federal nexus, a permit for the "incidental take" of endangered and threatened wildlife species. This permit allows these activities that are otherwise legal but would result in the "incidental" taking of a listed species, to proceed. The ESA defines incidental take as "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

A Habitat Conservation Plan, or HCP, must accompany an application for an incidental take permit. The purpose of the HCP is to ensure that the effects of the permitted action on listed species are adequately minimized and mitigated. The permit authorizes the incidental take, not the activity that results in take. The activity itself must comply with other applicable laws and regulations.

The USFWS and/or West Coast Region NOAA Fisheries websites list the following HCPs in Humboldt County and the following information describing the HCPs:

- Green Diamond Resource Company California Timberlands (formerly Simpson Timber Company) Northern Spotted Owl HCP: HCP Permit #767798 was issued on September 17, 1992, covering 380,000 acres in Humboldt, Del Norte and Trinity Counties, California, to be used for forest management activities. The threatened northern spotted owl (*Strix occidentalis caurina*) is covered under the incidental take permit for a period of 30 years.

- Regli Estates HCP: HCP Permit #803749 was issued on August 30, 1995, covering 500 acres in Humboldt County, California, to be used for forest management activities. Two threatened species, the marbled murrelet (Brachyramphus marmoratus) and northern spotted owl, as well as two non-listed species, the bald eagle (Haliaeetus leucocephalus) and American peregrine falcon (Falco peregrinus anatum), are covered under the incidental take permit for a period of 20 years.

- Pacific Lumber Company (now Humboldt Redwoods Company) HCP: Permit #TE828950-0 was issued on March 1, 1999, covering 211,700 acres in Humboldt County, California, to be used for forest management activities, mining or other extraction. The following three threatened and nine non-listed species are covered under the incidental take permit for a period of 50 years.
  Threatened species:
  Marbled murrelet
  Northern spotted owl

Western snowy plover (Charadrius alexandrines nivosus)
Candidate species:
Pacific fisher (Martes pennant pacifica)
Non-listed species:
Bald eagle
American peregrine falcon
Foothill yellow-legged frog (Rana boylii)
Northern red-legged frog (Rana aurora aurora)
Tailed frog (Ascaphustruei)
Southern torrent salamander (Rhyacotriton variegatus)
Northwestern pond turtle (Clemmys marmorata marmorata)
California red tree vole (Phenacomys longicaudus)

- Green Diamond Resource Company, 2007 Aquatic Habitat Conservation Plan/Candidate Conservation Agreement with Assurances (AHCP/CCAA) covering its timberland ownership in Del Norte and Humboldt counties in Northern California. The plan seeks to conserve habitat for, and mitigate impacts on, seven aquatic species: Coho salmon; steelhead; Chinook salmon; coastal cutthroat trout; rainbow trout; the southern torrent salamander and the tailed frog. The plan was negotiated between Green Diamond Resource Company, The National Oceanic and Atmospheric Association's National Marine Fisheries Service (NOAA Fisheries Service), and the U.S. Fish & Wildlife Service.

- Humboldt Bay Municipal Water District HCP, 2004, covering the width of the Mad River bank full channel from the river mouth to Mathews Dam in Trinity County, to be used for flow release and management activities; diversion activities in the Essex reach; maintenance; and periodic excavation. Chinook and coho salmon and steelhead and coastal cutthroat trout are covered under the incidental take permit for a period of 50 years.

3.11.2 Biological Resources - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on biological resources if it would do any of the following:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Items "a" and "b" are discussed together in Impact 3.11.3.1, Sensitive Species and Sensitive Habitat Areas, Item "c" is discussed in Impact 3.11.3.2, Wetlands, Item "d" is discussed in Impact 3.11.3.3, Wildlife Corridors and Nursery Sites, Item "e" is discussed in Impact 3.11.3.4, Local Policies and Ordinances, and Item "f" is discussed in Impact 3.11.3.5, Habitat Conservation Plans.

3.11.3 Biological Resources - Impacts and Mitigation Measures

Impact 3.11.3.1 Sensitive Species and Sensitive Habitat Areas

Implementation of the General Plan Update would result in additional development that could adversely impact special status species or habitat.

This impact analysis addresses items "a" and "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.11.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

Future development consistent with the General Plan Update could result in substantial loss or degradation of special status plant or animal species, depending on the manner in which future development is implemented and how much of the General Plan Update's development capacity is utilized. Alteration of natural habitat could occur when undeveloped land is converted to residential, commercial, industrial, or certain recreational uses . Changes in the diversity of plant and animal species could occur during development due to removal of vegetation and/or other habitat. Impacts to special status species could include direct loss of individuals or localized populations, elimination or degradation of critical habitat, and isolation of subpopulations due to habitat fragmentation. Conversion of existing natural habitat to urban development, roadways, and other infrastructure improvements could result in the elimination of populations of special status species where present within the limits of proposed grading and development. While project-level review and mitigation may address many direct impacts, indirect and cumulative impacts could still result.

The analysis of potential biological resources impacts is qualitative in nature as development projections are regional rather than project-specific. The evaluation of impacts is based on an assessment of the habitat types that have the potential to support the plant and animal species identified within the General Plan Update's Background Report (*Natural Resources and Hazards Vol. 1)*. This report identified special-status plant and wildlife species that have the potential to occur in Humboldt County.

The County has mapped sensitive habitat areas, riparian areas and wetlands, and has developed Geographic Information System (GIS) tools for easy access to this information. The

County will continue to use these tools during the building permit review process for new construction, and will continue to refer to these maps to identify areas where additional evaluation would be necessary and ensure that new construction does not conflict with policies or ordinances protecting biological resources in order to avoid significant impacts to those resources.

Policies, programs and standards in the General Plan Update, community plans and coastal plans address biological resources and are intended to protect species diversity in sensitive biological communities. In addition to the general biological resources policies established in these plans, the County maintains Streamside Management Areas (SMAs), which are generally coincident with the riparian corridors along watercourses, to protect sensitive fish and wildlife habitats and to minimize erosion, runoff, and other conditions detrimental to water quality. .

The existing Framework Plan defines the SMA's as an area extending 100 feet in a horizontal line from the "Stream Transition Zone" of perennial (year round) streams, which is the area where woody vegetation is permanently established on the bank of the stream. For intermittent streams, the SMA is only 50 feet in width. While SMA's may be extended to account for important habitat outside the SMA area, the maximum width of an SMA is 200 feet.

The County's existing SMAs are shown in a general manner on Figure 2-17 in Chapter 2, Biological Resources, of the *Natural Resources and Hazards Report*. Also, the McKinleyville Community Plan mapped the WR - Wetlands and Riparian Areas Combining Zone in 2002 using these same criteria.

Development within the SMAs is very restricted and is subject to numerous development standards designed to protect the habitat quality of the SMA. For example, existing policies protect valuable riparian and inland wetland habitat, while coastal zoning designations serve to protect sensitive habitat areas near the coast, bays, sloughs and lagoons. The General Plan Update will continue to implement these measures, which will reduce the potential biological impacts of the General Plan Update.

Impacts to sensitive species and habitats may occur directly or indirectly through alteration of the natural habitat when undeveloped land is converted from open space to developed uses. Changes in the habitat and quantity of plant and animal species on a property will occur during development due to grading, removal of vegetation, and the encroachment of development into open space areas. New development may displace riparian habitat or other sensitive natural communities, or federally protected wetlands. In addition, new development also can impact sensitive species and habitats through the effects of noise and light. New construction, water diversions for domestic water use and grading of new access roads may also interfere with the movement of native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. Since the General Plan Update encourages new development, the project may indirectly cause such impacts, and conflict with policies in the Framework Plan and the Zoning Ordinance protecting biological resources.

The development of currently undeveloped land, especially outside of infill areas, would likely be the principal cause of adverse impacts to candidate, sensitive, or special status species. The principal General Plan tools for the protection of such land are the land use maps and biological resource protection policies. The land use maps identify land appropriate for residential, commercial and industrial development within community planning areas, and those areas that are served, or are expected to be served, with urban level services. Open space lands are currently those lands planned for continued resource production at very low densities or public

lands that have little to no planned development allowed. Biological resource protection measures include performance standards for new development, which helps reduce impacts on sensitive species and habitats.

Analysis of Relevant General Plan Update Policies

The General Plan Update goals and policies are protective of land planned for open space and resource production and direct new commercial, industrial and residential development to infill areas. The land use map identifies land appropriate for residential, commercial and industrial development within community planning areas. Open space lands are planned for continued open space uses by applying appropriate land use designations listed in the General Plan Update Section 4.8, Land Use Classifications (which includes Natural Resources (NR) and Open Space (OS)). Resource production lands are planned for continued resource uses through the application of appropriate land use designations listed in the General Plan Update Section 4.8, such as Agriculture Exclusive, Agriculture Grazing, and Timberland. Within lands planned for Open Space and Resource Production, residential uses are allowed only in cases where they are found to be incidental or subordinate to the principal use. Commercial and industrial uses would be similarly limited. Therefore, development or subdivision of open space and resource production lands for purposes other than those planned for in the land use map would not be allowed.

The following policies of the General Plan Update specifically address potential impacts to sensitive species and habitats, Conservation and Open Space Chapter Policy BR-P1, Compatible Land Uses, required that area containing sensitive habitats shall be planned and zoned for uses compatible with the long-term sustainability of the habitat, and requires that discretionary land uses and building activity in proximity to sensitive habitats shall be conditioned or otherwise permitted to prevent significant degradation of sensitive habitat to the extent feasible consistent with CDFW guidelines or recovery strategies. BR-P2, Critical Habitat, requires that discretionary projects which use federal permits or federal funds on private lands that have the potential to impact critical habitat shall be conditioned to avoid significant habitat modification or destruction consistent with CDFW guidelines or recovery strategies.

Planned development within, and adjacent to, stream channels, SMAs, and other wet areas would be subject to protections contained in several policies in the Conservation and Open Space Element. Policy BR-P4, Development within Stream Channels, requires that development within stream channels shall be permitted when there is no lesser environmentally damaging feasible alternative, where the best feasible mitigation measures have been provided to minimize adverse environmental effects, and is limited to essential, non-disruptive projects as listed in Standard BR-S6 -Development within Stream Channels. Policy BR-P5, Streamside Management Areas, requires the County to protect sensitive fish and wildlife habitats and to minimize erosion, runoff, and interference with surface water flows by maintaining SMAs along streams, including intermittent streams that exhibit in-channel wetland characteristics and off-channel riparian vegetation.

As proposed by the Board of Supervisors, the width of the SMA's as prescribed in the Framework Plan is modified in the General Plan Update (Conservation and Open Space Element, Standard BR-S5) to begin at the top of the bank or the edge of the riparian dripline rather than the "stream transition line", which is lower on the bank where permanent woody vegetation is first established. The General Plan Update provides widths for SMAs as follows:

1) 100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams.

2) 50 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams.

3) The width of Streamside Management Areas shall not exceed 200 feet measured as a horizontal distance from the top of bank.

The width of Streamside Management Areas shall be expanded to up to 200 feet measured as a horizontal distance from the top of bank as necessary to include slides, or areas with visible evidence of slope instability.

The Streamside Management Area may be reduced or eliminated where the County determines, based on specific factual findings, that the mapping of the SMA is not accurate, ~~and~~ there are no in-channel wetland characteristics or off-channel riparian vegetation, and [?] or [?] the reduction will not significantly affect the biological resources of the SMA on the property. When the prescribed buffer would prohibit development of the site for the principal use for which it is designated, measures shall be applied that result in the least environmentally damaging feasible project.

SMAs do not include watercourses consisting entirely of a man-made drainage ditch, or other man-made drainage device, construction, or system.

The above modifications to the SMA areas have been mapped, and will replace the current GIS SMA layer upon adoption of the GPU by the Board of Supervisors.

To address California Department of Fish and Wildlife concerns regarding riparian and wetland buffer areas, the Planning Commission revised Standard BR-S5, Streamside Management Areas Defined, to eliminate the reference to "blue line streams" as identified on US Geological Survey (USGS). The revised standard now calls for use of specific mapped areas where available, to define the SMA and, for areas along streams not specifically mapped as SMA and Wetland Combining Zones, the outer boundaries of the SMA shall be defined as 100 feet for perennial streams and 50 feet for intermittent streams, measured as the horizontal distance from the top of bank or edge of riparian drip line, whichever is greater on either side of the stream. The standard also requires that the SMA be expanded to up to 200 feet as necessary to include slides, or areas with visible evidence of slope instability.

Policy BR-P6, Development within Streamside Management Areas, requires that development within Streamside Management Areas shall only be permitted where mitigation measures (Standards BR-S8 – Required Mitigation Measures, BR-S9 – Erosion Control, and BR-S10 – Development Standards for Wetlands) have been provided to minimize any adverse environmental effects, and shall be limited to uses as described in Standard BR-S7 - Development within Streamside Management Areas. Standard BR-S8 - Required Mitigation Measures, provides mitigation measures for development within an SMA, which at a minimum include retention of standing and felled snags in most instances, retention of live nesting trees, erosion control measures per BR-S9, and maximum feasible retention of overstory canopy in riparian corridors. BR- S9 - Erosion Control, provides erosion control measures for SMA development to minimize sedimentation impacts. Standard BR-S10 - Development Standards for Wetlands, states that development standards for wetlands are consistent with SMA standards, except that the setback from seasonal wetlands is 50 feet and from perennial wetlands is 150, and the setback is from the edge of the delineated wetland. Policy BR-P7, Wetland Identification, requires that the presence of wetlands in the vicinity of a proposed project shall be determined during the review process for discretionary projects and for ministerial building and grading permit applications, when the proposed building development activity involves

new construction or expansion of existing structures or grading activities. Standard BR-S11, Wetlands Defined, defines wetlands for the purpose of protecting them. Policy BR-P11, Agency Review, requires that the County request Department of Fish and Wildlife, as well as other appropriate trustee agencies and organizations, to review development plans within sensitive habitat areas, including SMAs. National Marine Fisheries Service or U.S. Fish and Wildlife development plan review is required within critical habitat if the project includes federal permits or funding. Recommended mitigation measures to reduce potential impacts below levels of significance will be considered during project approval, consistent with CEQA.

Other policies that contribute to the protection of sensitive species and sensitive habitat areas include BR-P10, Biological Resource Maps, which requires that biological resource maps be consulted during ministerial and discretionary project review in order to identify habitat concerns and guide mitigation for discretionary projects that will reduce biological resource impacts to below levels of significance. For ministerial projects, if proposed development is within sensitive areas and cannot meet certain performance criteria, a discretionary special permit process is invoked. Through Policy BR-P8, Oak Woodlands, the County will further protect important habitats by specifying that oak woodlands be conserved through the review and conditioning of discretionary projects to minimize avoidable impacts to functional capacity and aesthetics.

The Water Resources Element contains policies that provide protection for sensitive species and habitats. Pursuant to Policy WR-P5, Critical Watershed Areas, the County shall designate all or portions of watersheds as "Critical Watersheds" if cumulative impacts from land or water resource uses within the area have the potential to create significant environmental impacts to threatened or endangered species. This policy also requires that land and water resources within Critical Watersheds shall be protected by the application of specific standards for such areas to avoid the take of threatened or endangered species. The Water Resources Element Policies WR-P8, Erosion and Sediment Discharge, and WR-P36, Erosion and Sediment Control Measures, require that grading performance standards and best management practices be used to limit erosion and sediment discharge from ministerial and discretionary projects requiring grading permits, and direct incorporation of erosion and sediment control measures into development design and improvements. Water quality and habitat area degradation will be further limited through Policies WR-P15, Nutrient Discharge from Agricultural Operations, which supports programs that reduce nutrient discharge from agricultural operations; WR-P34, Commercial and Industrial Activities, which requires that commercial and industrial operations minimize facility-related discharges to the stormwater system; and WR-P35, Oil/Water Separation, which requires that parking lots incorporate facilities to separate oils from stormwater.

Policy WR-Px1, Requirements for Water Storage in Flow Impaired Watersheds, requires new development proposed within flow impaired watersheds that is not served by public water to install water storage tanks capable of providing 100 percent of the necessary water storage volume for the summer low-flow season, and requires a forbearance agreement prohibiting water withdrawals during low-flow conditions to be included as a performance standard for the project.

Policy WR-Px2, Mitigate Controllable Sediment Discharge Sites, requires that discretionary development involving a site identified as part of the TMDL Controllable Sediment Discharge Inventory shall be conditioned to mitigate sediment. Implementation Measure WR-IMx1,Update Water Quality Regulations, directs the County to amend the Grading, Excavation, Erosion, and Sedimentation Control Regulations and Division 1, Planning Zoning Regulations Chapter 6 - General Provisions and Exceptions Section 314-61.1 Streamside Management Area Ordinance to reflect the new erosion, sediment control, vegetation, restoration, and stormwater drainage policies and standards contained in the Water Resources Element, and the Biological Resources

Chapter of the Conservation and Open Space Elements and evaluate as part of the five-year Housing Element Update to determine if additional measures are needed to protect water quality. Implementation Measure WR-IMx2, Unpermitted Development Ordinance for Critical Watersheds, directs the County to prepare an ordinance to provide enforcement capabilities for un-permitted development within critical watershed areas if the development impacts water resources, and to work with the State Departments of Water Resources and Fish and Wildlife to address illegal water diversions and over-subscribed water right allocations.

Federal and state laws that govern sensitive species and habitats (e.g., the Federal Endangered Species Act and the California Endangered Species Act) would apply to new development under the General Plan Update, and new discretionary development proposals would be required to comply with the provisions of these statutes. Routine and ongoing timber and agricultural activities are also subject to these requirements and would be required to comply with all applicable federal and state sensitive species requirements. In addition, future discretionary development activities contemplated by the General Plan Update would be required to undergo environmental review pursuant to CEQA. This review would include assessment of potential impacts on sensitive species and sensitive habitats.

Conclusion

The General Plan Update Land Use Element emphasizes infill development and discourages the encroachment of urban uses into undeveloped areas. That said, existing parcelization of outlying areas and the potential creation of new parcels with residential or other development at buildout could result in significant adverse effects on the County's sensitive species and sensitive habitats. Activities requiring discretionary approvals by the County, state, and federal agencies provide for the greatest protection of biological resources because proposed activities must be evaluated for their potential impact on special status species and other sensitive habitats. These include development applications which are reviewed under CEQA and NEPA when applicable.

Through implementation of General Plan Update policies, standards, and implementation measures, the County will assess development impacts on species diversity in coastal areas, wetlands, mapped sensitive habitats, threatened/endangered species ranges and in SMA's as part of the review process for discretionary permits, as well as to protect water quality. With continued implementation of existing federal and state regulations and proposed new policies and implementation measures of the General Plan Update, impacts to species identified as candidate, sensitive, or special status species would be **less than significant**.

Mitigation

None required.

Impact 3.11.3.2. Wetlands

Implementation of the General Plan Update would result in additional development that could adversely impact wetlands.

This impact analysis addresses item "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.11.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Federally protected wetlands are defined in Section 404 of the Clean Water Act as areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Land uses and development consistent with the General Plan Update could result in the direct loss of or modification to, existing wetlands. Affected wetlands could include both the wetland-related sensitive natural community types described above, as well as areas of open water, degraded and modified streams and channels, unvegetated waters, and isolated seasonal wetlands now dominated by non-native species.

Potential direct and indirect effects from development adjacent to wetlands include, but are not limited to: altered hydrology; diminished water quality from the discharge of pollutants such as sediment, pesticides, petroleum products, pathogens and other toxic substances; vegetation removal; disturbance to wildlife from noise, night lighting, and domestic animals; introduced invasive plant and animal species; altered microclimate; and human intrusion such as off-road vehicle use, homeless encampments, trash dumping, and illegal filling.

Analysis of Relevant General Plan Update Policies

Under Policy BR-P7, Wetland Identification, the presence of wetlands in the vicinity of a proposed project must be determined during the review process for discretionary projects and for ministerial building and grading permit applications when the proposed building development activity involves new construction or expansion of existing structures or grading activities. Wetland delineation by a professional when wetland characterization and limits cannot be easily inventoried and identified by site inspection. Also, under Policy BR-Pxxx, Wetlands Banking, the County supports the development of a wetlands banking system to mitigate for otherwise permitted wetland impacts.

To address the Department of Fish and Wildlife's concern regarding wetland buffer areas, the Planning Commission revised BR-S10, Development Standards for Wetland and Other Wet Areas, to provide expanded buffers of 50 feet for seasonal wetlands and 150 feet for perennial wetlands (and other wet areas). This standard does allow for the reduction of these distances with CDFW consultation.

Additionally, under Implementation Measure BR-IM3, Biological Review and Referral, Building and Planning Division staff must receive periodic training related to the field identification of biological resources and mitigation of impacts.

The discussion of General Plan Update policies, standards, and implementation measures in Impact 3.11.3.1 above addresses other impacts to wetland areas. Potential impacts are addressed most directly by Biological Resources policies BR-P1 through BR-P7, which plan compatible uses for land containing sensitive and critical habitats, require that discretionary projects be conditioned to avoid impacts to sensitive and critical habitats, require that wetlands be identified during project review, and regulate development within SMAs.

In working with County Planning and Building Department staff, builders, developers, and environmental consultants to prevent the loss of wetlands and wetland habitat values, CDFW determined there is a strong interest and need for a wetland mitigation bank in the Humboldt Bay-Eel River Delta area. While it is CDFW's policy to provide for the protection, preservation, restoration, enhancement and expansion of natural wetland habitat, CDFW finds that in certain limited instances, utilization of a local wetland bank may be the most environmentally sound, feasible, and cost-effective approach to mitigate for impacts to wetlands. CDFW therefore recommended the County consider working with local, state, and federal agencies and private stakeholders to promote or facilitate developing a wetland bank for the Humboldt Bay-Eel River Delta area. CDFW is willing to provide technical support for the creation of a local wetland bank. The Board of Supervisors incorporated this recommendation into the GPU with Implementation Measure BR-IMx2 - Wetlands Bank.

Under Standard BR-S11, Wetlands Defined, the County must follow the identification and classification policies of the California Department of Fish and Wildlife which considers wetlands as lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. In Standard BR-S11, wetlands must have the following three attributes: (1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. This definition does not work well because areas cannot logically have both hydric soil substrate and non-soil substrate at the same time.

Conclusion

Through implementation of General Plan Update policies, standards, and implementation measures the County will assess development impacts on wetlands and associated sensitive habitats, as part of the review process for discretionary permits, as well as to protect water quality. As discussed above, the definition of wetland contains a logical flaw, and needs to be revised.

Mitigation

The following implementation measure below shall be fulfilled to help address the potential impacts related to the definition of wetlands in the General Plan Update. Alternative language is presented below that would correct the existing logical flaw in Standard BR-S11.

Mitigation Measure 3.11.3.2. Replace BR-S11 with the below definition of wetlands:

> "**BR-S11. Wetlands Defined.** The County considers wetlands as lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. ~~Wetlands must have all of the following three attributes: (1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil, and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year.~~ An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."

Level of Significance After Mitigation

With the above revision to Standard BR-S11 and continued implementation of existing federal and state regulations, and proposed new policies and implementation measures of the General Plan Update regarding protection of wetlands, impacts to federally protected wetlands would be **less than significant.**

Impact 3.11.3.3. Wildlife Corridors and Nursery Sites

Implementation of the General Plan Update would result in additional development that could interfere with the movement of native resident or migratory fish or wildlife species or with their migratory wildlife corridors, or impede the use of native wildlife nursery sites.

This impact analysis addresses item "d" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.11.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Development and land use activities consistent with the General Plan Update could result in a reduction in existing habitat, could contribute to further fragmentation of remaining natural areas, and could substantially interfere with the movement of native fish and wildlife species. These include potential impacts to special-status species, sensitive natural communities, and streams and wetlands, as well as more general wildlife habitat resources.

Roosevelt Elk habitat and deer winter range are mapped on the Biological Resources maps that identify important wildlife corridors. Within the coastal zone, a Roosevelt Elk Habitat combining zone is applied to lands which contain elk corridors, and calls for their protection.

Streams tend to serve as important movement corridors for terrestrial and aquatic wildlife, and protection of areas that qualify as SMAs is essential to protecting existing habitat functions and values. Forested areas and native woodlands also tend to provide important habitat resources to wildlife.

A substantial amount of development could occur in the unincorporated areas as a result of buildout of the General Plan Update land use designations at specified minimum parcel sizes, despite many site specific constraints that may exist. A portion of this development would occur on parcels containing SMAs.

Discretionary development that would occur under the General Plan Update would be sited and designed to avoid impacts to the movement of native resident migratory fish or wildlife species and to avoid established native resident or migratory corridors and wildlife nursery sites. Such areas are identified in biological resource maps, Humboldt County GIS layers, and the California Natural Diversity Database. The County uses these tools to assess whether or not new development would potentially impact the movement of wildlife, and to ensure that such impacts would be avoided through project design, siting, and conditions of approval.

Analysis of Relevant General Plan Update Policies

To address wildlife movement in SMAs, Standard BR-S6, Development within Stream Channels, was revised to ensure new fencing would not impede wildlife movement. The discussion of General Plan Update policies, standards, and implementation measures in Impact 3.11.3.1 above addresses other impacts to riparian areas. These protections in the General Plan Update, in addition to existing state and federal regulatory requirements (e.g., Natural Communities Conservation Planning Act, Fish and Game Code §2800 et seq, California Endangered Species Act, and CDFW's incidental take permit program), and CEQA, provide a wide net of measures that protect wildlife corridors and nursery sites.

Conclusion

Buildout of the General Plan Update could potentially result in adverse impacts to wildlife movement and nursery sites. In response, the General Plan Update contains comprehensive policies that protect critical and sensitive habitats and stream corridors. Policies in the Land Use and Housing Element promote infill and urban development over development on resource lands and rural development. Collectively, these policies promote compact urban growth in existing developed areas and discourage growth in significant natural areas that serve as wildlife movement corridors and nursery sites where development would have the most significant impacts on wildlife movement and reproduction, and requires the avoidance and conservation of significant natural areas that contain wildlife movement corridors. Furthermore, any activities consistent with the General Plan Update that would impact wildlife movement or nursery sites would be required to comply with applicable federal and state statutes and regulations. Implementation of these policies, as well as compliance with federal and state statutes, would ensure that wildlife movement and nursery sites are not adversely impacted by General Plan Update.

To avoid the loss of wildlife corridors and nursery sites through impacts to riparian habitats, implementation of general plan policies specified in Section 3.11.3.1 above that protect riparian habitats, wetland areas and critical and essential habitats through development restrictions and buffer requirements would reduce potential impacts to wildlife corridors and nursery sites to a **less than significant level**.

Mitigation

None required.

Impact 3.11.3.4. Local Policies and Ordinances

Implementation of the General Plan Update proposes revisions to policies and ordinances that could conflict with existing policies and ordinances that protect biological resources.

This impact analysis addresses item "e" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.11.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

The General Plan Update proposes revisions to policies and ordinances that protect biological resources, so for this particular impact category a comparative discussion of the existing and proposed policies is appropriate.

Analysis of Relevant General Plan Update Policies

The proposed General Plan Update policies, standards, and implementation measures of the Biological Resources section (10.3) are more protective of biological resources than current local policies and ordinances. The SMA, wetland, and other sensitive area policies, standards and implementation measures increase the buffers for these habitats. Additionally, Implementation Measure WR-IMx1, Update Water Quality Regulations, requires the County to amend the Grading, Excavation, Erosion, and Sedimentation Control Regulations and Division 1, Planning Zoning Regulations Chapter 6 - General Provisions and Exceptions Section 314-61.1 Streamside Management Area Ordinance to reflect the new erosion, sediment control, vegetation, restoration, and stormwater drainage policies and standards contained in the Water Resources Element, and the Biological Resources Chapter of the Conservation and Open Space Elements and evaluate as part of the five-year Housing Element Update to determine if additional measures are needed to protect water quality. Therefore the proposed measures do not conflict with existing policies and ordinances in a manner that would be detrimental to the protection of biological resources.

Conclusion

The General Plan Update contains comprehensive policies, standards, and implementation measures that maintain and enhance protections for streams, SMAs, wetlands, and other sensitive areas. The revisions proposed are intended to improve the efficacy of the current General Plan in protecting these biological resources. The SMA, wetland, and other sensitive area policies, standards and implementation measures increase the buffers for these habitats. Therefore the General Plan Update measures do not conflict with existing policies and ordinances in a manner that would be detrimental to the protection of biological resources. Impacts of revisions to local policies or ordinances protecting biological resources would be **less than significant.**

Mitigation

None required.

Impact 3.11.3.5. Habitat Conservation Plans

Implementation of the General Plan Update would result in additional development that conflicts with adopted habitat conservation plans.

This impact analysis addresses item "f" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.11.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

See Section 3.11.1, Habitat Conservation Planning (Page 3.11-5) for a discussion and list of HCPs in Humboldt County.

Analysis of Relevant General Plan Update Policies

The first four Habitat Conservation Plans (HCPs) listed in Section 3.11.1 above apply to lands planned for continued timber production under the existing and proposed general plan land use designations. While most timber harvesting and management activities are under the permit jurisdiction of the California Department of Forestry and Fire Protection (CAL FIRE), the County has the jurisdiction to permit a list of compatible uses on these lands. One of the more controversial and significant uses is residential. Under the proposed General Plan Update, residential uses are planned at densities of 40 to 160 acres per dwelling unit. At maximum buildout, this could theoretically result in the construction of as many as 20,000 housing units on the 900,000 acres of planned timberlands, although historical growth trends and Department of Finance projections would indicate that only limited demand for possible development is likely to exist. Housing construction was not an issue that was considered or addressed by the HCPs indicated above.

The proposed General Plan Update does not contain polices that specifically relate to HCPs. Conservation and Open Space Element Biological Resources Chapter Goal BR-G2, Sensitive, Critical, and Essential Habitat, calls for a mapped inventory of sensitive, critical, and essential habitat where biological resource protection policies apply. In addition, Policy BR-P2, Critical Habitat, requires that discretionary projects require federal permits or use federal funds that have the potential to impact critical habitat shall be conditioned to avoid significant habitat modification or destruction consistent with federally adopted HCPs or interim recovery strategies.

Conclusion

Future projects proposed under the General Plan Update would be required to comply with applicable Habitat Conservation Plans and other federal and state conservation and recovery plans. Regulatory processes to ensure compliance are available by including a mitigating policy.

Mitigation

Mitigation Measure 3.11.3.5.a. To avoid impacts to established Habitat Conservation Plan areas through direct conversion to other uses, the following policy shall be added to the Conservation and Open Space Element, Biological Resources section that states the following:

> ***BR-IM1. Biological Resource Maps.*** *The County shall maintain <u>the</u> best available data in the form of GIS maps for the location and extent of wetlands, critical habitats, streamside management areas, <u>Habitat Conservation Plan Areas,</u> rookeries, and ranges of species identified in the California Natural Diversity Database.*

Level of Significance after Mitigation

With the proposed mitigation, potentially significant impacts associated with conflicts with such plans would not occur and would therefore be **less than significant.**

3.12 Air Quality

This section provides background information regarding air quality within the County, the regulations and programs that relate to air quality, and an assessment of the potential impacts of implementing the proposed General Plan Update. Air quality issues have been identified through the General Plan Update process. The key issues will be discussed in the evaluation of impacts below. The project site is located within North Coast Air Basin (NCAB) which includes all of Humboldt, Del Norte, Trinity, and Mendocino Counties, as well as a portion of Sonoma County (Humboldt County 2007). The North Coast Unified Air Quality Management District (NCUAQMD) regulates air quality in the Humboldt, Del Norte and Trinity County portions of the NCAB, while Mendocino and Sonoma counties have separate air management districts (COE 2008).

Air quality is affected by both the rate and location of pollutant emissions and by meteorological conditions that influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality (Humboldt County 2007). In the NCAB, air quality is predominantly influenced by the climatic regimes of the Pacific. In summer, warm ground surfaces draw cool air in from the coast, creating frequent thick fogs along the coast and making northwesterly winds common. In winter, precipitation is high, surface wind directions are highly variable, and weather is more affected by oceanic storm patterns (Humboldt County, 2002). In the City of Eureka, average temperatures range from 46° degrees Fahrenheit in winter to 60° in summer, and average monthly precipitation ranges from 1.0" in summer to 8.0" in winter for total annual precipitation of 40" (U.S. Climate Data, 2016).

As a result of the region's topography and coastal air movements, inversion conditions are common in the NCAB (Humboldt County 2007). Inversions are created when warm air traps cool air near the ground surface and prevents vertical dispersion of air. Valleys, geographic basins, and coastal areas surrounded by higher elevations are the most common locations for inversions to occur. During the summer, inversions are less prominent, and vertical dispersion of the air is good. However, during the cooler months between late fall and early spring, inversions last longer and are more geographically extensive; vertical dispersion is poor, and pollution may be trapped near the ground for several concurrent days (Humboldt County 2007). Existing air quality conditions are described below and in the ***Humboldt County Community Analysis Baseline Preparation, 2009***, (available at http://co.humbol dt.ca.us/gpu/ documentsPlan.aspx, incorporated by reference, and summarized below).

3.12.1 Air Quality – Environmental Setting

Humboldt County Climate

In general, the climate of northern coastal California is characterized by cool summers and mild winters with frequent fog and significant amounts of rain. In coastal areas, the ocean helps to moderate temperatures year-round. Further inland, the summers are hotter and drier and the winters colder and more snowy. At higher elevations in inland areas, it is cooler in the summers and snowier in the winter. The average annual rainfall in the county ranges from 38 inches in Eureka to 141 inches in Honeydew. Approximately 90 percent of the annual precipitation falls between October and April. Higher rainfall in winter often influences high river levels. Winter snowfall is common at higher elevations. The dry season is between May and September (NCUAQMD1995).

Average temperatures on the coast in Eureka range from the low 60s in the summer to the low 40s during the winter. Inland average temperatures, such as in Willow Creek or Hoopa, range from the 90s to the 30s. On the coast, summer fog is common when inland temperatures rise.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to drive the movement and dispersal of air pollutants. Winds control the rate and dispersion of local pollutant emissions. In the NCAB, dominant winds exhibit a seasonal pattern, especially in coastal areas. In the summer months, strong north to northwesterly winds are common. During the winter, storms from the South Pacific increase the percentage of days with winds from southerly quadrants. Wind direction often assumes a daily pattern in the river canyons that empty into the Pacific. In the morning hours, cool air from higher elevations flows down the valleys while later in the day at lower elevations air heats up and this pattern is reversed as airflow heads up the canyon. These airflows are often quite strong. Offshore and onshore flows are also common along the coast and are associated with pressure systems in the area. Onshore flows frequently bring foggy cool weather to the coast, while offshore flows often blow fog away from the coast and bring sunny, warm days.

Humboldt County commonly experiences two types of inversions, vertical and horizontal, that affect the vertical depth of the atmosphere through which pollutants can be mixed. Vertical air movement is important in spreading pollutants through a thicker layer of air. Horizontal movement is important in spreading pollutants over a wider area. Upward dispersion of pollutants is hindered wherever the atmosphere is stable; that is, where warm air overlies cooler air below.

Radiation inversion occurs when the air layer near the surface of the ground cools and may extend upward several hundred feet. Radiation inversion in Humboldt County is found in the night and early mornings almost daily, but is more prominent from late fall to early spring when there is less sunlight and it is cooler. Radiation inversion tends to last longer into the morning during the winter months than in the summer.

Subsidence inversion is caused by downward moving air aloft, which is common in the area of high pressure along and off the coast. The air warms at a rate of 5.5 degrees Fahrenheit per 1,000 feet as it descends. Thus, it arrives at a lower height warmer than the air just below and limits the vertical mixing of air. Subsidence inversions often affect a large area and are more common during the summer months. These inversions, which usually occur from late spring through the early fall, can be very strong and shallow due to cooling of the lower layers from the cool ocean water.

3.12.2 Air Quality - Regulatory Setting

The State of California and the federal government have established ambient air quality standards for a number of pollutants, which are referred to as criteria pollutants. These standards are categorized as primary standards when designed to safeguard public health, or as secondary standards when they primarily intend to protect crops and to mitigate such effects as reduced visibility, soiling by air particulates, nuisance odors, and other forms of damage. Air quality is also regulated through emissions limits for individual sources of criteria air pollutants.

The Federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards. Currently, U.S. EPA has established national standards for the following pollutants, which are criteria air pollutants:

- Suspended particulate matter (PM_{10} and $PM_{2.5}$).
- Carbon monoxide (CO).
- Ozone (O_3).
- Nitrogen dioxide (NO_2).
- Sulfur dioxide (SO_2).
- Lead (Pb).

The EPA is also involved with improving air quality and management responsibilities, including establishing national ambient air quality standards, requiring that air districts develop air quality plans to meet standards, imposing sanctions when plans are not met, establishing mobile source controls, and developing guideline documents for controlling air emissions.

The California Air Resources Board also has responsibilities that include establishing State air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving State implementation plans.

Pursuant to the California Clean Air Act of 1988, California has adopted stricter ambient air quality standards (relative to federal standards) for the criteria air pollutants, particularly ozone and PM_{10} (particulate matter, less than 10 microns in diameter). In addition, California has adopted ambient air quality standards for some pollutants for which there are no corresponding national standards. Table 3.12-1 presents these standards.

The NCUAQMD is responsible for developing air quality plans, monitoring air quality, and reporting air quality data for the North Coast Air Basin. In addition, the NCUAQMD has the following responsibilities: overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, incentive grants, and reviewing air quality related sections of environmental documents required by the California Environmental Quality Act (CEQA).

Table 3.12-1. Federal/State Ambient Air Quality Standards

Pollutant	Federal	State
Ozone	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Particulate Matter 2.5 Microns or Smaller ($PM_{2.5}$)	Unclassified/Attainment	Attainment
Particulate Matter 10 Microns or Smaller (PM_{10})	Unclassified	Non-attainment
Sulfates	No Standard	Attainment
Lead	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Standard	Attainment
Vinyl Chloride	No Standard	Attainment
Carbon Monoxide	Unclassified/Attainment	Attainment

Source: ARB, 2016a

Criteria Air Pollutants

Air quality monitoring has been conducted in the North Coast Air Basin since 1982 when the NCUAQMD was formed. Monitoring results have shown that the principal pollutant of the North Coast, including Humboldt County, is particulate matter 10 microns or less in diameter, designated as PM_{10}. The NCUAQMD is classified as "attainment" for the criteria pollutants of ozone and $PM_{2.5}$, attainment for the federal PM_{10} standard, and in "nonattainment" for the State 24-hour particulate (PM_{10}) standard.

Health concerns associated with suspended particles focus on those particles small enough to reach the lungs when inhaled. Few particles larger than 10 microns in diameter reach the lungs. Consequently, both federal and State air quality standards for particulate matter have been revised to apply only to these small particles.

As shown in Table 3.12-2, State and federal PM_{10} standards have been set for 24-hour and annual averaging times. The State 24-hour PM_{10} standard equals 50 micrograms per cubic

Table 3.12-2. Criteria Pollutant Concentrations in Humboldt County, 2011-2015.

Pollutant	State Std.[a]	National Std.[a]	Pollutant Concentration by Year[b]				
			2011	2012	2013	2014	2015
Ozone (ROG, NOx, CO)							
Highest 1-hour average (State), ppm	0.09	--	0.047	0.053	0.055	0.049	0.060
Days over State Std. [f]			0	0	0	0	0
Highest 8-hour average (State/national), ppm	0.07[c]	0.075	0.043/ 0.043	0.049/ 0.048	0.049/ 0.049	0.043/ 0.043	0.053/ 0.052
Days over State Std.			0	0	0	0	0
Days over National Std.			0	0	0	0	0
Respirable Particulate Matter (PM_{10})							
Highest 24-hour average (state national), µg/m³	50	150	**53.9**/ 49.6	46.3/ 44.5	**66.7**/ 64.3	ND[d]/ 104.7	ND[d]/ 54.9
Days over State Std.			6.1	0	11.8	ND[d]	ND[d]
Annual average (State), µg/m³	20[e]	--	19.1	16.8	19.3	ND[d]	ND[d]
Fine Particulate Matter ($PM_{2.5}$)							
Highest 24-hour average, µg/m³	--	35	24.8	22.3	28.1	21.2	18.6
Days over National Std.			ND[d]	0	0	0	0
Annual average (National), µg/m³	12	15	6.6	6.7	7.1	3.0	4.6

Notes:
Bold = in excess of standards
ppm = parts per million; µg/m3 = micrograms per cubic meter
[a] COE, 2008.
[b] ARB, 2016b (ozone data are from the Eureka-Humboldt Hill monitoring station while PM_{10} and $PM_{2.5}$ data are from the Eureka-Jacobs and monitoring station).
[c] In 2006, the State approved amendments to the regulations for the State Ambient Air Quality Standard for ozone establishing a new 8-hour average ozone standard of 0.070 parts per million (ppm).
[d] No data available.
[e] The national annual PM_{10} standard was revoked in December 2006 (ARB, 2008a).
[f] The national 1-hour ozone standard was revoked in June 2005 (ARB, 2008a).
Source: ARB, 2016b; compiled by ESA.

meter (µg/m^3) and the federal 24-hour standard is 150 µg/m3. The State's annual PM_{10} standard is 20 µg/m^3, calculated as an annual geometric mean; in 2006 the national PM_{10} annual standard was revoked. State 24-hour PM_{10} standards may not be exceeded more than one day per year whereas both annual standards may not be exceeded.

According to the PM_{10} Attainment Plan adopted by NCUAQMD (May 11, 1995), Humboldt County's air quality has violated the California PM_{10} ambient standard; as a result the district has been classified as a PM_{10} non-attainment area. In reporting year 2014, the estimated annual geometric mean PM_{10} concentration was 19.3 µg/m^3, below the 20.0 µg/m^3 standard (ARB, 2016b). The ARB projects Humboldt County to have more PM_{10} violations in the future. Humboldt County PM_{10} emissions are generated by a variety of sources. The following table shows the estimated percent contribution by source in 2016.

Table 3.12-3. Annual PM_{10} emissions estimated percent contribution by source.

Source	PM_{10} Percent of Total
Service and Commercial	<0.1
Other Mobile Sources	0.6
Cooking	0.4
Farming Operations	0.5
Electric Utilities	0.5
Off-Road Equipment	0.5
Mineral Processes	1.1
Fugitive Windblown Dust	1.4
On-Road Vehicles	2.1
Construction And Demolition	3.8
Manufacturing And Industrial	2.0
Ocean Going Vessels	1.3
Wood And Paper	4.5
Paved Road Dust	5.0
Residential Fuel Combustion	7.8
Managed Burning And Disposal	8.6
Unpaved Road Dust	58.2
Service And Commercial	0.1
Other Mobile Sources	1.5
Electric Utilities	0.8
Cogeneration	0.4
Food And Agriculture	0.1
Farming Operations	0.6
Cooking	0.7
Total	100

Source: ARB, 2016c.

Table 3.12-3 shows that unpaved road dust accounts for 58.2 percent of the County's PM_{10} emissions), and paved road dust accounts for another 5 percent. Managed burning and disposal is the second highest source of PM_{10} emissions in the County at 8.6 percent. Road

dust and managed burning are the two sources that are likely the primary reason for PM_{10} violations in the County.

Daily activity on unpaved roads occurs primarily during daylight hours. Activity is assumed to be the same each day of the week. The monthly activity profile is increased during the spring and summer months to account for additional recreational travel and drier, dustier roads. Travel to and from remote cannabis cultivation sites is likely to be another factor. On-road vehicle miles traveled (VMT) is used for the growth parameter to project PM_{10} emissions in future years.

The PM_{10} Attainment Plan includes control strategies that are intended to achieve the attainment goals that are identified in the Plan. Control strategies include transportation control measures such as encouraging the use of public transit and promoting alternatively powered bus fleets, encouraging car-pooling and bicycle commuting, removal or repair of vehicles with inefficient emission control systems, and traffic flow improvements that reduce idling and VMT. Land use control measures encourage mixed use or more dense development. The PM_{10} Attainment Plan also includes restrictions on open burning (residential and non-standard permits) as well as various measures to encourage the installation of EPA certified woodstoves.

Toxic Air Contaminants

Regulation of toxic air contaminants is achieved through federal and State controls on individual sources. Toxic air contaminants are air pollutants with short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects, for which no ambient air quality standards have been established. Amendments to the Federal Clean Air Act 1990 offer a comprehensive plan for achieving significant reductions in both mobile and stationary source emissions of certain designated toxic air contaminants.

Additionally, the NCUAQMD administers the Air Toxics Hot Spot program. This program requires preparation of an emissions inventory that identifies the types and kinds of chemicals that can cause human health effects. Next, the inventories are evaluated and ranked according to health risk potential. Those facilities with the highest risk potential must prepare formal health risk assessments.

In 1987, the California State legislature enacted through Assembly Bill 2588 the Air Toxics Hot Spots Information and Assessment Act, which requires companies in California to provide information to the public about emissions of Toxic Air Contaminants (TACs) and their possible impact on public health. Impact is measured as "maximum individual cancer risk" which is the likelihood that a person exposed to concentrations of TACs over a lifetime will develop cancer. The ARB maintains an inventory of stationary sources of TACs. There are several facilities in Humboldt County associated with an increased cancer risk. In unincorporated Humboldt County, the main sources of toxic air contaminants are primarily those who have Title V (CAA) permits with the Air District: (1) Pacific Gas and Electric; (2) DG Fairhaven Power Company (Fairhaven); (3) Eel River Power in Scotia; (4) Blue Lake Power; (5) Freshwater Pulp (formerly Evergreen Pulp, Inc. Samoa-not currently operating), and (4 6) Humboldt Flakeboard Panels.

The ARB regulates toxic air contaminants from stationary sources through a series of regulatory measures called Airborne Toxic Control Measures. Mobile sources of TACs are addressed by the ARB primarily via the Diesel Risk Reduction Program. Local governments, such as cities and counties, play a role in reducing public exposure to TACs by enforcing

zoning ordinances and ensuring proper buffer zones between stationary sources that emit TACs and sensitive receptors located downwind.

Regulation of toxic air contaminants from mobile sources was historically implemented through emissions standards for on-road motor vehicles and through specifications for gasoline and diesel fuel sold in California, rather than through land use decisions, air quality permits, or regulations addressing how the public uses motor vehicles. In 1998, ARB designated diesel exhaust particulate matter from internal combustion engines as a toxic air contaminant (TAC) for cancer. Now land use decisions must include mitigation efforts for heavy-duty diesel equipment operated during construction phases.

NCUAQMD measures PM_{10} at sites in Crescent City, Eureka, and Weaverville. There are three locations in Humboldt County where monitoring is conducted, all located in the City of Eureka: Jacobs Street, I Street, and Humboldt Hill. The Jacobs Street and Humboldt Hill air quality stations also monitor for the federal Particulate Matter Standard ($PM_{2.5}$). Data from these monitoring stations indicate that the air quality in Eureka City is improving; PM levels have been reduced to nearly below State standards.

Odors

Odors are generally regarded as a nuisance or annoyance rather than a health hazard, although individuals can have a strong physical response to specific odors. Odor intensity depends on the concentration of the substance in the air. The ability to detect odors varies considerably among the population. The detection of odors is subjective, where some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. Reactions to odors vary significantly as well.

Land uses in Humboldt County that could represent odor sources include, but are not limited to, agricultural land uses (e.g., manure spreading, fertilizers, and tilling), releases of anaerobic gases from wastewater treatment facilities (i.e., hydrogen sulfide), smoke-borne odors from open-burning (logging slash, construction wastes, and private "burn barrels"), commercial process-related odors (e.g., food and meat processing and beer brewing), and the pulp mill (currently not operating). The NCUAQMD has authority to mitigate odor impacts under California Health and Safety Code Section 41700. Common complaints the air district receives relate to coffee roasters, fish and shellfish drying, and autobody/paint facilities.

Sensitive Receptors

Sensitive land uses, or sensitive receptors, are people or facilities that generally house people (e.g., residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks) that may experience adverse effects from unhealthful concentrations of air pollutants or odors. People who are most likely to be affected by air pollution include children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Local agencies often plan land uses in a manner to separate sensitive receptors from sources of TACs and odors. In April 2005, ARB released the final version of the Air Quality and Land Use Handbook, which encourages local land use agencies to consider the risks from air pollution prior to making decisions that approve the siting of new sensitive receptors (e.g., schools, homes, and daycare centers) near sources of air pollution.

3.12.3 Air Quality - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on air quality if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan.
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
d) Expose sensitive receptors to substantial pollutant concentrations.
e) Create objectionable odors affecting a substantial number of people.

Items a, b and c are discussed in Impact 3.12.4.1; Item "d" is discussed in Impact 3.12.4.2; Item "e" is discussed in Section 3.12.4.3.

3.12.4 Air Quality – Impacts and Mitigation Measures

Impact 3.12.4.1. Conflict with Air Quality Plan, Violate Air Quality Standard, Increase Criteria Pollutant in Non-Attainment Status

Implementation of the General Plan Update would result in additional development that could adversely impact air quality by generating air pollution.

This section of impact analysis addresses items a, b, and c of the significance criteria described in Section 3.12.3 above. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

a) Conflict with or obstruct implementation of the applicable air quality plan,
b) Violate an air quality standard, or
c) Result in the net increase of a criteria pollutant in non-attainment status.

Implementation of the General Plan Update would result in a significant impact if it would include policies that are inconsistent with the PM_{10} Attainment Plan adopted by NCUAQMD (May 11, 1995) or produce PM_{10} emission levels that would contribute to exceedances of the state PM_{10} standard.

Humboldt County is in attainment of all federal and state criteria air pollutant standards, except for State PM_{10} levels, for which the entire North Coast Air Basin, including Humboldt County, is currently designated as a non-attainment area.

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles are those that are larger than 2.5 microns but smaller than 10 microns, or PM_{10}. $PM_{2.5}$ refers to fine suspended particulate matter with an aerodynamic diameter of 2.5 microns or less that is not readily filtered out by the lungs. Nitrates, sulfates, dust, and combustion particulates are major components of PM_{10} and $PM_{2.5}$. These small particles can be directly emitted into the atmosphere as by-products of fuel combustion, through abrasion, such as tire or brake lining wear, or through fugitive dust (wind or mechanical erosion of soil). They can also be

formed in the atmosphere through chemical reactions. Particulates may transport carcinogens and other toxic compounds that adhere to the particle surfaces, and can enter the human body through the lungs.

Impacts due to Construction Emissions. Fugitive dust emissions are generally associated with demolition, land clearing, exposure of soils to the air, and cut-and-fill operations. Dust generated during construction varies substantially on a project-by-project basis depending on the level of activity, the specific operations, and weather conditions. The U.S. EPA has developed an approximate emission factor of 1.2 tons per acre per month of activity for construction-related emissions of total suspended particulates. This factor assumes a moderate activity level, moderate silt content in soils being disturbed, and a semi-arid climate. ARB estimates that 64 percent of construction-related total suspended particulate emissions occur in the form of PM_{10}. However, construction emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors.

There are a number of feasible control measures that can be reasonably implemented to significantly reduce PM_{10} and $PM_{2.5}$ emissions from construction activities.

Construction activities also generate combustion emissions from utility engines, heavy-duty construction vehicles, equipment hauling materials to and from construction sites, and motor vehicles transporting construction crews. Exhaust emissions from construction activities vary daily as construction activity levels change. The use of construction equipment results in localized exhaust emissions.

Impacts due to Operational Emissions. Implementation of the proposed General Plan Update would help facilitate the 11 percent increase in population projected by the California Department of Finance to occur between the years 2007 and 2030 (an average annual rate of approximately 0.56 percent). During the planning period of the General Plan, new roads, homes, and businesses will be constructed; new County residents will drive on unpaved and paved roads during their regular daily activities; some new residents will participate in the local economy in manufacturing and industrial jobs, and new woodstoves will be installed to heat homes, all of which will add additional fine particulate emissions (PM_{10}) into the atmosphere. In addition, natural emissions of PM_{10} will continue to occur and contribute to exceedances of the standard.

Development allowed under the proposed General Plan Update is projected to lead to increases in the number of vehicle trips and VMT by Humboldt County residents, which in turn will result in increased PM_{10} emissions, for which the North Coast Air Basin is in non-attainment for State standards. Base year 2010 daily VMT for the unincorporated county is estimated at 1,940,309 using the origin-destination method[1] of traffic modeling. Peak VMT coincides with projected peak population in 2028, when daily VMT is expected to be 2,078,296. The daily VMT estimate at the end of the project planning period (2040) is 2,051,668, an increase of approximately six percent over 2010 levels.

Vehicle travel on paved and unpaved roads represents approximately 63 percent of PM_{10} emissions in the County. The extent to which this may be attributable to travel to and from remote unpermitted illegal cannabis cultivation sites is not addressed by the NCUAQMD

[1] The origin-destination method counts all VMT from trips occurring entirely within unincorporated county boundaries and one-half of VMT from trips that either begin or end within unincorporated county boundaries. It does not count VMT from trips that pass through the unincorporated county.

Attainment Plan or the General Plan Update policies, standards, or implementation measures. The potential impact of permitting cannabis cultivation sites in remote areas accessed by unpaved roads will be examined in a separate EIR to be prepared prior to the adoption of future land use ordinances for permitting cannabis activities authorized by the Medical Cannabis Regulation and Safety Act (Bus. & Prof. Code § 19300, *et. seq.*, etc.) or the Adult Use of Marijuana Act (Prop. 64 (2016); Bus. & Prof. Code § 26000, *et. seq.*, etc.).

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies, standards and implementation measures to support the implementation of the PM_{10} Attainment Plan and other NCUAQMD regulations. The NCUAQMD PM_{10} Attainment Plan (1995) includes the following control strategies:

- Transportation Control Measures:
  - public transit service and alternative-fueled transit vehicles
  - rideshare programs
  - park and ride lots
  - vehicle buy-back program
  - smoking vehicle program
  - traffic flow improvements
  - bicycling program
- Land Use Measures (not specified; addressed through air quality element)
- Open Burning Measures
  - Residential burning / property development:
  - Woodstove PM_{10} control strategies
  - Residential wood burning control measures:
    - enhanced woodstove operation
    - replacement of conventional woodstoves
    - prohibit woodstoves or require EPA certified woodstoves for new development
    - smoke day woodstove curtailments
    - public education
    - home weatherization

The General Plan Update Air Quality Chapter includes the following policies and standards that are consistent with the PM_{10} Attainment Plan:

AQ-P1. **Reduce Length and Frequency of Vehicle Trips**. Reduce the length and frequency of vehicle trips through land use and transportation policies by encouraging mixed-use development, compact development patterns in areas served by public transit, and active modes of travel.

AQ-P2. **Reduce Localized Concentrated Air Pollution**. Reduce or minimize the creation of "hot spots" or localized places of concentrated automobile emissions.

AQ-P3. **Fireplace and Woodstove PM_{10} Emissions**. Support incentives to minimize emissions from fireplaces and woodstoves.

AQ-P4. **Construction and Grading Dust Control**. Dust control practices on construction and grading sites shall achieve compliance with NCUAQMD fugitive dust emission standards.

AQ-P5. **Air Quality Impacts from New Development**. During environmental review of discretionary permits, reduce emissions of air pollutants from new commercial and industrial development by requiring feasible mitigation measures to achieve the standards of the NCUAQMD.

AQ-P7. **Interagency Coordination**. Coordinate with the NCUAQMD early in the permit review process to identify expected regulatory outcomes and minimize delays for projects involving:

A. CEQA environmental review;

B. Building demolition projects that may involve removal of asbestos containing material subject to National Emission Standards for Hazardous Air Pollutants (NESHAP); and

C. Grading and mining operations subject to State Airborne Toxic Control Measures (ATCM) for naturally occurring asbestos.

Rely on the air quality standards, permitting processes, and enforcement capacity of the NCUAQMD to define thresholds of significance and set adequate mitigations under CEQA to the maximum extent allowable.

AQ-S1. Construction and Grading Dust Control. Ground disturbing construction and grading shall employ fugitive dust control strategies to prevent visible emissions from exceeding NCUAQMD regulations and prevent public nuisance.

Policy AQ-P1, Reduce Length and Frequency of Vehicle Trips, would use encouraging mixed-use development, compact development patterns in areas served by public transit, and alternative modes of travel to reduce the length and frequency of vehicle trips and thereby reduce a substantial source of PM_{10} emissions.

Policy AQ-P5, Air Quality Impacts from New Development, would require feasible mitigation measures be implemented as part of project approval to reduce emissions from new commercial and industrial development to achieve the standards of the NCUAQMD of air pollutants during environmental review of discretionary permits.

Policy AQ-P8, Interagency Coordination, would involve the NCUAQMD early in the permit review process to identify expected regulatory outcomes and further facilitate the reduction of project related air emissions. These policies would ensure compliance with the PM_{10} Attainment Plan's transportation control measures listed above.

Policy AQ-P3, Fireplace and Woodstove PM_{10} Emissions, would support incentives to minimize PM_{10} emissions from fireplaces and woodstoves, thereby encouraging the replacement of existing woodstoves and decreasing PM_{10} emissions. This policy would ensure compliance with the PM_{10} Attainment Plan's Open Burning measures listed above.

Policy AQ-P4 and AQ-S1, Construction and Grading Dust Control, would require that dust control practices on construction and grading sites achieve compliance with fugitive dust emission standards, consistent with the local air quality plan.

In addition, per Policy AQ-P9 and AQ-IM3, the County has committed to prepare a County-wide Climate Action Plan to reduce GHG emissions. Many of the GHG reduction measures in the CAP will likely also reduce PM_{10} emissions as a co-benefit of reducing GHG emissions. For example,

reducing natural gas and vehicle fuel use in the CAP would also reduce PM_{10} combustion and exhaust emissions; likewise, reducing vehicle travel through programs like ridesharing, public transit expansion, and land use planning will reduce fugitive road dust PM10 emissions. Because the CAP has not yet been developed, the amount of PM_{10} reductions is unknown at this point.

No feasible mitigation measures have been identified that would be reasonably expected to result in reducing PM_{10} levels below levels that would not violate applicable standards, or not be cumulatively considerable net increase in PM_{10} emissions, to a level less than significant.

Conclusion

While adoption of the proposed General Plan Update would not conflict with or obstruct the application of the current NCUAQMD PM_{10} Attainment Plan, there is no evidence that plan is adequate to reduce PM_{10} to a level less than significant. Because the County is in non-attainment status for PM_{10}, increases in PM_{10} emissions that could increase exceedances are significant. Implementation of the proposed General Plan Update would result in a cumulatively considerable net increase in PM_{10} emissions. Although applying the General Plan Update policies and standards would reduce impacts that might otherwise be greater, the **impacts remain significant and unavoidable.**

Impact 3.12.4.2. Sensitive Receptors

Implementation of the General Plan Update would result in additional development that could adversely impact sensitive receptors by generating air pollution.

This section of impact analysis addresses item "d" of the significance criteria described in Section 3.3.3 Global Climate Change, above. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

d) Expose sensitive receptors to substantial pollutant concentrations.

TACs can be released by the ongoing activities of certain commercial and industrial operations such as asphalt batch plants, through the emissions of on-road heavy-duty diesel trucks, off-road heavy diesel trucks such as construction vehicles, and the operation of diesel railroad train engines. The proposed General Plan Update would have a significant affect if it would allow the exposure of sensitive receptors to substantial levels of TAC.

Proposed stationary sources or TACs would be subject to NCUAQMD rules and regulations. As discussed above, NCUAQMD would analyze such sources (e.g., health risk assessment) based on their potential to emit TACs. The NCUAQMD would utilize the Air Quality and Land Use Handbook to evaluate and reduce air pollution impacts from new development.

The use of construction related off-road heavy-duty diesel equipment would be temporary. In addition, the ARB adopted emission standards whereby engine manufacturers are now required to meet exhaust standards for NOx and PM starting in 2011 that are more than 90 percent lower than current levels, making emissions from off-road engines similar to those from on-road heavy-duty diesel engines. As a result, futureconstruction-related TACs emissions would be less likely to expose sensitive receptors to substantial emissions of TACs as the vehicle fleet is replaced. It is also important to note that compliance with the construction dust mitigation requirements would also reduce PM exhaust emissions.

The NCUAQMD reviews the potential for TAC emissions from new and modified stationary sources through the permitting process. TAC emissions from existing stationary sources are limited by:

- District adoption and enforcement of rules aimed at specific types of sources known to emit high levels of TACs;
- Implementation of the Air Toxics "Hot Spots" (AB 2588) Program; and
- Implementation of the federal Title III Toxics program.

Many facilities, such as solvent-based dry cleaners, produce toxic emissions and existing controls often reduce impacts from these sources to less-than-significant levels. Detailed analyses should be used to determine the potential risk and feasible control measures if consideration is given to siting such a source near sensitive receptors. ARB has also developed an Air Quality and Land Use Handbook which is intended to serve as a general reference guide for evaluating and reducing air pollution impacts associated with new development. The ARB Handbook indicates that mobile sources continue to be the largest overall contributors to the State's air pollution problems, representing the greatest air pollution health risk to most Californians. The most serious pollutants on a Statewide basis include diesel exhaust particulate matter (diesel PM), benzene, and 1,3-butadiene, all of which are emitted by motor vehicles.

The ARB handbook recommends that planning agencies strongly consider proximity to these sources when finding new locations for "sensitive" land uses such as those described in Action CO-A106 (residentially designated land uses, hospitals and nursing/convalescent homes, hotels and lodging, schools and day care centers, and neighborhood parks). Key recommendations in the Handbook are listed in Table 3.12-4 below. The Handbook specifically states that these recommendations are advisory and acknowledges land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.

During construction as well as mining and agricultural operations, various diesel-powered vehicles and equipment would be in use. In 1998, ARB identified particulate matter from diesel-fueled engines as a toxic air contaminant. ARB has completed a risk management process that identified potential cancer risks for a range of activities using diesel-fueled engines (ARB, 2000).

Health risks from TACs are a function of both concentration and duration of exposure. Unlike the above types of sources, construction diesel emissions are temporary, affecting an area for a period of days or perhaps weeks. Additionally, construction-related sources are mobile and transient in nature, and the bulk of the emission occurs at a substantial distance from nearby receptors. Because of its short duration, health risks from construction emissions of diesel particulate would be a less-than-significant impact.

While stationary TAC sources are regulated under NCUAQMD permitting programs, mobile sources of TAC are largely unregulated[2] and can contribute to elevated health risks when located near receptors, particularly concentrations of dense residential uses such as a residential subdivision. Primary mobile TAC sources include truck traffic on freeways and sources

[2] Although new vehicle engines must meet ARB and EPA standards, there is limited regulation for emissions from the existing vehicle fleet and no regulations which control vehicle activity.

Table 3.12-4. ARB's Recommendations on Siting New Sensitive Land Uses.

Source	Category Advisory Recommendations
Freeways and High-Traffic Roads	Avoid concentrating sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	Avoid avoid concentrating sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid concentrating residences and other new sensitive land uses near entry and exit points.
Rail Yards	Avoid concentrating sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	Avoid concentrating sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the CARB on the status of pending analyses of health risks.
Refineries	Avoid concentrating sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	Avoid concentrating sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	Avoid concentrating sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. Do not concentrate sensitive land uses in the same building with perc dry cleaning operations.
Gasoline Dispensing Facilities	Avoid concentrating sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

Notes:
1. These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
2. Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80 percent with the recommended separation.
3. The relative risk for these categories varies greatly. To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
4. These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
5. Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
6. This table does not imply that mixed residential and commercial development in general are incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
7. A summary of the basis for the distance recommendations can be found in Table 1-2 (ARB, 2005).
Source: ARB, 2005.

that attract diesel truck traffic, such as warehousing facilities or truck stops. Timber harvesting generates truck traffic in Humboldt County, but does not pose a serious health risk due to the seasonal nature of harvesting and the open rural character of the area that allows for dispersal of emissions. Similarly, individual or small clusters of rural dwellings do not typically face elevated health risk, even when in proximity to staging areas for timber harvesting, because the concentration of exposure is sporadic and highly diluted. Elevated health risks would only occur with continuous and/or concentrated exposure over many years.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies and implementation measures to reduce air quality impacts to sensitive receptors. Policy AQ-P6, Buffering Land Uses, would require that the use of buffers between new sources of emissions and adjacent land uses to minimize exposure to air pollution be evaluated during environmental review of discretionary commercial and industrial projects. This policy Is further strengthened by the application of Standard AQ-S3, Buffering Land Uses, which requires that the ARB's Air Quality and Land Use Handbook: A Community Health Perspective and NCUAQMD recommendations be followed when considering buffers between new commercial and industrial sources of emissions and adjacent land uses.

Policy AQ-P5, Air Quality Impacts from New Development, would require feasible mitigation measures be implemented as part of project approval to reduce emissions from new commercial and industrial development to achieve the standards of the NCUAQMD of air pollutants during environmental review of discretionary permits.

Policy AQ-P8, Interagency Coordination, would involve the NCUAQMD early in the permit review process to identify expected regulatory outcomes and further facilitate the reduction of project related air emissions.

Policy AQ-P4, Construction and Grading Dust Control, would require that dust control practices on construction and grading sites achieve compliance with fugitive dust emission standards, consistent with the local air quality plan.

Policy AQ-P2, Reduce Localized Concentrated Air Pollution, would require that the creation of "hot spots" or localized places of concentrated automobile emissions be reduced or minimized.

Conclusion

New development projects that would place sensitive receptors near a TAC source at a distance that is within the ranges indicated in Table 3.12-4 would be considered to have an elevated risk. As stated previously, policies of the Draft General Plan aim to provide a balance of jobs and housing within growth areas. This strategy could allow for uses that are potential stationary TAC sources (e.g., distribution centers) in proximity to residential uses. Development in Humboldt County near high volume freeways could be a source for an elevated health risk for residents. In these cases, it is advisable to conduct a health risk assessment using a dispersion model to calculate this increased risk. TAC risk is based on several factors including the vehicle fleet mix and other traffic data and site specific meteorological data.

Draft General Plan Policy AQ-P6 promotes improving air quality through land use planning decisions, and implementation measure AQ-IM2 requires coordination with NCUAQMD on development proposals for new sources of toxic air pollutants.

Mitigation

Implementation of Mitigation Measure 3.12.6.2 would insure that any future development adjacent to potential sources of TAC's would not expose sensitive receptors to an increased health risk. The following implementation measure below shall be fulfilled to help address the potential impacts related to the exposure of sensitive receptors to TAC's

Mitigation Measure 3.12.4.2: Add Implementation Measure AQ-IM7 to the Draft General Plan as follows:

> **AQ-IM7.** Regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of air emissions to the following sensitive receptors: residential uses, hospitals and nursing/convalescent homes, hotels and lodging, schools and day care centers and neighborhood parks. New development shall follow the recommendations for siting new sensitive land uses consistent with the ARB's recommendation as shown in Table 3.12-4.

Level of Significance After Mitigation

Mitigation Measure 3.12.4.2 would serve to regulate the location and operation of land uses to avoid or mitigate harmful or nuisance levels of air emissions to sensitive receptors. For example, a new industrial development project with significant air emissions such as a wood-burning power plant would not be allowed in an area where there are sensitive receptors like residential uses downwind of the development. Additional siting criteria can be found in Table 3.12-4. With the additional of Mitigation Measure 3.12.4.2, General Plan Update policies and standards as well as the regulatory authority of the NCUAQMD would limit the exposure of sensitive receptors to new sources of TACs to a **less than significant level**.

Impact 3.12.4.3 Objectionable Odors

Implementation of the General Plan Update would result in additional development that could adversely impact air quality by generating objectionable odors.

This section of impact analysis addresses item "e" of the significance criteria described in Section 3.12.4 *Air Quality - Thresholds of Significance*, above. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

e) create objectionable odors affecting a substantial number of people.

Implementation of the General Plan Update under the Preferred Plan could result in the exposure of sensitive receptors to emissions of objectionable odors. Commercial, industrial, and agricultural uses may incorporate sources of odors near existing or proposed sensitive receptors. The operation of such uses could result in the exposure of sensitive receptors to emissions of objectionable odors.

Potential odor impacts should be evaluated for both (1) sources of odor locating near existing receptors, and (2) receptors locating near existing odor sources. It is unknown at this point what types and locations of specific establishments could be developed under implementation of the Draft General Plan, and it is possible that some uses (e.g., wastewater treatment plants) could have the potential to produce odors. Some objectionable odors may also be generated from the operation of diesel-powered construction equipment and/or asphalt paving during the construction period of individual projects. However, these odors would be short term in nature and would not result in permanent impacts to surrounding land uses, including sensitive receptors within and adjacent to the project site.

The NCUAQMD is responsible for enforcing the provisions of California Health and Safety Code Section 41700 which prohibits the discharge of anything that could endanger the comfort or health of the public. Nuisance odors are regulated by this section, although

certain odors are exempted, such as odors from agricultural activates and composting facilities. The NCUAQMD enforces Section 41700 through its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the NCUAQMD.

The County receives very few complaints regarding odors emanating from permitted development. There is often not enough evidence to suggest odors are coming from any one source or that any mitigating action should be taken based on these complaints. The NCUAQMD gets considerable complaints from the public in regards to open burning of Non-Approved Combustibles, coffee roasters, fish/shellfish drying, and autobody/paint shops. These are not presently under permit. The NCUAQMD does not get very many complaints regarding agriculture or farming odors. The most effective measure available to reduce odor impacts is to establish a buffer between the odor source and the nearest sensitive receptor. A safety margin also should be considered in establishing a buffer zone to allow for future expansion of operations at the source of the odors.

Analysis of Relevant General Plan Update Policies

General Plan Update policies, programs, and standards described in Impact 4.12.5.1 above would lessen the effects of objectionable odors on sensitive receptors. In particular, Policy AQ-P6, Buffering Land Uses, and Standard AQ-S3, requires that the ARB *Air Quality and Land Use Handbook* be utilized when considering buffers between new commercial and industrial sources of emissions and sensitive receptors. The *Air Quality and Land Use Handbook* contains specific guidance relating to potential sources of odor and dust complaints. Mining also has buffer requirements through the CCAP and mining ordinances and therefore, mining odor impacts would be less than significant. With implementation of the Draft General Plan policies, the potential for creation of objectionable odors associated with build-out of the Draft General Plan would be less than significant.

Conclusion

Policies, programs, standards and other requirements described in the Air Quality Element reduce the impacts of the project related to objectionable odors to **less than significant.**

Mitigation

None required.

3.13 Climate Change and Greenhouse Gas Emissions

Global climate change refers to alterations in weather features, which occur across the Earth as a whole, such as temperature, wind patterns, precipitation, and storms. Global temperatures are modulated by naturally occurring atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. These gases allow sunlight into the Earth's atmosphere, but prevent radiative heat from escaping into outer space, thus altering the Earth's energy balance in a phenomenon called the greenhouse effect.

The global climate is continuously changing, as evidenced by repeated episodes of warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. Scientists have observed, however, an unprecedented increase in the rate of warming in the past 150 years.

This recent warming has coincided with the global Industrial Revolution, which has seen the widespread reduction of forests to accommodate urban centers and agriculture and increase in the use of fossil fuels, primarily burning of coal, oil, and natural gas for energy, which in turn has released substantial amounts of GHGs into the atmosphere. Carbon dioxide accounts for approximately 85 percent of total emissions, and methane and nitrous oxide account for almost 14 percent.

Concentrations of carbon dioxide in the atmosphere have risen approximately 30 percent since the Industrial Revolution. Because GHGs persist and mix in the atmosphere, emissions anywhere in the world impact the climate everywhere. During the past 100 years, average global temperatures have risen by more than one degree Fahrenheit (F). Meteorologists have documented that the past 10 years have been the hottest decade since 1850. Warming has not been uniform, with temperatures at the poles experiencing the greatest increase, with up to a 9-degree increase observed in large areas of the Arctic over the 20th century. In response to warming, the growing season has lengthened and trees are flowering earlier; some animal and plant species ranges have been migrating toward higher latitudes and altitudes; plant and animal species adapted to cold temperatures have declined; and species adapted to warm temperatures have increased.

Some of the potential impacts in California of climate change may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CEC 2012). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. On a global level, the projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC 2007):

- Snow cover is projected to contract, with permafrost areas sustaining thawing.
- Hot extremes, heat waves, and heavy precipitation events are likely to increase in frequency.
- Future tropical cyclones (typhoons and hurricanes) will likely become more intense.
- Non-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns. Increases in the amount of precipitation are very likely in high-latitudes, while decreases are likely in most subtropical regions.

- Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic Ocean.

There are also many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

3.13.1 Climate Change and Greenhouse Gas Emissions - Environmental Setting

Climate Change in the County

Given the climate change predictions for California, it is reasonably foreseeable that temperatures locally in Humboldt County will increase over the course of this century by 0.5 to 8.5 degrees Fahrenheit with or without the proposed General Plan Update (IPCC, 2013). This warming could lead to other environmental effects within the unincorporated County including, but not limited to, increased flooding due to increased precipitation and runoff, a decrease in the snowpack (a major water source), habitat modification and loss, and impacts to sensitive plant and animal species. The unincorporated County could also be affected by an increase in sea level. The planning horizon of the proposed General Plan Update is to the year 2040. Studies project global sea level to rise by another 1 to 4 feet by 2100, with an uncertainty range of 0.66 to 6.6 feet (USGCRP, 2014). Interpolating this 100-year sea level rise prediction to the 25-year planning period of the project results in a potential rise of 4 to 16 inches. Predictions of sea level rise can be expected to change in the future, and local factors such as tectonic uplift or subsidence can significantly influence the net rise. Coastal structures need to be designed for the rise that might occur over their project life span, and need to utilize the best available information during siting and design.

Greenhouse Gases

"Greenhouse gases" are so called because of their role in trapping heat near the surface of the earth; they are emitted by human activity and are implicated in global climate change, commonly referred to as "global warming." These GHGs contribute to an increase in the temperature of the earth's atmosphere by preventing the escape of heat in much the same way as glass in a greenhouse. Thus, this condition is often referred to as the "greenhouse effect." In its "natural" condition, the greenhouse effect is responsible for maintaining a habitable climate on earth, but human activity has caused increased concentrations of these gases in the atmosphere, thereby contributing to an increase in global temperatures.

The principal GHGs are carbon dioxide, methane, nitrous oxide, ozone, and water vapor. Of these gases, carbon dioxide and methane are emitted in the greatest quantities from human activities. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane predominantly results from off-gassing associated with agricultural practices and landfills. Over a 100-year period, methane has a global warming potential 25 times that of carbon dioxide, while nitrous oxide is 298 times that of the same amount of carbon dioxide (IPCC, 2007). Other GHGs – with much greater heat-absorption potential than carbon dioxide, methane and nitrous oxide – include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes.

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming. GHGs have been identified by the EPA as a regulated pollutant, but there is no established national ambient air quality standard.

Greenhouse Gas Emissions in California

To provide context for the Humboldt County General Plan Update, it is useful to consider the state of California as a whole. California is a substantial producer of GHG emissions. According to ARB and the U.S. EPA, in 2014, total carbon dioxide emissions in California from fossil fuel combustion were 321 million tons, accounting for approximately six percent of U.S. emissions from this source (ARB, 2016d; U.S. EPA, 2016). California is the second largest emitter of greenhouse gases in the U.S. (trailing only Texas) and if considered a country it would be the 15th largest emitter in the world (ARB, 2014a). In 2014, California produced 441 million metric tons of total carbon dioxide-equivalent emissions (ARB, 2016e). California has relatively low carbon emissions intensity, however, ranking sixth lowest of the 50 states in carbon dioxide equivalent emissions per capita in 2012 (ARB, 2014a). California was also the fifth lowest of the 50 states in carbon dioxide equivalent emissions per unit of gross state product in 2012, largely as a result of the State's energy efficiency and renewable energy programs (ARB, 2014a).

The transportation sector is responsible for nearly 37 percent of GHG emissions in California. Industrial emissions and emissions from generating electricity for the commercial and residential sectors follow closely at 24 and 20 percent. In 2015, although only 34 percent of our electricity is produced out-of-state, much of this imported electricity is produced at coal-fired power plants and accounts for over 47 percent of GHG emissions in this sector (ARB, 2016d).

3.13.2 Climate Change and Greenhouse Gas Emissions - Regulatory Setting

Global climate change resulting from GHG emissions is an environmental concern being raised and discussed at the international, national, and statewide levels. At each level, agencies are considering strategies to control emissions of gases that contribute to global warming.

Federal Regulations

The federal Clean Air Act (CAA) requires the U.S. EPA to define national ambient air quality standards to protect public health and welfare in the U.S. The CAA does not specifically regulate GHG emissions. However, a significant legal decision occurred in 2009 through *Massachusetts v. Environmental Protection Agency et al.*, wherein twelve states and cities, including California, together with several environmental organizations, sued to require the U.S. EPA to regulate GHGs as pollutants under the Federal CAA (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the Federal CAA's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the Federal CAA:

- Endangerment Finding: The current and projected concentrations of the six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161) that required the U.S. EPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…." The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO_2e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

State Regulations

California GHG Targets and Climate Change Scoping Plan

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established **Executive Order S-3-05**, which sets forth a series of target dates by which statewide emissions of GHG would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

In 2006, California took a leadership role in addressing the trend of increasing GHG emissions, with the passage of the **California Global Warming Solutions Act of 2006** (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or **AB 32**). AB 32 requires achievement by 2020 of a statewide GHG emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions. The Bill required the ARB to adopt regulations by January 1, 2008, require reporting and verification of statewide GHG emissions, and monitor and enforce compliance with that program. AB 32 also directed ARB to begin developing discrete early actions to reduce GHGs while also preparing a Scoping Plan to identify how best to reach the 2020 limit. According to AB 32, the Scoping Plan must be updated at least every five years to ensure that California is on track to meet the targets set out in the legislation.

In June 2007, ARB directed its staff to pursue 37 early actions for inclusion in the Scoping Plan. The broad spectrum of strategies includes a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate GHG reductions, and green ports. In addition to approving the 37 early actions, ARB directed its staff to further evaluate additional recommendations for early action and subsequently published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration* (ARB, 2007a), which includes 44 measures in the sectors of fuels, transportation, forestry, agriculture, education, energy efficiency, solid waste, cement, oil and gas, electricity, and fire suppression.

Regarding local government actions, the Scoping Plan says the following:

> "California's draft Climate Change Scoping Plan (June 2008) recommends 2 $MMTCO_2e$ reduction in GHG emissions by 2020 from local government actions. The Scoping Plan believes local government can directly influence:

- **Energy.** The energy used in local government buildings, equipment, and infrastructure as well as the amount of energy used by community businesses and residents through building codes, conservation programs and other mechanisms.
- **Waste and Recycling**. Local government's own waste and recycling activities and the carbon footprint of their jurisdiction's waste and recycling operations through collection system adjustments and promotion of waste reduction and recycling.
- **Water and Wastewater Systems**. Water use in municipal operations and through community-wide water conservation and reclamation program efforts.
- **Transportation**. Increases in the carbon efficiency of government fleets and local transportation planning processes to increase the use of transit, carpooling, biking, and walking. Population growth can be planned and distributed in a carbon-efficient way.
- **Design**. Siting and design of new developments in a way that reduces greenhouse gases associated with energy and water use, waste generation, and vehicle travel.

In addition to identifying early actions to reduce GHG, ARB also developed mandatory GHG reporting regulations pursuant to requirements of AB 32. The regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in the state. Currently, the regulation identifies major facilities as those that generate more than 25,000 metric tons per year of CO2e. Cement plants, oil refineries, electric-generating facilities and providers, cogeneration facilities, hydrogen plants, and other stationary combustion sources that emit more than 25,000 metric tons per year of CO2e make up 94 percent of the point source CO2e emissions in California (ARB, 2007b).

On December 11, 2008, ARB adopted the first ***Climate Change Scoping Plan***, incorporating the early actions and outlining additional measures to meet AB 32's 2020 GHG reduction target (ARB, 2008b). The 2008 Scoping Plan demonstrated that to meet the AB 32 target, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from 2008 levels. According to the 2008 Scoping Plan, meeting the 2020 target requires the reduction of 169 MMT CO2e, or approximately 28.4 percent, from the state's projected 2020 business-as-usual (BAU) emissions level of 596 MMT CO2e. In August 2011, the Scoping Plan was re-approved by the Board and includes the *Final Supplement to the Scoping Plan Functional Equivalent Document*, with expanded analysis of project alternatives as well as update to the 2020 emission projection in light of updated economic forecasts. Considering the updated 2020 BAU estimate of 507 MMT CO2e, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020.

The ***First Update to the Scoping Plan*** *(ARB, 2014b)*, approved by the ARB on May 22, 2014, includes new strategies and recommendations for reducing GHG emissions and sets the groundwork to reach California's post-2020 climate goals. The Scoping Plan Update details progress made towards meeting AB 32's 2020 reduction goal and provides a GHG reduction framework to meet the 80 percent below 1990 levels by 2050. The primary focus areas for GHG reduction identified in the Scoping Plan Update are associated with energy, transportation, agriculture, water, waste management, natural and working lands, short-lived climate pollutants, green buildings, and cap-and-trade. The Scoping Plan contains the main strategies the State intends to use to reduce GHGs.

In April 2015, Governor Edmund G. Brown, Jr. signed **Executive Order B-30-15** that established an interim GHG reduction goal for California of 40 percent below 1990 levels by 2030, to ensure progress toward California's goal of reducing GHG emissions by 80 percent below 1990 levels by 2050.

On September 8, 2016, Governor Jerry Brown signed **Senate Bill 32** (Pavley - Chapter 249, Stats. of 2016), requiring California to reduce GHG emissions to 40 percent below 1990 levels by 2030. SB 32 states that: "In adopting rules and regulations to achieve the maximum technologically feasible and cost effective greenhouse gas emissions reductions authorized by this division, the state [air resources] board shall ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the statewide greenhouse gas emissions limit no later than December 31, 2030." SB 32 codifies the interim target created by EO B-30-15 for 2030.

A draft ***2017 Climate Change Scoping Plan Update -The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target*** (ARB, January 20, 2017) was released for public comments, due March 6, 2017.

GHG Emissions and CEQA

CEQA requires public agencies to evaluate whether a project that requires discretionary approval may have significant environmental effects and, if so, to impose feasible mitigation measures. In general, when a public agency determines that a project may have a significant effect on the environment it must prepare an Environmental Impact Report (EIR).

In August 2007, then Attorney General Brown announced his office had reached a settlement over a pending lawsuit with San Bernardino County that required the County to amend its General Plan to add a policy that describes its goal to reduce GHG emissions "reasonably attributable to [San Bernardino's] discretionary land use decisions" and internal operations, and that calls for adoption of a "Greenhouse Gas Emissions Reductions Plan" to include the following: (a) a current inventory of sources of GHGs within San Bernardino, and a current baseline inventory of GHG emissions from those sources; (b) an inventory of GHG emissions from the same sources in San Bernardino in 1990; (c) a projection of new GHG emissions in San Bernardino in 2020 from its discretionary land use decisions and governmental operations; and (d) a target for the reduction of those emissions.

The settlement with San Bernardino is significant because it established a precedent for how public agencies that prepare long-term planning documents should address GHG emissions and climate change. The settlement did not, however, resolve or even materially advance the debate over how to judge the significance of a project's GHG emissions.

The Attorney General's press release announcing the settlement with San Bernardino County identifies a number of measures that can be used to minimize GHG emissions. Feasible measures include high-density development to reduce vehicle trips; promotion of carpooling, alternative fuel vehicles, public transportation, and transportation impact fees; energy efficient design for buildings, appliances and lighting; and solar panels, water reuse systems, and on-site renewable energy production. In addition, the California Air Pollution Control Officers Association (CAPCOA) has issued model GHG policies for general plans, which contain similar measures.

Following the San Bernardino County settlement, **Senate Bill (SB) 97** (Chapter 185, 2007) was passed, requiring OPR to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. On December 30, 2009, the Natural Resources Agency adopted amendments to the CEQA *Guidelines*, as required by SB 97, providing guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

The CEQA Guidelines revisions include a new section (Sec. 15064.4) that specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions; Section 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The new Guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Sec. 15064(h)(3)). Importantly, however, the Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

No quantitative significance threshold is included in the Amendments. The CEQA Guidelines afford the customary deference provided to lead agencies in their analysis and methodologies. OPR emphasizes the necessity of having a consistent threshold available to analyze projects, and the analyses should be performed based on the best available information. For example, if a lead agency determines that GHGs may be generated by a proposed project, the agency is responsible for assessing GHG emissions by type and source. The CEQA Guidelines Amendments provide the following recommendations for determining the significance of GHG emissions under Section 15064.4:

(a) The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

    (1) Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

    (2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency may consider the following when assessing the significance of impacts from GHG emissions on the environment:

    (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

    (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

    (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still

> cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The Amendments also include a new Subdivision 15064.7(c) which clarifies that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

In addition, the Amendments include a new Section 15183.5 that provides for tiering and streamlining the analysis of GHG emissions. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of GHG emissions in the region over a specified time period.

Finally, the Amendments add a new set of environmental checklist questions (VII. Greenhouse Gas Emissions) to the CEQA Guidelines Appendix G, which are provided below under Thresholds of Significance.

With the passing of SB 32 the state has adopted an aggressive GHG emissions target for 2030 that is 40 percent below 1990 levels. Until the state adopts an updated Scoping Plan to reflect the 2030 target it will be challenging to conduct CEQA analysis of GHG emissions for projects that go beyond 2020. Meanwhile, a recent California Supreme Court decision (*Center for Biological Diversity v. California Department of Fish and Wildlife*) (henceforth referred to as Newhall Ranch decision) raises new concerns and questions about substantiating the use of GHG thresholds in CEQA evaluation, and makes it clear that demonstrating consistency with a local or regional climate action plan will provide the most defensible method, provided the climate action plan uses a GHG target that is consistent with the state's 2030 target and that the plan is "qualified" per CEQA Guidelines Section 15064.4, which stipulates that the plan:

- Establish a GHG emissions baseline and business-as-usual (BAU) forecast for the planning horizon;
- Establish a GHG reduction target consistent with AB 32 (and now, SB 32);
- Include strategies and actions that will achieve the GHG target with a high level of confidence;
- Include an implementation and monitoring plan; and
- Be adopted in a public process following environmental review under CEQA.

The Newhall Ranch decision identified multiple possible paths for evaluating GHG emissions consistent with CEQA depending on the circumstances of a given project. The decision confirmed a need to analyze both near-term (e.g. 2020) and post-2020 emissions stating that an "EIR taking a goal-consistency approach to CEQA significance may in the near future need to consider the project's effects on meeting longer term emissions reduction targets."

To be consistent with state legislation and the Newhall decision, the County will consider project-related impacts in 2020, 2030, and 2040 that are consistent with both AB 32 and SB 32 and make "substantial progress" toward the statewide target of 80 percent below 1990 emissions levels by 2050.[1] The targets will be adopted through the preparation and adoption of a CAP, in accordance with GPU Policy AQ-P9 and AQ-IM3.

[1] The Climate Change Committee of the Association of Environmental Professionals (AEP) recommended in its *Beyond 2020: The Challenges of Greenhouse Gas Reduction Planning by Local Governments in California* white paper that CEQA analyses for the majority of land use development projects can continue

Energy Generation

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expanded the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the ARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33-percent-by-2020 goal was codified in April 2011 with Senate Bill X1-2, which was signed by Governor Edmund G. Brown, Jr. This new Renewable Portfolio Standard (RPS) preempts the ARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must achieve the new RPS goals of 20 percent of retail sales from renewables by the end of 2016 and 33 percent by the end of 2020.

SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Land Use

SB 375 encourages housing and transportation planning on a regional scale, in a manner designed to reduce vehicle use and associated GHG emissions. As required under this law, ARB has assigned regional GHG reduction targets for automobiles and light-duty trucks for 2020 and 2035. The targets apply to the regions in the State covered by the 18 Metropolitan Planning Organizations (MPOs), including the Association of Bay Area Governments (ABAG). If MPOs do not meet the GHG reduction targets, transportation projects will not be eligible for funding programmed after January 1, 2012. ARB adopted regional reduction targets in 2010. For the Bay Area, the adopted reduction targets call for a 10 percent reduction by 2020 and a 16 percent reduction by 2035.

SB 375 also requires each MPO to include a Sustainable Communities Strategy (SCS) in their Regional Transportation Plan. The SCS must set forth a vision for growth for the region while taking into account transportation, housing, environmental, and economic needs. The SCS will be the blueprint by which the region will meet its GHG emissions reductions targets.

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to rely on existing thresholds in the immediate future (with the exception of the "business-as-usual" approach), long-term projects should consider "post-2020 emissions consistent with 'substantial progress' along a post□2020 reduction trajectory toward meeting the 2050 target." The white paper recommends that the "significance determination…should be based on consistency with 'substantial progress' along a post□2020 trajectory."

Humboldt County is not part of a MPO, so SB 375 does not apply directly, but regional SCSs adopted by MPOs may provide examples of land use policies that may be incorporated in the Climate Action Plan to be prepared in accordance with GPU Policy AQ-P9 and Implementation Measure AQ-IM3.

California Building Standards

On January 12, 2010, the California Building Standards Commission adopted the 2010 California Green Building Standards Code, otherwise known as CALGreen. The list below identifies the most significant CALGreen requirements. In addition, CALGreen encourages local governments to adopt more stringent voluntary provisions, known as Tier 1 and Tier 2 provisions, to further reduce air pollutant emissions, improve energy efficiency, and conserve natural resources. If a local government adopts one of the tiers, the provisions become mandates for all new construction within that jurisdiction. CALGreen includes the following provisions:

- A 20 percent mandatory reduction in indoor water use, with voluntary goal standards for 30 percent, 35 percent, and 40 percent reductions;
- Separate indoor and outdoor water meters to measure nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects;
- Diversion of 50 percent of construction waste from landfills;
- Mandatory periodic inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies; and
- Mandatory use of low-pollutant-emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard.

The State of California also regulates building energy consumption under the state Building Code. The Building Energy Efficiency Standards contained within Part 1 (Administrative Code) and Part 6 (also known as the Title 24 Building Energy Efficiency Standards) of the Building Code, were developed by the CEC and apply to energy consumed for heating, cooling, ventilation, water heating and lighting in new residential and non-residential buildings. The CEC updates these standards periodically, with the most recent update in 2013. The next update is slated for December 2016.

Vehicular Emissions

In 2002, Assembly Bill (AB) 1493 was passed, which required the ARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by the ARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, the ARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty

vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Executive Order S-1-07, signed by then-Governor Arnold Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed the ARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. The ARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Other Greenhouse Gas Legislation

SB 350 (Clean Energy and Pollution Reduction Act of 2015) was signed into law on October 7, 2015, establishing new goals for clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 requires the following:

- Increase California's renewable electricity procurement goal under the RPS from 33 percent by 2020 to 50 percent by 2030.
- Double existing building energy efficiency by 2030.
- Facilitate the growth of renewable energy markets within the western U.S. by reorganizing the California Independent System Operator (CAISO).

AB 197, signed into law on September 8, 2016 along with SB 32, requires ARB to "protect the state's most impacted and disadvantaged communities … [and] consider the social costs of the emissions of greenhouse gases." AB 197 establishes the Joint Legislative Committee on Climate Change Policies and requires the ARB to provide an annual report on GHG emissions and the Scoping Plan's progress toward meeting the emissions reduction target to the committee. AB 197 also requires ARB to post current information about GHG and air pollutant emissions on its website and protect the state's "most impacted and disadvantaged communities" by considering the social costs of GHG emissions and to "prioritize both of the following: (a) Emission reduction rules and regulations that result in direct emission reductions at large stationary sources of greenhouse gas emissions sources and direct emission reductions from mobile sources. (b) Emission reduction rules and regulations that result in direct emission reductions from sources other than those specified in subdivision (a)."

SB 1383 sets new goals for reducing short-lived climate pollutants (SLCP) to reduce methane by 40 percent, hydrofluorocarbon gases (HFCs) by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill requires the ARB to prepare a comprehensive strategy by January 1, 2018 to achieve these goals. SB 1383 also aims to reduce organic waste in landfills by requiring a 50 percent reduction from 2014 levels by 2020 and 75 percent reduction from 2014 levels by 2025, and requires a reduction in methane emissions from livestock and dairy manure management operations by up to 40 percent below 2013 levels by 2030.

All of the statewide GHG reduction measures are expected to contribute to reducing GHG emissions below Business As Usual (BAU) projections, and thus assist local jurisdictions in meeting GHG reduction goals in local Climate Action Plans.

Humboldt County's GHG Mitigation Efforts

On December 4, 2007, the Humboldt County Board of Supervisors resolved to join ICLEI – Local Governments for Sustainability USA and participate in the Cities for Climate Protection Campaign. As part of the resolution, the County of Humboldt has undertaken the Cities for Climate Protection Campaign's five milestones to reduce both GHG and air pollution emissions throughout the community, and specifically commits to progress through the following five milestones:

1. Conduct a GHG emission inventory and forecast to determine the sources and quantity of GHG emissions in the County;
2. Establish a CO_2 or GHG emissions reduction target;
3. Develop a climate action plan with both existing and future actions that, when implemented, will help meet the local GHG reduction target;
4. Implement the action plan; and
5. Monitor and report progress.

Although the County is no longer a member of ICLEI, the protocols developed by ICLEI, in conjunction with supplementation by California state agencies and organizations of environmental professionals, are recognized as the standard for the preparation of GHG inventories and projections necessary for compliance with the Global Warming Solutions Act and CEQA, and for the preparation of Climate Action Plans.

In 2008, the Redwood Coast Energy Authority (RCEA) prepared a 1990 GHG inventory for the County using the ICLEI – Local Governments for Sustainability CACP software package available at that time, along with time series estimates of GHG emissions from the unincorporated County for the years 2003-2006. The study concluded that the total GHG emissions in Humboldt County in 1990 was 1,821,532.4 $TMCO_2e$ (tonnes). Importantly, the study noted that the County measured a 439,280 $TMCO_2e$ reduction in industrial emissions between 1990 and 2005, attributed to a steady and significant decline in the lumber industry and closure of major industrial facilities related to timber processing, including numerous lumber mills and several pulp mills. The results were reported in Figure 3.12-1 in the 2012 Draft EIR for the GPU, and is reproduced on the following page.

In January 2012, as part of the 2012 Draft General Plan, Humboldt County prepared a Draft Climate Action Plan (CAP) to reduce GHG emissions in the unincorporated County, which also relied upon the 2008 RCEA report. The target set forth in the 2012 Draft CAP is to reduce county emissions to 1990 levels by 2020, consistent with AB 32. The 2012 Draft CAP also set an additional target to achieve no net increase of CO_2 emissions compared to BAU emissions from the 1984 General Plan for new residential development within the County by the year 2025. To be compliant with SB 32, the draft CAP will need to be revised to include targets for 2030 and to update the calculation of the 1990 GHG Community Emissions inventory in accordance with the current methodology.

In October 2014, RCEA released the Unincorporated Humboldt County 2005 Community Greenhouse Gas Emissions Inventory based on ICLEI's U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1, October 2012[2] shown below.

Table 3.13-1. Community GHG Emissions 1990 - 2006

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County of Humboldt

Community Greenhouse Gas Emissions
Time Series Report

Year	1990	2003	2004	2005	2006
Residential					
eCO2 (tonnes)	113,269.6	126,030.7	104,661.1	100,523.2	101,794.6
Energy (MMBtu)	1,992,390.3	2,196,928.6	1,741,803.9	1,629,161.4	1,705,746.6
Commercial					
eCO2 (tonnes)	142,355.5	140,688.1	118,714.1	118,461.1	128,404.8
Energy (MMBtu)	2,259,203.0	2,232,386.9	1,915,459.5	2,002,654.6	2,220,796.0
Industrial					
eCO2 (tonnes)	817,364.3	236,365.2	168,817.5	378,084.3	272,233.6
Energy (MMBtu)	42,772.9	38,266.2	40,116.1	41,528.0	59,492.5
Transportation					
eCO2 (tonnes)	641,049.1	623,948.5	646,515.7	643,689.4	711,963.1
Energy (MMBtu)	8,205,263.9	8,011,688.4	8,306,655.3	8,274,638.5	9,158,070.5
Waste					
eCO2 (tonnes)	40,965.6	13,357.7	13,967.1	14,412.8	14,558.9
Other					
eCO2 (tonnes)	66,528.3	84,013.8	77,927.6	81,162.6	81,037.9
Total					
eCO2 (tonnes)	1,821,532.4	1,224,404.1	1,130,603.1	1,336,333.4	1,309,993.0
Energy (MMBtu)	12,499,630.1	12,479,270.1	12,004,034.7	11,947,982.5	13,144,105.7

This report has been generated for County of Humboldt, California using STAPPA/ALAPCO and ICLEI's Clean Air and Climate Protection Software developed by Torrie Smith Associates Inc.

[2] The current version is U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions, Version 1.1, July 2013.

The GHG Emissions data reported for 2005 in the 2014 report differs from the data reported in 2008, due to changes in methodology and the addition of several categories of emissions in the newer protocol. For example, the inventory protocol used in 2008 did not include breakouts of solid waste and landfill in the waste category or on-road and off-road estimates in the transportation category, or estimates for emissions from water & wastewater, fugitive leakage of refrigerants. Most significantly for Humboldt County, GHG emissions from livestock were not included in the prior protocol, which account for roughly 20% of GHG emissions under the current protocol. A comparison between the two study emission reports for the year 2005 appears below:

Table 3.13-2. Comparison of GHG Report Results for 2005 Emissions (MTCO2e)

Sector	2008 Report	2014 Report
Residential Energy Use	100,523.2	112,477
Commercial Energy Use	118,461.1	117,436
Industrial Point Sources	378,084.3	197,641
On-road Transportation	643,689.4	346,162
Off-road Transportation		58,177
Solid Waste	14,412.8	39,898
Landfill		41,991
Water & Wastewater		2,984
Fugitive Leakage of Refrigerants		1,532
Livestock		227,025
Other	81,162.6	-
Total Emissions	1,336,333.4	1,145,324

The draft General Plan Update includes policy AQ-P9 and implementation measure AQ-IM3 that requires the development and implementation of a Climate Action Plan to achieve reductions consistent with AB 32 and SB 32. The preparation of a revised GHG inventory for 1990 using the currently accepted methodology is essential so that appropriate targets can be established for the preparation of a Climate Action Plan that complies with the statutory requirements.

The primary sources of the General Plan Update GHG emissions are anticipated to be combustion of fossil fuels from grid-delivered electricity use and from motor vehicles. Additional water and wastewater treatment and distribution facilities, as described in the Capital Improvements and Public Facilities Element, could someday be located in the project area. These plants could generate some amount of GHG emissions associated with operations, pumping and emergency back-up generators. No other significant stationary source generators (e.g. fossil-fuel burning power plants) are anticipated in the project area.

Implementation of the General Plan Update through development anticipated during the planning period would contribute to long-term increases in GHGs as a result of traffic increases (mobile sources) and residential building heating (area sources), as well as indirectly, through electricity generation.

Table 3.13-3 shows the 2005 GHG inventory for unincorporated Humboldt County (RCEA, 2014) along with the "business-as-usual" (BAU) emissions forecasts for the years 2020, 2028, 2030, and

2040, using population, housing, and employment forecasts for the County prepared as part of this Revised DEIR. 2028 is included because it represents peak population and housing over the planning horizon, coinciding with peak passenger vehicle traffic and peak residential energy use under BAU conditions. As a result, 2028 also represents peak total GHG emissions for the unincorporated County expected during the project planning period.

Table 3.13-3. Unincorporated Humboldt County GHG Emissions Inventory for 2005 and BAU Forecasts for 2020, 2028, 2030 and 2040

	Humboldt County GHG Emissions ($MTCO_2e$)				
Sector	**2005** [a]	**2020**	**2028**	**2030**	**2040**
Residential Energy Use	112,477	117,291	119,859	119,417	117,207
Commercial Energy Use	117,436	123,751	127,119	128,452	135,119
Industrial Point Sources	197,641	206,101	210,612	209,836	205,954
On-road Transportation	346,162	333,759	338,138	334,802	324,277
Off-road Transportation	58,177	61,305	62,974	63,634	66,937
Solid Waste	39,898	41,764	42,758	42,821	43,135
Landfill	41,991	28,717	21,192	19,641	13,434
Water & Wastewater	2,984	3,124	3,198	3,203	3,227
Fugitive Leakage of Refrigerants	1,532	1,604	1,642	1,644	1,656
Livestock	227,025	353,718	353,718	353,718	353,718
Total Emissions	**1,145,324**	**1,271,134**	**1,281,211**	**1,277,170**	**1,264,663**

Notes: 2005 emissions for all sectors except for On-road transportation are from RCEA, 2014

During the course of the planning period, incremental increases in GHG emissions associated with traffic increases, residential space heating, and increased energy demand would contribute to increases in GHG emissions and associated climate change effects.[3] Total emissions in 2005 were approximately 1,145,324 $MTCO_2e$. By 2028, the year that represents peak population in unincorporated Humboldt County, GHG emissions are forecast to be 1,281,211 MTCO2e, an increase of approximately 135,887 MTCO2e (or 12%) over 2005 levels, but comparison to 1990 levels has yet to be established. Total emissions will decrease slightly by 2030 due to the projected population decrease from 2028 to 2030, a trend that is expected to continue through 2040, when anticipated development associated with the project under BAU conditions is expected to produce 1,264,663 MTCO2e.

[3] It should also be noted that the project proposes to accommodate growth within the Urban Study Area of unincorporated Humboldt County. The Urban Study Area, also known as the urban development boundary, is an officially adopted and mapped line that separates an urban area from its surrounding greenbelt of open lands, including farms, watersheds and parks. Growth boundaries are set to discourage speculation at the urban or suburban fringe. As such, it discourages urban sprawl by keeping development contained, and thus limiting vehicle emissions by geographically keeping development within the urban study areas.

State Measures to Reduce GHG Emissions

A number of statewide measures in the current Scoping Plan (First Update to the Scoping Plan, May 2014) are expected to reduce emissions in the County by the year 2020 and beyond:

- Renewables Portfolio Standard
- Title 24 Standards
- Lighting Efficiency and Toxics Reduction Act
- Solar Hot Water Heating
- Pavley fuel efficiency standards
- Advanced Clean Cars (Vehicle Efficiency)
- Low Carbon Fuel Standard
- Various AB 32 vehicle efficiency strategies

Table 3.13-4 presents the estimated GHG reductions expected in the County from the implementation of these state measures for the years 2020, 2028, 2030, and 2040, resulting in an "adjusted BAU" forecast for each year.

Table 3.13-4. Adjusted BAU Forecasts for Unincorporated Humboldt County Accounting for GHG Reductions from State Measures

Category of GHG Reductions from State Measures	2020	2028	2030	2040
Renewables Portfolio Standard	38,668	45,541	55,357	55,971
Title 24 Standards	3,448	4,580	4,778	6,144
Lighting Efficiency and Toxics Reduction Act	5,509	4,297	3,993	3,993
Solar Hot Water Heating	246	224	229	229
Pavley / Advanced Clean Cars	8,172	57,669	65,284	83,721
Low Carbon Fuel Standard	0	0	0	0
AB 32 Vehicle Efficiency Measures	402	402	402	402
Total	*56,445*	*112,711*	*130,044*	*150,460*
BAU Emissions for the County	**1,271,134**	**1,281,211**	**1,277,170**	**1,264,663**
Adjusted BAU Emissions with State Measures	**1,214,689**	**1,168,499**	**1,147,126**	**1,114,203**
Percent Reduction	**4%**	**9%**	**10%**	**12%**

As noted above, the current ARB Scoping Plan focuses on the year 2020 and does not include the additional measures that will be needed to meet the state's 2030 target represented by SB 32. The next update to the Scoping Plan, currently in draft form, will provide a statewide plan to achieve the 2030 target, and provide more clarity about the role of local governments in meeting that target.

Other Emissions Sources and Sinks

The County's forested lands also sequester carbon. Since sequestration is part of the existing natural carbon cycle and only anthropogenic emissions are included in the County's GHG

inventory per inventory protocol (ICLEI – Local Governments for Sustainability USA. 2013), sequestration is not included in the analysis. However, efforts to reduce GHG emissions and enhance carbon sequestration on natural and working lands do contribute toward GHG emission reductions in the County. Therefore, the net change in sequestration resulting from forest management can help the county meet its future GHG emissions targets. The draft ARB ***2017 Climate Change Scoping Plan Update*** includes a commitment for development of systems for quantification and inclusion of methods for incorporating sequestration from natural lands, forests and agricultural lands as part of the state plan for meeting 2030 GHG reduction goals, which may be of special significance for Humboldt County because of its extensive area of forest, rangeland, natural open space and wetlands.

For informational purposes, an estimate of the County's potential carbon sequestration was developed. State and national estimates have been prepared for the net flux of CO_2e associated with forest and rangelands. The CEC has identified forests and rangelands as carbon sinks, and estimated the net removal of CO_2e from these lands to be 13.05 million metric tons (MMT) CO_2e per year, or 8.76 $MMTCO_2e$ per year net of emissions for the State (CEC 2006). The ARB has used the 13.05 $MMTCO_2e$ per year estimate and updated the net source emissions estimates to produce statewide net sink estimates ranging between 4.719 and 3.981 $MMTCO_2e$ per year for 2000 - 2008 (ARB 2011). Considering that Humboldt County has 7.6 percent of the state's forestland, it is estimated that between 300,000 to 357,000 metric tons CO_2e are stored by Humboldt forests each year.

Humboldt County is home to two pioneering efforts to account for carbon sequestration of forest lands in conjunction with the state's Cap and Trade Program -- the Fred VanEck Foundation Forest, created with the assistance of the non-profit Pacific Forest Trust, and the city-owned Arcata Community Forest. The potential exists to expand on those programs utilizing the 1,000 acre County-owned McKay Community Forest, and other public or privately owned lands in the County.

Humboldt County GHG Emission Reduction Targets

As discussed above, to comply with AB 32 and SB 32, the County will adopt county-wide GHG emissions targets for the years 2020 and 2030 (and possibly also 2040) as part of a Climate Action Plan that will incorporate an updated 1990 GHG Inventory, to be prepared in accordance with policy AQ-P9 and implementation measure AQ-IM3.

The level of GHG Emissions in 1990 is the statutory baseline established by AB 32 and SB 32 for establishing GHG reduction goals for 2020 and 2030, and is the reference point for the 2050 target set forth in Executive Order S-3-05. What the results of a revised GHG inventory for 1990 using the currently accepted methodology is unknown at present. It is clear however that adding emissions from livestock would likely increase the 1990 total GHG emissions by approximately 220,534 $MTCO_2e$, based on the livestock data included in the 1990 Crop and Livestock Report published by the Humboldt County Agricultural Commissioner and the methodology used by RCEA in its 2014 report. Utilizing a 2005 baseline or other metric that does not recognize GHG reductions attributable to the decrease in industrial point sources and industrial energy uses that occurred in Humboldt County between 1990 and 2005 would result in setting targets that are much higher than are required by the statutory standard. Said another way, the higher the GHG emissions that existed in 1990 in Humboldt County, the lower the emission reduction targets will need to be in future years.

The figures in the table below illustrate this point.

Table 3.13-5. Comparison of Effect of Adjustments to 1990 GHG Emissions Inventory Baseline

	2020 Goal = 1990	Reduction needed	**2030 Goal = 40% <1990**	Reduction needed	**2040 Goal = 60% <1990**	Reduction needed
1990 baseline*	1,821,532	0	1,092,919	184,250	728,613	536,051
1990 baseline + livestock	2,042,066	0	1,225,239	51,930	816,826	447,837
- State measures		56,445		130,044		150,460
Maximum net local reduction required		0		54,206		385,591

* Source, RCEA, 2008, for illustrative purposes only. Updated 1990 GHG Emissions Inventory compliant with current protocols is required.

3.13.3 Climate Change and Greenhouse Gas Emissions - Standards of Significance

Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

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

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG.

3.13.4 Greenhouse Gas – Impacts and Mitigation Measures

Impact 3.13.4.1. Greenhouse Gas Emissions

Under the thresholds of significance set forth above, evaluation of whether or not GHG emissions generated as a result of implementation of the General Plan Update would have a significant impact on the environment, or would conflict with applicable plans, policies or regulations adopted for the purpose of reducing emissions of GHG, cannot be definitively determined until the inventory of GHG emissions for 1990 has been updated in accordance with currently accepted protocols.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains policies, standards, and implementation measures that potentially pertain to the generation of GHG. These policies include the following:

AQ-G3 **Greenhouse Gas Emissions.** Successful mitigation of greenhouse gas emissions associated with this Plan to levels of non-significance as established by the Global Warming Solutions Act and subsequent implementation of legislation and regulations.

AQ-P1. Reduce Length and Frequency of Vehicle Trips. Reduce the length and frequency of vehicle trips through land use and transportation policies by encouraging mixed-use development, compact development patterns in areas served by public transit, and active modes of travel.

AQ-P8. Reduce Air Quality Impacts from Wildfires. Support and encourage fire suppression of wildfires that may have an acute air quality health impact on local population centers.

AQ-P9. County Climate Action Plan. Through public input and review, develop and implement a multi-jurisdictional Climate Action Plan to achieve reductions in greenhouse gas emissions consistent with the state Global Warming Solutions Act and subsequent implementing legislation and regulations.

AQ-P10. County Government Greenhouse Gas Emission Reductions. To lead by example, the County of Humboldt shall reduce its 2003 greenhouse gas emissions from governmental operations consistent with the state Global Warming Solutions Act and subsequent implementing legislation and regulations.

AQ-Px. Review of Projects for Greenhouse Gas Emission Reductions. The County shall evaluate the GHG emissions of new large scale residential, commercial and industrial projects for compliance with state regulations and require feasible mitigation measures to minimize GHG emissions.

AQ-P11. Forest Sequestration and Biomass Energy. Provide incentives for increased carbon sequestration on forest lands and encourage the reduction of smoke production through the utilization of excess forest biomass for sustainable energy generation and other uses.

AQ-P12. Solar Electric System Capacity. Encourage and provide incentives to increase solar-electric capacity in residential, commercial, and industrial sectors.

AQ-P13. Energy Efficient Building Design. Encourage and provide incentives for construction of buildings and energy saving measures beyond Title 24 requirements for residential and commercial projects.

AQ-P14. Electric Vehicle Accommodations. Encourage and provide incentives for commercial and residential design that supports the charging of electric vehicles.

AQ-P15. Preservation and Replacement of On-site Trees. Projects requiring discretionary review should preserve large trees, where possible, and mitigate for carbon storage losses attributable to significant removal of trees.

AQ-Sx. Evaluate Greenhouse Gas Emission Impacts. During environmental review of large scale residential, commercial and industrial projects, include an assessment of the project's GHG emissions and require feasible mitigation consistent with best practices documented by the California Air Pollution Control Officers Association in their 2008 white paper "CEQA & Climate Change" or successor documents.

AQ-S2. Evaluate Air Quality Impacts. During environmental review of discretionary projects, evaluate new commercial and industrial sources of emissions using

analytical methods and significance criteria used, or recommended by, the NCUAQMD.

AQ-S4. Preservation and Replacement of On-site Trees. Large scale residential, commercial and industrial Discretionary review projects which remove a significant number of large trees (for example, more than 50 trees of greater than 12 inches DBH) shall plant replacement trees on-site or provide offsetting carbon mitigations.

AQ-IM3. County-wide Climate Action Plan. Develop and implement a Climate Action Plan that effectively mitigates the carbon emissions attributable to this Plan, consistent with the requirements of the state Global Warming Solutions Act and subsequent implementing legislation and regulations.

AQ-IM4. County Government Greenhouse Gas Emission Reductions. The County shall prepare a Climate Action Plan for its governmental operations consistent with the Countywide Climate Action Plan that seeks emission reductions in the following areas:

A. Energy Efficiency and Conservation

B. Green Building

C. Waste Reduction and Recycling

D. Climate-Friendly Purchasing

E. Renewable Energy and Low-Carbon Fuels

F. Efficient Transportation

G. Offsetting Carbon Emissions

H. Promoting Community and Individual Action

AQ-IM5. Greenhouse Gas Emissions. Update the General Plan and Land Use Ordinances, as appropriate, to reflect the adopted countywide Climate Action Plan and the new state laws and regulations for greenhouse gas emissions when they become available.

AQ-IMx. Review of Greenhouse Gas Emissions Impacts of New Development. Modify the Zoning and Subdivision Ordinances to assess GHG emissions of discretionary large scale residential, commercial and industrial projects, and require feasible mitigation.

AQ-IM6. Programs to Reduce Air Quality Impacts of Wildland Fires. Support and encourage programs such as fuel reduction, prescribed fires, and vegetation management as recommended in the County's Fire Plan to reduce air quality impacts of wildfires. (Black carbon from wildfires is a GHG).

AQ-IMx1. Transfer of Development Rights Program. The County shall develop a voluntary transfer of development rights program which provides incentives to transfer entitlements from resource lands and other rural areas into areas served with public water and sewer to reduce GHG emissions from new development.

The following is excerpted from the General Plan Update Chapter on Air Quality:

> "Through this process the County intends to lead by example and reduce GHG emissions in its own operations to 10 percent below 2003 levels by 2020. Through this General Plan and participation in a County-wide Climate Action Plan the County intends to reduce GHG emissions in the unincorporated area resulting from its discretionary land use decisions to 10 percent below 2003 levels by 2020. The County will also partner with the Redwood Coast Energy Authority and local cities to attain this level of reduction for the entire County.
>
> "CEQA requires public agencies to identify the potentially significant effects on the environment of projects they intend to carry out or approve, and to mitigate significant effects whenever it is feasible to do so. AB 32 establishes by law that greenhouse gas emissions cause significant adverse impacts to the environment, so the General Plan must include feasible mitigations to offset the GHG emissions associated with the Plan.
>
> "The Plan includes a range of mitigations for reducing GHG emissions and mitigations to achieve increased carbon storage within the County. Increasing carbon storage on timber and agricultural lands may be the County's most effective means to combat global warming
>
> "The State's 2020 target for California's forest lands is to retain the current carbon storage capacity of California's forests through sustainable management practices, reducing the risk of wildfire, and the avoidance or mitigation of land-use changes that reduce carbon storage. This equates to 5 $MMTCO_2e$ of carbon storage, which is more than 10 percent all of non-transportation reductions planned through 2020, underscoring the role that forest lands will play in California's efforts to reduce GHG emissions.
>
> "The state's first forest carbon storage project to be verified through the California Climate Action Registry was located in Humboldt County on 2,100 acres owned by the van Eck Forest Foundation. The project generated more than 500,000 tons of carbon credits that are being sold to interested purchasers. Under AB32, California is planning to implement a cap-and-trade program by 2012 that could increase the demand for verifiable carbon credits. This may create increased financial opportunities for forest and agricultural land owners in Humboldt County willing to manage their lands consistent with accepted carbon storage protocols."

While timber management is regulated by the State under the Forest Practices Act, the General Plan Update proposes the development of a program that could provide carbon credits to local forest landowners who voluntarily agree to long-term restrictions on land uses that increase GHG emissions. These carbon credits could be registered and potentially sold under a GHG emissions cap-and-trade program to offset GHG emissions from development within the County and provide a financial incentive to maintain lands in resource production.

Land Use and Circulation Elements

The Land Use and Circulation Elements have been designed to reduce VMT and to promote non-auto modes of transportation and thereby reduce GHG emissions. The planned land use intensity/urban-form and an extensive network of transit service, trails, and bike routes encourage non-auto trips. Nonetheless, as described above, the project will generate increased daily vehicle trips at buildout. The mix of land uses, however, encourages a large degree of internalization of trips within the urban study areas, which leads to shorter trip lengths and reduced vehicle emissions for those vehicle trips that start and end in the urban study areas.

The proposed General Plan Update traffic analysis prepared by TJKM provides a base year 2010 daily VMT estimate of 1,940,309 for the unincorporated county using the origin-destination method of traffic modeling. Peak VMT coincides with projected peak population in 2028, when daily VMT is expected to rise to 2,078,296. The daily VMT estimate at project buildout (2040) is 2,051,668, an increase of approximately six percent over 2010 levels.

Despite increasing VMT under the proposed General Plan Update, improvements in vehicle efficiency would result in on-road transportation emissions remaining flat into the future (see table 3.13-5).

Energy Element

As described in the Energy Element, the project encourages solar energy and other non-fossil fuel energy sources. These sources tend to support the energy needs of individual developments; however, during the build-out of the general plan, locally generated "alternative" sources are encouraged.

The policies and implementation measures described in the Energy Element also include Green Building standards to mitigate impacts associated with electricity and natural gas consumption, which would also reduce GHG emissions.

Conclusion Compliance with these polices would help reduce GHG emissions from future development under the proposed General Plan update. Additional reductions would be achieved by CAP actions that the County may develop that encourage the use of alternatively fueled and electrified equipment. However, because specific information about construction projects and yet-to-be developed CAP measures to reduce construction emissions are unknown at this time, it is uncertain what the future intensity the proposed General Plan update would exceed an adopted GHG significance threshold. Consequently, this impact is conservatively determined to be significant. Ensuring that emissions will fall below an adopted GHG emissions threshold is not feasible at this time. Therefore, this impact is considered **significant and unavoidable.**

3.14 Cultural Resources

This section provides background information regarding cultural resources within the county, the regulations and programs that provide for their protection, and an assessment of the potential impacts of implementing the proposed General Plan Update. The following key issues relating to cultural resources have been identified through the General Plan Update process: the protection of cultural resources and historic structures. These key issues will be discussed in the evaluation of impacts below. Additional information on cultural resources can be found in Chapter 6, Cultural Resources, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a background discussion of Native American settlements in Humboldt County and summarizes both historic and prehistoric cultural resources in the county. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka or for download at http://co.humboldt.ca.us/gpu/ documentsbackground.aspx, is incorporated by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.14.1 Cultural Resources - Environmental and Regulatory Setting

Cultural Resources - Native American and Archaeological Sites

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. The majority of 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 Hoopa, Chilula, and Whilkut.

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.

Culturally Sensitive Areas

Culturally sensitive areas include sites and regions of special importance to Native Americans, primarily coastlines and riverbanks with outstanding religious or resource-producing importance. Over 32,000 acres of land in Humboldt County are designated as culturally sensitive, with notable concentrations along the Lower Klamath, the Lower Trinity, the lower end and North Fork of the Mad, and the Van Duzen Rivers, and the eastern shore of Humboldt Bay. Culturally sensitive areas exist on both public and private lands. While some locations are publicly identified, others are held as confidential information by local Native American organizations.

The North Coastal Information Center of the California Historical Resources Information System (NCIC of CHRIS) is the regional information center holding confidential records for Humboldt County and is currently operated by the Yurok Tribe in Klamath under contract agreement with the State Office of Historic Preservation. The North Coastal Information Center has records for approximately 2,040 cultural resource sites, including cemeteries, villages, and lithic scatters: surface-visible concentrations of stone chips, flakes, and tools. Three-quarters of these sites are located along rivers and major tributaries; the remaining sites are located 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 River delta, and Shelter Cove are considered medium-density resource sites.

A provision of State law, commonly referred to as SB 18 (Chapter 905, Statutes of 2004), requires local governments to consult with tribes during general plan amendments. Humboldt County contacted tribes early in the process and held a tribal summit meeting, and had following up meetings with tribes desiring them. Letters of invitation to consult were sent to all tribal representatives included on the list supplied by the Native American Heritage Commission, per the provisions of SB 18. (See Appendix T for documentation of consultations.)

Historic Districts, Sites, Structures and Landmarks

Historic resources include districts or areas, sites, structures, landmarks, or other physical evidence associated with past human activity greater than 50 years old. Humboldt County is home to a large number of historical sites, having been one of the first areas in California to be explored and settled by Europeans. Thirteen Humboldt County locations are California State Historical Landmarks and 51 sites are listed on the National Register of Historic Places, 13 of which are in the unincorporated area. The sites recognized on the National Register of Historic Places 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.

The following tables contain listings of historic resources established by the federal and state governments as well as Humboldt County.

Table 3.14-1. National Register of Historic Places within the Unincorporated Area.

Resource Name	Address	Community	Year Listed
Bald Hills Archeological District	Address Restricted*	Orick	7/9/1982
Bank of Loleta	358 Main St.	Loleta	2/28/1985
Benbow Inn	445 Lake Benbow Dr.	Garberville	9/15/1983
Carlotta Hotel	Central Ave.	Carlotta	5/23/1978
De-No-To Cultural District	Address Restricted	Hoopa	4/24/1985
Fern Cottage Historic District	2099 Centerville Rd.	Ferndale	1/7/1988
Fernbridge	CA 211	Fernbridge	4/2/1987
Grizzly Bluff School	E of Ferndale on Grizzly Bluff Rd	Ferndale	11/27/1979
Humboldt Bay Life-Saving Station	S of Samoa on Samoa Rd	Samoa	10/30/1979
Lower Blackburn Grade Bridge	NW of Bridgeville on CA 36	Bridgeville	6/25/1981
Old Jacoby Creek School	2212 Jacoby Creek Rd.	Bayside	2/28/1985
Prairie Creek Fish Hatchery	Milepost 124.83 on US 101, N of Orick	Orick	2/4/2000
Punta Gorda Light Station	10.5 mi. SW of Petrolia	Petrolia	9/1/1976

Source: Humboldt County Planning Division.
*State law requires that the location of certain sensitive cultural resources remain confidential.

Table 3.13-2. California State Historical Landmarks within the Unincorporated Area.

Resource Name	Address	Community
No. 164 The Old Arrow Tree	0.8 mi E of Korbel	Korbel
No. 173 Centerville Beach Cross	Centerville Beach	Centerville
No. 543 California's First Drilled Oil Wells	NE corner Mattole Rd and Front St	Petrolia
No. 882 Humboldt Harbor Historical District	Harold Larsen Vista Pt, Humboldt Hill Rd off Hwy 101	Humboldt Hill

Source: Humboldt County Planning Division.

Table 3.14-3. Humboldt County Local Register of Historic Landmarks, Unincorporated Area.

Resource Name	Address	Community	Year Listed
Garberville Civic Clubhouse	477 Maple Lane	Garberville	5/23/1989
Andreasen, F. W.--John Rossen House	Port Kenyon Rd. and Bush St.	Ferndale	6/6/1989
Myers Flat Hotel	Myers Flat	Myers Flat	6/20/1989
Southport Landing - Charles Heney House	Phelan Rd. / Table Bluff	Table Bluff	10/04/1988
Petersen-Machado Centerville Dairy	Centerville Road	Centerville	6/17/2008

Source: Humboldt County Planning Division.

In addition to the resources listed in the tables above, the State Historic Preservation Office (SHPO) maintains the California Historical Resources Inventory, which has been managed by the State since 1975.

The California Historical Resources Inventory includes resources evaluated or formally determined eligible for listing in national, State or local registries. Properties in the listing are given a status code which provides a tentative indication of their eligibility for listing in the National and/or California Registers, local significance, ineligibility, or lack of evaluation. SHPO's Historical Resources Inventory for Humboldt County contains 1247 records, about 80% of which are within incorporated cities.

Pursuant to current general plan policy and CEQA, the County conducts cultural resource surveys in connection with discretionary projects. These surveys may recommend that a site or structure be designated special status, and thereby become eligible for protection and other benefits. The designations relate to eligibility for inclusion on the National Register of Historic Places, a federal list maintained by the National Park Service or the State of California Register of Historical Resources. The California Register differs from the National Register in that its focus is on resources specific to California history. The County also has its own Local Official Register of Historic Resources, which provides protective status to resources that have local significance. Unlike the California Register, properties cannot be listed on the County Inventory or the National Register without the owner's consent.

3.14.2 Cultural Resources - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on cultural resources if it does any of the following:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5. Substantially degrade the existing visual character or quality of the site and its surroundings.
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
d) Disturb any human remains, including those interred outside of formal cemeteries.

Item "a", with respect to substantial adverse change in the significance of a historical resource, is discussed in Impact 3.14.3.1, Historical Resources. Items "b" and "c", with respect to adverse change in the significance of an archaeological resource pursuant to §15064.5 or the indirect destruction of a unique paleontological resource or site or unique geologic feature, are discussed as Impact 3.14.3.2, Archaeological and Paleontological Resources. Item "d", with respect to significant impacts from the disturbance to any human remains, including those interred outside of formal cemeteries, is discussed in Impact 3.14.3.3, Human Remains Outside Formal Cemeteries.

3.14.3 Cultural Resources – Impacts and Mitigation Measures

Impact 3.14.3.1. Historical Resources

Implementation of the General Plan Update would result in additional development that could adversely impact historical resources.

Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.

Adverse changes to the significance of a historical resource could occur if a resource is removed, if alterations are made and the historic character of a property is not retained and preserved, or if alterations are made to their immediate surroundings which change the historic character of the resource. Impacts to historical resources would be significant if the General Plan Update would allow such alterations or removals of historical resources.

The significance of historic resources is formally determined by a Cultural Resource Report, a study designed to identify and evaluate properties in a defined area. The methods and criteria for these reports follow guidelines established by the State Office of Historic Preservation. There are two different levels of surveys. An intensive survey is one in which the entire site is closely inspected, with detailed research. A reconnaissance survey does not require extensive research, but simply provides a visual assessment of buildings or structures that might be significant. The majority of the vast unincorporated area of the County has never been systematically surveyed.

The findings of a cultural resource report may recommend that a site or structure be designated special status, thereby becoming eligible for protection and other benefits. The designations relate to eligibility for inclusion on the National Register of Historic Places, a federal list maintained by the National Park Service or the State of California Register of Historical Resources. The California Register differs from the National Register in that its focus is on resources specific to California history. The County also has its own Local Official Register of Historic Resources which provides protective status to resources that have local significance. Unlike the California Register, properties cannot be listed on the County Inventory or the National Register without the owner's consent.

Growth in the next 20 years as contemplated by the General Plan Update has the potential to impact historic resources either through direct impacts to resources themselves or impacts to their immediate surroundings. Because of the widespread distribution of historic resources in Humboldt County, the potential for significant impacts on resources and/or their immediate surroundings exists in community centers, rural centers, rural lands, agricultural lands and public lands.

Development within Urban Development Areas has the greatest potential to impact resources because of the intensity of development planned to occur in such areas. Also, future development within other portions of community planning areas or in rural centers, rural lands, or agricultural lands, though at a relatively lower density, has the potential to adversely impact historic resources. Impact could occur as a result of development on existing legal lots of record. Developing such lots or modifying structures on such lots could be done as ministerial projects that require only a building permit, and therefore are not subject to additional CEQA

environmental review. The county currently checks the state and local listed historic resources (including those determined to be eligible for listing) prior to issuing building permits.

Precise impacts of future development in any of the community planning areas cannot be identified at this time. Comprehensive inventories of historic resources have not been completed on a community-wide basis. Potential impacts must be identified at the project level at the time site-specific plans for each of these areas are prepared along with their accompanying environmental documentation.

Impacts to historic resources can occur as a result of neglect. Potentially historic structures can become obsolete due to changes in ownership, changes in the use of the land, and eventual abandonment. For those projects that involve potentially historical structures (more than 50 years old), the County makes a referral to the local Historical Society for a determination on whether the project may qualify for an official historical designation. If the project qualifies for such a designation, the County encourages the applicant to pursue that designation.

Another potential source of impact is the development of infrastructure and facilities to support future growth under the proposed General Plan, including projects contemplated by the Circulation Element. Such improvements may include constructing roads, highways, public water systems, wastewater facilities, storm drain systems, and other amenities associated with urban land use. The nature and extent of impacts that might result from infrastructure improvements cannot be identified at this time inasmuch as the characteristics and locations of these facilities have not been identified. These impacts must be further delineated during subsequent environmental analysis at the project or master plan level, when plans for various facilities and infrastructure are developed.

The proposed policies of the General Plan Update enhance methods and procedures for protecting historic resources and avoiding or mitigating actions related to development that might otherwise result in destruction, relocation or alteration of historic resources or their surroundings. However, proposed policies may not fully protect resources from demolition through actions unrelated to discretionary development permits and review.

Analysis of Relevant General Plan Update Policies

The General Plan Update contains several policies, standards, and implementation programs intended to address potential impacts to historic resources. CU-P1, Identification and Protection, would require that cultural resources be identified during ministerial and discretionary project review and if found to be significant, protected from substantial adverse change. CU-P2, Native American Tribal Consultation, requires consultation with Tribes during discretionary project review for the identification, protection and mitigation of adverse impacts of cultural resources. CU-P2 also requires consultation during ministerial projects if it has been determined that the project may result in adverse changes to a significant cultural resource. CU-P3, Avoid Loss or Degradation, requires that projects located in areas known or suspected to be archaeological sites or Native American burial sites to be conditioned to avoid potential impacts (CU-S4 provides standards on conditioning, designing and/or mitigating projects to avoid the loss of cultural resources). CU-P4, Findings Necessary for Loss or Destruction, prohibits cultural resources from being substantially altered through a permit approval without a determination that the resource is not significant or where overriding public benefits and mitigations would occur. CU-P5, Mitigation, requires mitigations when development would adversely impact cultural resources.

The General Plan Update includes policies CU-P1 through CU-P5 which establish that the County will scrutinize development projects to identify and protect cultural resources, as well as cooperate with Native American groups where potential Native American resources could be affected by development proposals. This will lead to the identification of resources and the application of mitigation measures for both ministerial and discretionary projects on a project-by-project basis. Additionally, Standard CU-S1, Significant Cultural Resources Defined, broadly defines cultural resources to include buildings, structures, sites, districts, areas, places that are culturally, historically, or archeologically significant. CU-S3, Cultural Resources Community, specifies that the cultural resources community includes: a) Native American Tribes, defined as federally recognized and non-recognized tribes and tribal organizations that have ancestral lands in Humboldt County that are on the contact list maintained by the Native American Heritage Commission; and, the appointed Tribal Historic Preservation Officers (THPOs) of such tribes; b) Historic preservation organizations, including the Native American Heritage Commission, the California State Office of Historic Preservation, the North Coastal Information Center, the Northwest Information Center, Humboldt County Public Works Department and the Planning and Building Divisions, and local historical societies and museums; and c)Other interested parties who have requested in writing to be notified of such matters.

CU-S5, Assessment and Treatment of Impacts to Significant Historic Structures, Buildings and Districts**,** provides that a records check will be conducted for all ministerial projects. If a project site and/or structure is found to be listed on the local, State, or federal register, or has been surveyed and determined to be eligible for listing on the local, State, or federal register, it will be considered a significant cultural resource. Projects then must either be modified to ensure continued protection of the significant historical resources, or subjected to a discretionary review process where a Cultural Resources Report may be required if it is determined that cultural (including historic) resources may be significantly impacted by the project. To assist in identifying historical resources of significance, CU-S5 specifies that the County encourage the cultural resources community to utilize the nomination process for the California Register of Historic Places, which provides notice and comment opportunities for local government and the property owner, in determining eligibility for register listing.

Implementation Measure CU-IM1, Cultural Resources Ordinance and Advisory Committee, provides for the process of reviewing existing ordinances in order make necessary amendments that assures the protection of cultural resources. CU-IM1 also specifies the adoption of a comprehensive Cultural Resources Ordinance and the establishment of (an) advisory Cultural Resources Committee(s). The purpose of the Ordinance is to implement the goals, policies and standards of the cultural resources policies found in Chapter 10.7. These policies outline a clearly prescribed process for the identification, evaluation, assessment and treatment (mitigation) of cultural resource impacts for County permitted projects or actions that could result in significant adverse impacts and on recommendations.

Implementation Measure CU-IM3, Cultural Resources Designation, requires the development of a program that encourages and actively supports the nominations to the federal, state, and local cultural resource registration programs. Implementation Measure CU-IM4, Historic Building Code, promotes the use of the Historic Building Code of the State of California for historical sites. And Implementation Measure CU-IM5, Historic Building Identification**,** will establish and maintain a system for identifying significant historic buildings and structures (individually or as part of districts or landscapes).

The proposed General Plan Update includes a policy and standard (AG-P5 and AG-S5) to mitigate the loss of historic structures on agricultural land due to neglect.

The General Plan Update also includes Implementation Measure CU-IMx, Map Resource Areas. Under this Implementation Measure, the County, in consultation with the cultural resources community (as defined earlier by CU-S3), will map Overlay Zones for culturally sensitive areas (including potentially significant cultural landscapes) especially in rural, inland areas outside the Coastal Zone. This will serve to expand the County's review of projects that may affect known and unknown cultural resources to facilitate Initial Project Screening (CU-P1). CU-IMx also requires the development of a confidential database that identifies the location of sites of archaeological or cultural heritage sensitivity to prevent destruction from permitted activity. Lastly, CU-IMx requires the development of a list of listed, eligible or potentially eligible historical resources including architectural sites, districts and cultural landscapes, within the County's jurisdiction. Prior to the development of this list, CU-IMx requires the County to continue to contract with the NCIC and NWIC to provide rapid-response, reduced fee initial review of project locations for purposes of determining if known cultural resources are recorded on or near project areas, and for opinions on cultural resources sensitivity with appropriate recommendations.

Conclusion

The General Plan Update contains policies, standards and implementation measures which generally protect historical and archaeological resources or mitigate impacts to them. The General Plan Update policies and measures referenced above would reduce the anticipated impacts but not to a less-than-significant level. Historic structures may still be removed or substantially altered when building sites are prepared for new construction. Therefore, impacts to historic structures would **remain a significant and unavoidable impact** of the General Plan Update**.**

Impact 3.14.3.2. Archaeological and Paleontological Resources

Implementation of the General Plan Update would result in additional development that could adversely impact archaeological and paleontological resources.

Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5, or
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Ground-disturbing activities, such as clearing, excavation and grading, have the potential to damage or destroy archaeological and paleontological resources that may be present on or below the ground surface, particularly in areas that have not previously been developed. The proposed General Plan Update could result in an adverse change in the significance of archaeological resources by the designation of land uses that would result in ground-disturbing activities without proper regulation and monitoring. Such adverse changes may result in a loss of valuable information that could be gained from the resources, or prevent potentially eligible sites from being listed on a register of cultural resources.

Cultural resources exist in many undeveloped and developed areas, within communities and forest lands, mountain areas, and under agricultural lands. Although the potential exists for cultural resources to exist in all proposed land use designations, the intensity of development associated with some land uses have a greater potential to impact cultural resources than

others. The proposed General Plan Update would designate higher density land uses within Urban Development Areas and Water Service Areas located in Community Planning Areas. Therefore, the Community Planning Areas would experience higher potential for impacts to archaeological resources as compared to other parts of the County, because higher density land uses are more likely to result in development that requires extensive excavation or grading activities. However, areas outside of Community Planning Areas would also experience potential impacts to archaeological resources from development allowable under the proposed General Plan Update and the installation of septic tanks or access roads, although to a lesser extent than areas within Community Planning Areas.

Although most land uses proposed under the General Plan Update would allow for excavation and grading activities during development, some land uses would result in greater land disturbance activities than others, and would therefore be more likely to result in impacts to archaeological resources. For example, areas designated for urban uses, such as industrial, commercial, mixed use, and low to medium density residential would be more likely to result in construction activities that involve extensive excavation or grading activities than some of the lower intensity land use designations. Impacts to archaeological resources in areas designated for higher intensity land uses would be likely to occur. In contrast, open space recreation or open space conservation land use designations would generally not allow land uses that would involve excavation or grading activities during construction. Therefore, impacts to archaeological resources in areas with these land use designations would generally not occur.

Humboldt County has established special review procedures for projects mapped with an A-Archaeological Resources Combining Zone for areas within the Coastal Zone. The County uses different review procedures for each of three categories of development projects to reduce impacts of proposed development on archaeological resources. These are described in the following paragraphs.

First, before approving any discretionary permit for development, the County obtains a response from the Northwest Information Center of the California Archaeological Inventory at Sonoma State University on whether the proposed project may affect any mapped archaeological sites. If the records of that agency show the project may affect an archaeological resource, an on-site investigation and appropriate mitigation measures are required as necessary to protect the resource (e.g., project relocation, excavation plan, and protective cover).

Secondly, for other non-discretionary projects in areas with an "Archaeological" zone district, the Natural Resources Division of the County Public Works Division is consulted prior to project approval. That agency also has information on virtually all mapped sites throughout the County. In cases where the ministerial project is determined to potentially affect archaeological resources, a site investigation and appropriate mitigation measures are required prior to project approval (e.g., project relocation, excavation plan, and protective cover).

Existing requirements administered by the County also protect historical resources. Projects that involve designated historical sites may have their building permits processed under an alternative set of building codes, the Historical Building Code (Part 8 of the California Building Standards Code pp. 8-1 through 8-607). These alternative standards relax many of the typical building code requirements that would otherwise make maintenance or remodeling of historical structures infeasible.

For the third category of development projects, ministerial projects outside mapped archaeological resource areas, the County applies 21083.2 of the Public Resources Code which identifies the following criteria for identifying unique archaeological resources:

> *"…(g) As used in this section, "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.*
>
> *If cultural resources are encountered during construction, all work must cease and a qualified cultural resources specialist must be contacted to analyze the significance of the find and formulate further mitigation (e.g., project relocation, excavation plan, and protective cover)."*

While many archaeological sites are known and have been recorded, there is the potential these unknown archaeological resources exist within the County, particularly in areas that have not previously been surveyed for resources. The County has some mapped cultural resource areas, and the permit review process for new residential construction references these maps to avoid impacts on cultural resources, and to ensure new residential construction does not conflict with policies or ordinances protecting cultural resources. The location of past discoveries of archaeological resources can be useful in determining where potential impacts to unknown archaeological resources may occur.

The review procedures for the three categories of development projects identified in Impact 3.14.3.1 above are intended to reduce impacts of proposed development on historic resources and are also intended to reduce impacts to archaeological resources.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes policies requiring review of development projects under CEQA and the National Historic Preservation Act, as well as cooperation with Native American groups where potential Native American resources could be affected by development proposals. This will lead to the identification of resources and the application of mitigation measures on a project-by-project basis. The General Plan Response to Impact 3.14.3.1 and this section 3.14.2.2 describe the policies and standards contained in the Cultural Resources Chapter of the Conservation and Open Space Element that are intended to address potential impacts to archeological and paleontological resources that could result from the implementation of the General Plan Update. It is noted that some archeological and paleontological resources also have an historic component, so in such cases both policy sets are applicable.

Prehistoric and historical archaeological deposits, some of which may qualify as historical or unique archaeological or paleontological resources under CEQA, are known to exist in Humboldt County. Development actions that could occur consistent with the General Plan Update could result in a substantial adverse change (e.g., damage or destruction) in the significance of archaeological deposits that meet either definition. Therefore, this impact could be significant. The General Plan Update proposed the addition of CU-S4 that specifically addresses this issue. CU-S4 requires that ministerial and/or discretionary projects must be re-

designed, conditioned and/or mitigated to avoid or reduce impacts to archaeological resources. CU-S4 also requires that any discretionary and/or ministerial projects that involve ground disturbing activities, provide a notation on development plans to read as follows:

> *"The project site is not located within an area where known archaeological sites have been identified. However, as there exists the possibility that undiscovered archaeological resources may be encountered during construction activities, the following post-review, inadvertent archaeological discovery measures are required under state and federal laws:*
>
> *If archaeological resources are encountered, all ground disturbing work at the find location plus a reasonable buffer zone must be immediately suspended*, the approving County department contacted, *and a qualified professional archaeologist retained to analyze the significance of the find and formulate further mitigation (e.g., project relocation, excavation plan, and protective cover) in consultation with culturally affiliated tribes or other descendant groups, where applicable.*
>
> Pursuant to California Health and Safety Code §7050.5, if known or suspected Native American or other human remains are encountered, all ground-disturbing work must cease in the vicinity of the discovery, and the County Coroner contacted. The respectful treatment and disposition of remains and associated grave offerings shall be in accordance with PRC §5097.98. The applicant and successors in interest are ultimately responsible for ensuring compliance with this condition."

Conclusion

It is anticipated that conflicts would occur between land development and the preservation of significant archaeological deposits. Situations would occur in which significant archaeological deposits could be damaged or destroyed as result of development that is consistent with the General Plan Update. Policies and implementation programs contained in the General Plan Update address these situations and partially provide for the identification, evaluation, and mitigation of impacts on archaeological deposits. The programs contained in the General Plan Update would reduce potential impacts on archaeological deposits to **a less-than-significant level**.

Mitigation

None required.

Impact 3.14.3.3. Human Remains Outside Formal Cemeteries

Implementation of the General Plan Update would result in additional development that could disturb human remains, including those interred outside of formal cemeteries. Based on Appendix G of the CEQA Guidelines the proposed County General Plan Update would have a significant impact if it would:

d) Disturb any human remains, including those interred outside of formal cemeteries.

Sensitive archaeological sites with the potential for human remains are known and mapped, and would be avoided through the existing review process. There is a possibility that some unknown burial sites would be discovered as a consequence of ground disturbing activities resultant from development. Impacts to unknown burial sites would be significant if the General

Plan Update would allow such ground disturbing activities without any protection for the buried remains.

Although the potential exists for unknown burials to exist in all proposed land use designations, the intensity of development associated with some land uses have a greater potential to impact unknown burials than others. The proposed General Plan Update would designate higher density land uses within Urban Development Areas and Water Service Areas located in Community Planning Areas. Therefore, the Community Planning Areas would experience higher potential for impacts to unknown burials as compared to other parts of the County, because higher density land uses are more likely to result in development that requires extensive excavation or grading activities. However, areas outside of Community Planning Areas would also experience potential impacts to unknown burials from development allowable under the proposed General Plan Update and the installation of septic tanks or access roads, although to a lesser extent than areas within Community Planning Areas.

Although most land uses proposed under the General Plan Update would allow for excavation and grading activities during development, some land uses would result in greater land disturbance activities than others, and would therefore be more likely to result in impacts to unknown burials. For example, areas designated for urban uses, such as industrial, commercial, mixed use, and low to medium density residential would be more likely to result in construction activities that involve extensive excavation or grading activities than some of the lower intensity land use designations. Impacts to unknown burials in areas designated for higher intensity land uses would be likely to occur. In contrast, open space recreation or open space conservation land use designations would generally not allow land uses that would involve excavation or grading activities during construction. Therefore, impacts to unknown burials in areas with these land use designations would generally not occur.

Humboldt County has established special review procedures for projects mapped with an A-Archaeological Resources Combining Zone for areas within the Coastal Zone. The County uses different review procedures for each of three categories of development projects to reduce impacts of proposed development on archaeological resources, which would also protect unknown burials in those areas. These are described in the following paragraphs.

First, before approving any discretionary permit for development, the County obtains a response from the Northwest Information Center of the California Archaeological Inventory at Sonoma State University on whether the proposed project may affect any mapped archaeological sites. If the records of that agency show the project may affect an archaeological resource, an on-site investigation and appropriate mitigation measures are required as necessary to protect the resource (e.g., project relocation, excavation plan, and protective cover).

Secondly, for other non-discretionary projects in areas with an "Archaeological" zone district, the Natural Resources Division of the County Public Works Division is consulted prior to project approval. That agency also has information on virtually all mapped sites throughout the County. In cases where the ministerial project is determined to potentially affect archaeological resources, a site investigation and appropriate mitigation measures are required prior to project approval (e.g., project relocation, excavation plan, and protective cover).

Existing requirements administered by the County also protect historical resources. Projects that involve designated historical sites may have their building permits processed under an alternative set of building codes, the Historical Building Code (Part 8 of the California Building Standards Code pp. 8-1 through 8-607). These alternative standards relax many of the typical

building code requirements that would otherwise make maintenance or remodeling of historical structures infeasible.

For the third category of development projects, ministerial projects outside mapped archaeological resource areas, the County applies 21083.2 of the Public Resources Code which identifies the following criteria for identifying unique archaeological resources:

> *"…(g) As used in this section, "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.*
>
> *If cultural resources are encountered during construction, all work must cease and a qualified cultural resources specialist must be contacted to analyze the significance of the find and formulate further mitigation (e.g., project relocation, excavation plan, and protective cover)."*

While many burial sites are known and have been recorded, there is the potential unknown burials exist within the County, particularly in areas that have not previously been surveyed for archaeological resources. The County has some mapped cultural resource areas, and the permit review process for new residential construction references these maps to avoid impacts on cultural resources, and to ensure new residential construction does not conflict with policies or ordinances protecting cultural resources. These review processes would protect unknown burials in these cultural resource areas as well.

The review procedures for the three categories of development projects identified in Impact 3.14.3.1 above are intended to reduce impacts of proposed development on historic resources and are also intended to reduce impacts to unknown burials.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes policies requiring review of development projects under CEQA and the National Historic Preservation Act, as well as cooperation with Native American groups where potential Native American resources, including unknown burials, could be affected by development proposals. This will lead to the identification of unknown burials and the application of mitigation measures on a project-by-project basis. The General Plan Response to Impact 3.14.3.1 and this section 3.14.2.2 describe the policies and standards contained in the Cultural Resources Chapter of the Conservation and Open Space Element that are intended to address potential impacts to historic resources and archeological resources, including Native American burial sites, that could result from the implementation of the General Plan Update. It is noted that some archeological resources, including Native American burial sites may have an historic component, so in such cases both policy sets are applicable.

Unknown burial sites, some of which may qualify as historical or unique archaeological or paleontological resources under CEQA, are likely to exist in Humboldt County. Development actions that could occur consistent with the General Plan Update could result in a substantial adverse change (e.g., damage or destruction) to the burial sites. Therefore, this impact could be significant. The General Plan Update proposed the addition of CU-S4 that specifically addresses this issue. CU-S4 requires that ministerial and/or discretionary projects must be re-designed, conditioned and/or mitigated to avoid or reduce impacts to archaeological resources, including Native American burial sites. CU-S4 also requires that any discretionary and/or ministerial projects that involve ground disturbing activities, provide a notation on development plans to read as follows:

> *"The project site is not located within an area where known archaeological sites have been identified. However, as there exists the possibility that undiscovered archaeological resources may be encountered during construction activities, the following post-review, inadvertent archaeological discovery measures are required under state and federal laws:*
>
> *If archaeological resources are encountered, all ground disturbing work at the find location plus a reasonable buffer zone must be immediately suspended*, the approving County department contacted, *and a qualified professional archaeologist retained to analyze the significance of the find and formulate further mitigation (e.g., project relocation, excavation plan, and protective cover) in consultation with culturally affiliated tribes or other descendant groups, where applicable.*
>
> Pursuant to California Health and Safety Code §7050.5, if known or suspected Native American or other human remains are encountered, all ground-disturbing work must cease in the vicinity of the discovery, and the County Coroner contacted. The respectful treatment and disposition of remains and associated grave offerings shall be in accordance with PRC §5097.98. The applicant and successors in interest are ultimately responsible for ensuring compliance with this condition."

Conclusion

It is anticipated that conflicts would occur between land development and the preservation of unknown human burial sites. Situations would occur in which the burial sites could be damaged or destroyed as result of development that is consistent with the General Plan Update. Policies and implementation programs contained in the General Plan Update address provide for the identification, evaluation, and mitigation of impacts on archaeological deposits, which may include burial sites. The programs contained in the General Plan Update would reduce potential impacts on buried human remains to **a less-than-significant level**.

Mitigation

None required.

3.15 Parks and Recreation

This section provides background information regarding parks and recreation facilities and services within the County, the state and local regulations that govern them, and an assessment of the potential impacts to parks resulting from the proposed General Plan Update. Existing parks and recreation facilities and programs are described in Chapter 5, Parks, Recreation, and Open Space, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D, http://humboldtgov.org/DocumentCenter/Home/View/1370), and Section 9, Parks and Recreation of the *Community Infrastructure & Services Technical Report,* July 2008 (Appendix Q, http://humboldtgov.org/DocumentCenter/Home/View/1449). These reports, which are available for review at the Planning Division public counter during normal business hours at 3015 H Street in Eureka, are incorporated herein by reference, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied on for the environmental setting and analyses.

3.15.1 Parks and Recreation - Environmental and Regulatory Setting

Recreation and Park Facilities in Humboldt County

More than twenty percent of the County's 2.3 million acres are protected open space, forests, and recreation areas. Within the County boundaries, there are four federal parks and beaches, ten state parks (three of which are encompassed by Redwood National Park), 16 County parks, beaches, recreational areas and reserves. These areas contribute to the quality of life in Humboldt County and provide needed recreational opportunities for residents of neighboring counties and visitors from all over the world.

Several agencies manage the parks, recreation, and open space resources in Humboldt County including Native American tribes, the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), United States Forest Service (USFS), California Department of Fish and Wildlife (CDFW), California State Parks Department, local city governments, Humboldt County, and special districts.

Regional Park Facilities

Most parks in Humboldt County are regional in scope; outside the incorporated cities there are few local community or neighborhood parks. There are nearly 468,000 acres of federally managed parklands in the County, including National Forest, National Parks, and National Wildlife Areas, and 7,600 acres of Bureau of Land Management Reserve Lands. The County has about 76,000 acres of State Beach, State Parks, and State Reserve Lands. Humboldt County operates approximately 850 acres of parkland that includes ocean beaches, river access, boat ramps, and trails. Maps and figures describing the location and extent of regional parklands and open space in Humboldt County can be found in *Natural Resources and Hazards Report* Volume 1, Figure 5-1 and Tables 5-1 through 5-3 (Appendix D).

Local Park Facilities

Community and neighborhood park facilities are described in Section 9 of the *Community Infrastructure and Services Technical Report* (Appendix Q). Tables 9.1 through 9.12 in that report detail the park and recreation facilities found in Humboldt County's seven incorporated cities as well as within the Manila, McKinleyville, Scotia, and Willow Creek Community Services Districts and Resort Improvement District No. 1, and are summarized below in Table 3.15 -1. Updates have been made by staff of the Planning and Building Department since the publication of the Community Infrastructure and Services Technical Report based on best available information from service providers and other planning documents.

Table 3.15-1. Park Facilities in Unincorporated Humboldt County.

Park Name	Location	Park Type	Size in Acres
Humboldt County Operated			
Arthur W. Way County Memorial Park	36594 Mattole Rd, Honeydew	Regional	20
Big Lagoon County Park	505 A St, Big Lagoon	Regional	52
Centerville Beach County Park	4000 Centerville, Rd, Ferndale	Regional	2
Clam Beach County Park	1100 Clam Beach Rd, McKinleyville	Regional	370
Crab County Park	4000, Cannibal Rd, Loleta	Regional	10.5
Fields Landing County Park	160 Railroad Ave, Fields Landing	Regional	1.5
Freshwater County Park	Freshwater Rd, Freshwater	Regional	7
Hammond Trail	McKinleyville	Regional	5
Luffenholtz Beach County Park	Scenic Drive, Westhaven	Regional	7.5
Mad River County Park	150 Mad River Rd, Arcata	Regional	95.5
Margarite Lockwood Park	Maple Hills Rd, Miranda	Regional	20
Moonstone Beach County Park	Moonstone Beach Rd, Westhaven	Regional	8
Pedrazzini County Park	Pedrazzini Park Ln, Loleta	Regional	1
Samoa Boat Ramp	New Navy Base Rd, Samoa	Regional	8
Table Bluff County Park	Table Bluff Rd, Loleta	Regional	34
Van Duzen County Park	St Hwy 36, Carlotta	Regional	200
Sub Total			**842**

Park Name	Location	Park Type	Size in Acres
Manila CSD Operated			
Manila Dunes Rec. Area & Community Center	**1901 Park Street, Manila**	**Regional**	**154**
Manila Park	Lupin Avenue and Peninsula Drive, Manila	Community	12
Sub Total			**166**
McKinleyville CSD Operated			
Hiller Park and Sports Complex	795 Hiller Road, McKinleyville	Community	58
Pierson Park	1608 Pickett Road, McKinleyville	Community	5
Larissa Park	Larissa Circle, McKinleyville	Neighborhood	0.3
Sub Total			**63.3**
RID No. 1 (Shelter Cove) Operated			
Shelter Cove Golf Course	1555 Upper Pacific Drive, Shelter Cove	Regional	35
Playground	9126 Shelter Cove Road, Shelter Cove	Neighborhood	0.25
Sub Total			**35.25**
Scotia CSD Operated			
Scotia Fireman's Park (including soccer field)	Williams Street, Scotia	Community	10
Carpenter Field	Williams Street, Scotia	Community	4
Scotia Community Forest	Scotia	Regional	22.5
Scotia Museum, Town Park, Winema Theater	Main Street @ Bridge Street, Scotia	Neighborhood	0.75
Sub Total			**37.25**
Willow Creek CSD Operated			
Kimtu Beach & Camp Kimtu	Kimtu Road, Willow Creek	Regional	17
Veteran's Park	Kimtu Road, Willow Creek	Neighborhood	16
Creek Side Park	Willow Road, Willow Creek	Neighborhood	3.6
Community Commons	38919 Hwy 299, Willow Creek	Neighborhood	1.2
Sub Total			**37.8**
Total Parkland serving Community Areas			**1,182**

Source: Community Infrastructure and Services Technical Report, 2008; Humboldt County Planning and Building Advanced Planning Division, 2016.

The Technical Report also contains narrative descriptions of the activities of the Northern Humboldt and Rohner Community Recreation and Park Districts. School playgrounds in

Humboldt County are often the most accessible facilities for recreational use by children and families, and although they serve a broader community need, they are not designed and constructed as community park and recreation facilities and there is no formal program to maintain them as such. In recent years, school districts have installed security measures to protect buildings and facilities which limits their accessibility for broader community use and, as with all California public agencies, funding for facility maintenance and improvement is limited. Future school district budget and security requirements are unknown; therefore there is no guarantee that school facilities will remain available to serve the community public park and recreation needs in the future.

Private individuals and groups also provide parks and recreation facilities. For example, most communities have a health club that offer services such as weight lifting and fitness classes. In addition, there are parks open to the public that are operated by private non-profit groups such as the Redwood Fields in Cutten (an approximately 12-acre site that includes ball fields, playgrounds, picnic areas, and bocce courts), and the Southern Humboldt Community Park in Garberville (a 405-acre site that includes sports fields, playgrounds, picnic areas, and trails).

Table 3.15-2 lists acres of local and community parkland in unincorporated Humboldt County by Community Planning Area (CPA) (inland and coastal), where the local agency is responsible for planning, funding, and providing parklands for that area. Park operators include special districts such as Community Service Districts. Parks located within incorporated cities, like school facilities are, in many cases, the closest facilities to unincorporated communities, but are not included in this analysis. City parklands and facilities may serve unincorporated populations, just as the residents of one city may use the parklands of another city. However, city parklands are not designed and managed to serve unincorporated areas. Parklands provided by non-profit organizations such as Redwood Fields in Cutten and the Southern Humboldt Community Park may also be important to unincorporated areas, but are not included in this analysis because they are not operated by a local agency that is responsible for planning, funding, and providing park facilities for that area.

Total neighborhood and community park acres are compared to unincorporated area population within Community Planning Areas. Additional detail regarding facility type and park location can be found in Sections 9.1.1 and 9.1.2 of the *Community Infrastructure and Services Technical Report* and Table 5-3, County Parks and Trails of the Parks, Recreation, and Open Space section of the Natural Resources and Hazards Technical Report.

Table 3.15-2. Neighborhood and Community Parks by Planning Area

Community/Coastal Planning Area	Community & Neighborhood Park Acres	Acres Per 1,000 Persons
Arcata CPA	0	0
Avenues CPA-Miranda	0	0
Avenues CPA-Myers Flat	0	0
Avenues CPA-Phillipsville	0	0
Avenues CPA-Stafford-Redcrest	0	0
Avenues CPA-Weott	0	0
Blue Lake CPA	0	0
Eel River AP	0	0
Eureka CPA	0	0

Community/Coastal Planning Area	Community & Neighborhood Park Acres	Acres Per 1,000 Persons
Fieldbrook-Glendale CPA	0	0
Fortuna CPA	0	0
Freshwater CPA	0	0
GRBA-Alderpoint CPA t	0	0
GRBA-Redway/Garberville CPA	0	0
Humboldt Bay AP	0	0
Hydesville CPA	0	0
Jacoby Creek CPA	0	0
McKinleyville AP/ CPA	63.38	4.1
North Coastal AP	0	0
Orick CPA	0	0
Orleans CPA	0	0
Rio Dell-Scotia CPA	37.25	9.1
Shelter Cove AP/ CPA	0.025	0.04
South Coast AP	0	0
Trinidad AP	0	0
Westhaven CPA	0	0
Willow Creek CPA	20.8	13
Grand Total	**93**	**1.41**

CPA – Community Planning Area
Source: Community Infrastructure and Services Technical Report, 2008; Humboldt County Community Development Services.

Coastal Accessways

The California Coastal Act encourages local agencies to provide maximum access to recreational opportunities within the coastal zone. Numerous coastal access points have been identified within each of the approved coastal plans for the coastal zone portions of the County. A complete listing of the coastal access points is included in the Natural Resources and Hazards Report Volume 1, Appendices. The *Local Coastal Plan Issue Identification Report, September 2003* (Appendix L), (http://humboldtgov.org/DocumentCenter/Home/View/1863) includes additional information regarding coastal access points, including inventories for each local coastal plan.

3.15.2 Parks and Recreation - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix G. The proposed General Plan Update would result in significant impacts related to parks and recreation if it would:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
b) Require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Item "a" is discussed in Impact 3.15.3.1, Deterioration of Parks and Recreational Facilities. Items "b" is discussed as part of Impact 3.15.3.2, Construction of New Recreational Facilities.

3.15.3 Parks and Recreation - Impacts and Mitigation Measures

Impact 3.15.3.1. Deterioration of Parks and Recreational Facilities

Implementation of the General Plan Update could facilitate population growth that outpaces improvements to existing parks and recreation facilities, resulting in their overuse and deterioration.

This impact analysis addresses item "a" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.15.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Population growth that is projected by the State of California Department of Finance (DOF) to occur during the planning period would likely utilize park and recreation facilities at a similar rate as the current population. In general, significant environmental affects would occur if population growth and park use outpace the improvements to parks and recreation facilities resulting in the deterioration of existing facilities. If park and recreation facilities are not developed at a rate commensurate with population growth, the proposed General Plan Update could result in overuse and deterioration of existing parks and recreation facilities. To avoid deterioration, sufficient additional parkland acres should be provided in order to maintain or exceed the current population to parklands acres ratio, hereafter referred to as "needed acres of parkland".

Table 3.15-3, Needed Acres of Park Land in Areas with Parkland Requirements, identifies the acres of park land required to maintain the current ratio of population to parkland at the peak population during the General Plan Update planning period as projected by the Department of Finance (peak population will occur in 2028). Peak population is determined by multiplying the proportion of 2010 unincorporated area population to total County population by the projected housing unit growth within each Community Plan Area/Area Plan.

Table 3.15-3. Needed Acres of Park Land in Areas with Parkland Requirements.

Community/Coastal Planning Area	Existing Community & Neighborhood Park Acres	2010 Population	Existing Park Acres Per 1,000 Persons	Projected Peak Population Increase (2028)	Park Acres Needed to Maintain Ratio
Eureka CPA	0.00	12,631	0.00	1,460	0.00
McKinleyville AP/ CPA	63.38	15,476	4.10	496	2.03

Source: Community Infrastructure and Services Technical Report, 2008; Humboldt County Planning and Building Department, 2016.

The only community plan that specifies parkland standards is the McKinleyville Community Plan, which requires three acres of community park land per 1,000 new residents and two acres of neighborhood and mini park/tot lots per 1,000 new residents. There are approximately 15,476 persons in the McKinleyville CPA and McKinleyville Area Plan (Coastal Zone Segment for the McKinleyville area, the developed portion of which is within the McKinleyville CSD) and 63 acres of park facilities, which results in 4.1 acres of community and neighborhood parkland per 1,000 residents (based on 2010 population and information from the 2008 Community Infrastructure and Services Technical Report). The projected 2028 population for the McKinleyville CPA and McKinleyville AP would be approximately 15,972 persons. The McKinleyville CPA/AP currently has adequate parkland to accommodate the three- acre community parkland standard and 2-acre neighborhood park standard for the projected 2028 population, but would need to develop additional parklands to maintain the current ratio of parks to population. It is assumed that by maintaining the current ratio, the deterioration of existing park facilities would be avoided.

There is no local agency park provider within the Eureka CPA. The Eureka CPA requires that at least a five acre parkland be provided as part of a subdivision for each of three large land tracts. These tracts include the Barry property atop Humboldt Hill, the Robinson\Dunn property in Cutten and the McKay South tract located east of Walnut Drive in Ridgewood Heights. The parklands shall be required to meet the requirements of the Eureka CPA. To date, none of the above listed developments have occurred nor have the five acre parks been developed.

The current Humboldt County Zoning Regulations (Section 314-110.1 Parkland Dedication) require that residential subdivisions offer to dedicate land to a public or private non-profit agency for public park or recreation use or pay in-lieu fees to provide an appropriate contribution to public parks or recreation, pursuant to the Quimby Act (Government Code section 66477). Parkland dedication requirements are consistent with policies contained in the McKinleyville Community Plan and Coastal Area Plan as well as within the Eureka Community Plan. This current Parkland Dedication program would require that residential subdivisions in Eureka and McKinleyville make fair share contributions towards new park facilities or rehabilitating existing park facilities. These contributions would serve to limit the deterioration of existing facilities in these areas.

Coastal Access policies contained in each Local Coastal Plan require that new development not interfere with existing access points to coastal resources in the coastal zone. The Public Recreation and Public Lands land use and zoning classifications limit the allowed uses to protect recreational uses from new development. The Parkland Dedication requirements provide funding for development of new parks in urban areas.

Analysis of Relevant General Plan Update Policies

Goals, policies, standards and implementation measures contained in the Community Infrastructure and Services Element, as well as of the Conservation and Open Space Elements, are intended to address potential impacts to parks and recreation. Policies IS-P3, Public Infrastructure and Services Standards, and IS-P8, Infrastructure and Services Capacity, and Policy CO-P5, Planning for Recreational Needs within Communities, set forth the requirements that the County plan for parks within communities, coordinate with appropriate service providers to monitor the capacities of infrastructure and services in relation to existing and planned demand, and specify infrastructure and service needs for new development. Policy IS-P4, Requirements for Discretionary Development, directs the County to evaluate proposed development relative to service standards adopted by the County, service provides, and state and federal agencies, and if necessary impose conditions to ensure that the appropriate standards are met. In addition, Policy IS-P21, Parks and Recreation Service in Urban Development Areas, encourages special districts to provide parks and recreation services to meet the needs of urban area populations. However, this policy is only advisory and cannot be relied upon to lessen impacts to parklands resulting from the General Plan Update.

Standard IS-S7, Parkland Requirements, requires all residential subdivisions to offer to dedicate land or pay a parkland dedication in-lieu fee pursuant to the Quimby Act (Government Code section 66477).

The General Plan Update does not specify parkland standards. Instead, park standards would be established as part of community plans, such as the McKinleyville Community Plan, through implementation measures contained in the plan. Implementation Measure IS-IM29, Parks and Recreation, would prepare standards for new development that consider community preference and differentiate between urban, suburban, and rural settings; specify acreage of park land per 1,000 residents; and specify land dedication, in-lieu fees or other mechanisms to make park and recreation improvements.

Policy CO-P6, Develop and Maintain County Parks, requires that the County secure, develop and maintain parks that are accessible to the public in order to serve the current and future needs of County residents. Policy CO-P7, Encourage Private Outdoor Recreation, encourages the development of private parklands and outdoor recreational services and facilities as a means to generate economic returns for the landowner from conservation and open space lands.

Conclusion

Table 3.15-3, Needed Acres of Park Land, specifies the number of additional parkland acres that would be required to maintain the current ratio of park acres to residents within Community Planning Areas that have park requirements. The application of policies, programs, and implementation measures contained in the General Plan Update could provide a framework for coordinated planning for park and recreation facilities to ensure that new residential development includes provisions for adequate parks and open space in order to avoid an undue burden on existing facilities which would otherwise lead to deterioration. Implementation Measures IS-S7, Parkland Requirements requires all new residential development to offer to dedicate land or pay a parkland dedication in-lieu fee pursuant to the Quimby Act. In addition, IS-IM29, Parks and Recreation, would create standards for establishing park and recreation improvements.

However, there is no guarantee that setting standards will ensure that development allowed under the General Plan Update would not place undue burdens on existing parkland.

Therefore, impacts to parks facilities resulting from the implementation of the General Plan Update would be potentially significant.

Mitigation

Mitigation 3.15.3.1.a. In order to protect existing parkland from deterioration that could result from development pursuant to the General Plan Update, the following Policies and Implementation Measures shall be added to the Community Infrastructure and Services Element:

> ***IS-Px. Parks Master Plan.*** *In cooperation with other park service providers, the County shall establish and maintain a Parks Master Plan that would assess current facilities within each inland and coastal planning area, determine appropriate locations for new facilities, and identify funding options.*
>
> ***IS-Sx. Interim Parks and Recreation Standards.*** *Parks and recreation standards contained in the Government Code Section 66477 shall be used as the standard for parkland dedication in the review of divisions of land for which a tentative map is required pursuant to Section 66426, until such time that the County has established parks and recreation standards for new development that differentiate between urban and rural settings; specify acreage of park land of 3 acres per 1,000 residents; and specify land dedication, in-lieu fee, or other mechanisms to fund park and recreation improvements and funding for operation and maintenance.*

Level of Significance after Mitigation

With implementation of the General Plan Update policies, standards and implementation measures, and the mitigation measures identified above, impacts relating to the deterioration of parks and recreation facilities would be **less-than-significant,** particularly when considering the extensive area of County, state, and federal parkland within the County General Plan Update planning area.

Impact 3.15.3.2. Construction of New Recreational Facilities

Implementation of the General Plan Update could facilitate population growth that would require the construction or expansion of recreational facilities which could have an adverse physical effect on the environment.

This impact analysis addresses item "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.15.2 above. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it would:

b) Require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

The General Plan Update would accommodate population growth, which would lead to increased demand for recreational facilities within the County. The Eureka and McKinleyville areas are the most populous communities in the unincorporated area, and are projected to receive the most significant levels of development during the General Plan update planning period. Lower levels of development would be expected to occur in other areas. Scattered development is expected to occur in rural areas. The General Plan Update land use diagram

does not specify the location of planned new parks or recreational facilities, the need for which could be triggered by the implementation of the General Plan.

The Quimby Act allows cities and counties to establish requirements for new development to dedicate land for parks, pay an in-lieu fee, or a combination of the two, and requires that standards be adopted for recreational facilities in its general plan recreation element. The Eureka and McKinleyville Community Plans contain park dedication policies and standards consistent with the Quimby Act.

Eureka Community Plan. The Eureka Community Plan requires that at least five acres of parkland be provided as part of a subdivision for each of three large land tracts. These tracts include the Barry property at the top Humboldt Hill, the Robinson-Dunn property in Cutten, and the McKay South tract located east of Walnut Drive in Ridgewood Heights. The Eureka Community Plan specifies that the terrain of park sites should be suitable to accommodate both active and passive recreational activities. The terrain for each of the three five- acre parks is required to consist of relatively flat, stable land usable for softball/soccer fields and basketball courts. A small portion of the land may be wooded and sloped to allow for passive recreation uses. To date, none of these areas have been subdivided and none of the five-acre parks have been developed.

McKinleyville Community Plan. Tables 17 and 18 of the McKinleyville Community Plan identify a series of park and recreation facilities that are needed within the McKinleyville area. The McKinleyville Community Plan includes policies to augment and compliment the efforts of the McKinleyville CSD Recreational Plan by encouraging the acquisition and development of other recreational amenities by other non-County entities such as the Redwood Community Action Agency, McKinleyville Land Trust, or the Coastal Conservancy in order to provide a comprehensive system of public trails, greenbelts, and parks. Future park development projects within the McKinleyville Community Plan area would include various expansions to Hiller Park and the development of playgrounds, ball fields, and tot lots in major developments and other locations.

As indicated above, the location and nature of park and recreation facilities that would be required as a result of the implementation of the General Plan Update is not known at this time. Parks and recreation projects are often located at or adjacent to existing facilities, but could occur in new locations. Table 3.15-3, Needed Acres of Park Land, identifies the acres of parkland needed to maintain the current ratio of population to parkland within the Eureka and McKinleyville Community Planning Area (the only two with park standards). The acreage required for each park project would vary depending on the specific park facility needs. Some projects may be as small as 10,000 to 20,000 square feet (e.g., a tot lot, basketball court, or recreation building) while larger projects may be several acres in area (e.g., ball fields). Therefore, the construction of these facilities could result in adverse physical effects on the environment related to geology, stability, and failure hazards; hydrology and drainage; water quality, erosion and drainage; air quality; sensitive flora and fauna; streams, wetlands and riparian areas; traffic and circulation; utilities and public services; aesthetics; cultural resources; population, housing, and employment; hazardous materials; and noise. However, site-specific impacts of potential new parks and recreation facilities cannot be determined until such time as they are proposed and under environmental review.

Analysis of Relevant General Plan Update Policies

As identified in Impact 3.15.3.1 above, policies, programs, and implementation measures contained in the General Plan Update would impose requirements on discretionary

development to provide adequate parkland and recreation facilities to offset additional demands. In particular, Policy IS-P4, Requirements for Discretionary Development, requires that the County evaluate discretionary development projects greater than one single family unit relative to County, service provider, and state and federal service standards, and if necessary, impose conditions to ensure that standards are met. In addition, Policy IS-P21, Parks and Recreation Service in Urban Development Areas, encourages special districts to provide parks and recreation services to meet the needs of in urban area populations. Standard IS-S7 Parkland Requirements requires that new residential subdivisions dedicate land or pay in-lieu fees for parkland pursuant to the Quimby Act. Implementation Measure IS-IM29, Parks and Recreation, would establish urban and rural parks and recreation standards for new development and specifies land dedication, in-lieu fees, or other mechanisms to facilitate park and recreation improvements. This implementation measure does not address funding for ongoing maintenance.

The discussion above identifies the need for additional parklands in the Eureka and McKinleyville Community Planning Areas to ensure that current population to parkland ratios are maintained, which would be facilitated by the implementation of the proposed General Plan Update. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded park facilities:

- The Circulation Element contains policies to reduce traffic impacts by supporting the location of intensive land uses near collectors and arterials (C-P1, Orderly Development; and utilizing traffic impact thresholds (C-P5, Level of Service Criteria).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21, Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood

hazard areas (S-P10, Federal Flood Insurance Program). Also, Policy S-PX1, Site Suitability, specifies that new development may be approved only if it can be demonstrated that the proposed development will neither create nor significantly contribute to or be impacted by geologic instability or geologic hazards; and Policy S-PX3, Construction Within Special Flood Hazard Areas, restricts construction within a floodplain identified as the 100-Year Flood Boundary on FEMA's Flood Insurance Rate Map.

- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

Implementation of the General Plan Update would result in the need for new or expanded parks and recreation facilities, the construction of which could result in significant environmental effects. Such new parks and recreation facilities would likely be constructed as part of a subdivision or require another County land use approval. New parks or recreational facilities could also be carried out by public park service providers on land planned and zoned in a manner that does not require a County land use approval. In such instances, the public park service provider would be required to seek General Plan conformance review by the County pursuant to Government Code Section 65402, and the above-listed General Plan Update policies would direct the County to work cooperatively with the service provider to plan and implement the project consistent with this plan. In particular, the General Plan encourages public agencies to plan for park and recreation facilities in areas with adequate road, pedestrian, and bicycle circulation and access to appropriate utility services.

However, the nature and location of potential new or expanded park and recreation facilities that would be constructed by another agency and that do not trigger a County land use approval is not known. As a result, the potential impacts of these facilities are too speculative for evaluation. Such potential new or expanded park and recreation facilities are within the responsibility and jurisdiction of other public agencies, and not the County, and appropriate mitigations can and should be adopted by such other agency.

If the new or expanded facilities were to be constructed as part of a subdivision or other process requiring County land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, General Plan Update impacts relating to the need for new or expanded parks and recreation facilities triggered by the General Plan would be **less-than-significant**.

3.16 Scenic Resources

This section provides background information regarding scenic resources within the County, the regulations and programs that provide for their protection, and an assessment of the potential impacts to scenic resources from implementing the proposed General Plan Update. Existing scenic resource conditions are described in Chapter 8, Scenic Resources, of the *Natural Resources and Hazards Report*, September 2002 (Appendix D), which includes a discussion of Humboldt County scenic resources and viewsheds. This report, which is available for review at the Planning Division public counter at 3015 H Street in Eureka during normal business hours, or for download at http://humboldtgov.org/571/Background-Reports, is incorporated by reference herein, and summarized below. Where any discrepancies may exist between the referenced material and the material presented here, the material presented here should be considered as the most up to date and is to be relied upon for the environmental setting and analyses.

3.16.1 Scenic Resources - Environmental and Regulatory Setting

Scenic Resources in Humboldt County

Humboldt County contains a wide range of scenic or visual resources. Views include coastline, mountains, hills, ridgelines, inland water features, forests, agricultural features, and rural communities in various combinations. Views are distant and proximate, panoramic and discrete. There are perhaps very few areas of the County where scenic resources are not evident.

Coastal Views

Humboldt County's varied and extensive Pacific Ocean coastline allows for a wide range of scenic vistas from State Route 101, and from beaches, state parks and coastal access points. The County's Local Coastal Program includes a technical study on visual resources, which evaluates opportunities and constraints within the Coastal Zone. This study, completed in 1979, includes a detailed inventory of local visual resources along Humboldt's coastline, such as vantage points that offer coastal views. The study inventories and maps areas of visual concern and identifies areas as "highly scenic" or "visually degraded."

Forests

Forestland is the dominant visual landscape of Humboldt County. Redwood National Park, Six Rivers National Forest, Redwoods State Park, and Kings Range National Conservation Area are all significant, protected forests within the County. Forestland is abundant well beyond these protected areas. The scenic value of these natural resources viewed both from within or from outside, is greatly valued.

Open Space and Agricultural Lands

The rural character of the County is also defined, in part, by its topography and the views afforded by the natural landforms. The interspersion of heavily vegetated areas, such as forests, with open spaces and agricultural lands, as viewed from the changing topography, characterizes another one of the County's important scenic resources.

Scenic Roads

Many roads in Humboldt County have unique scenic qualities because of their natural settings. Scenic roads provide opportunities to enjoy natural and scenic resources in addition to their transportation functions. Scenic roads offer views of areas of beauty, natural resources or landmarks, or areas of historic and cultural interest.

Chapter 8, Scenic Resources, of the 2002 *Natural Resources and Hazards Report*, contains a qualitative evaluation of local viewsheds that analyzes eight key viewpoints along roads in the County using the County's GIS database. The eight key viewpoints represent a sample of Humboldt County viewpoints that were selected for this viewshed analysis because they represent Humboldt County views in general, and based on the quality of their views inland and to the coast, views of developable rural residential land, and the presence of parkland and public land in the viewshed. The evaluation provides a useful comparison of susceptibility to change in scenic character based on the surrounding land use types and area of the viewshed. The following are descriptions of federal and state programs that could be used to protect scenic routes.

National Scenic Byways Program. The National Scenic Byways Program was established as part of the Intermodal Surface Transportation Efficiency Act of 1991 as a means to maintain the scenic, historic, recreational, cultural, archeological, and natural qualities of scenic byways. The National Scenic Byways Program provides procedures for state designation of National Scenic Byways, in cooperation with local jurisdictions, as well as the designation of All-American Roads and Federal Agency Scenic Byways. Federal Agency Scenic Byways are roads or highways located on lands under Federal ownership which have been officially designated by the responsible federal agency as a scenic byway. In Humboldt County, the Bigfoot Scenic Byway is a USDA Forest Service Scenic Byway that begins in Willow Creek and follows State Route 96 north through Hoopa, Weitchpec, and Orleans to Happy Camp in Siskiyou County. State Route 299 is also a Forest Service Scenic Byway between Arcata and Redding.

State Scenic Highway Program. Several state highways in the County have unique scenic qualities owing to their natural setting and, in addition to transportation functions, provide opportunities for the enjoyment of natural and scenic resources. Although no state highway in the County is "officially designated" as a State Scenic Highway, the following state highways are listed in Sections 263.1 through 263.8 of the California Streets and Highways Code as eligible for designation (specific California Streets and Highways Code references are listed below):

- *Route 36 from Route 101 near Fortuna to the Trinity County line (§263.3)*
- *Route 96 from Route 299 at Willow Creek north to Siskiyou County (§263.1)*
- *Route 101 for its entire length in Humboldt County (§263.6)*
- *Route 254 in the Avenue of the Giants Community Plan Area (§263.1)*
- *Route 299 from Arcata to Willow Creek (§263.8)*

In order to be officially designated, state highways must be nominated according the State Scenic Highways Program Guidelines and protective measures must be adopted by the County, including the regulation of land use, control of outdoor advertising, and site grading and design review standards. The Streets and Highways Code also contains provisions for the designation of county highways that are believed to have outstanding scenic values (Streets and Highways Code §154). The designation of county scenic highways pursuant to the State Scenic Highway Guidelines follows the same process and has the same requirements as State Scenic Highways but does not require action by the State Legislature.

Wild, Scenic, and Recreational Rivers

The National Wild and Scenic Rivers Act was established in 1968 to maintain the natural beauty, biology, and wildness of designated "wild, "scenic", or "recreational" rivers that are potentially threatened by the construction of dams, diversions and canals. The Act seeks to preserve these designated rivers in their free-flowing condition, as well as to protect their immediate environments for the benefit and enjoyment of present and future generations.

In addition, the California State Legislature created a California Wild and Scenic Rivers System in 1972, administered by the California Resources Agency. While the U.S. Congress created a national system designating the same rivers in 1968, the California system is intended to enhance local coordination of riparian management.

The California and federal system classifies rivers as wild, scenic, or recreational in a similar manner. The state criterion is nearly identical to the federal and is specified in the California Public Resources Code §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."

In Humboldt County, the Klamath, Trinity, Eel, and Van Duzen Rivers were classified as wild, scenic, or recreational under the Federal and State Wild and Scenic Rivers Acts. Table 3.16-1, State Designated Wild and Scenic Rivers in Humboldt County, below shows the State of California Wild and Scenic River and Recreational designation by river reach for each river in Humboldt County. The 2002 *Natural Resources and Hazards Report* (Table 1-2 and Figure 1-2) provides additional information regarding wild, scenic, and recreational river designations in Humboldt County pursuant to the State and federal Acts.

Table 3-16.1. State Designated Wild, Scenic, and Recreational Rivers in Humboldt County.

River	River Section	Designation
Klamath River, Main Stem	From the Humboldt County line to the Pacific Ocean	Recreational
Trinity River, South Fork	From the point where the river first touches the Humboldt County line to Todd Ranch in Section 18 T5N R5E	Wild
Trinity River, South Fork	From Todd Ranch in Section 18 T5N R5E to the confluence with the main stem	Scenic
Trinity River, Main Stem	From the confluence of the South and Middle Forks to the west boundary of Section 2 T8N R4E	Recreational
Trinity River, Main Stem	From the west boundary of Section 2 T8N R4E to the river mouth at Weitchpec	Scenic

River	River Section	Designation
Van Duzen River	From the Dinsmore Bridge to the power line crossing above Little Larabee Creek	Scenic
Van Duzen River	From the power line crossing above Little Larabee Creek to confluence with the Eel River	Recreational
Eel River, Middle Fork	Humboldt County line to confluence with South Fork	Recreational
Eel River, South Fork	Humboldt County line to confluence with Middle Fork	Recreational
Eel River, Main Stem	South and Middle Fork confluence to Pacific Ocean	Recreational

Source: Section 5093.545 of the California Public Resources Code.

Community Areas

Many Humboldt County communities were originally established as logging camps, rail and wagon stops, and dairy centers due to their proximity to natural resources and transportation routes. The character of these communities has been preserved to varying degrees by the presence of working resource lands (e.g. timberland or grazing lands) at their edges, which continue to serve as an urban/rural boundary. Factors that have contributed to the maintenance of these community separators include the continuing viability of timber and agricultural operations within these buffer lands, the 1984 Framework General Plan development timing policies, and LAFCo policies discouraging the conversion of agricultural lands. However, development pressure to convert resource lands adjacent to existing communities has increased over recent years. Conversion of such resource lands would affect both the character of the communities and the views of surrounding undeveloped lands.

Existing Light and Glare

Most of the Humboldt County land area is rural in character without urban type development and without the streetlights, nightlights, interior lighting, and paved areas that create sky glow and light trespass (commonly referred to as light pollution). Sky glow is defined as the added sky brightness caused by the scattering of light into the atmosphere. The term light trespass describes light that strays from its intended target and illuminates adjacent properties. Such excessive lighting can significantly change the character of rural and natural areas by making the built environment more prominent at night and creating visual clutter. Section 8, Street Lights, of the 2008 *Community Infrastructure and Services Technical Report,* identifies the areas within the County that are served by street light providers as well as discusses street lighting standards and light pollution.

3.16.2 Scenic Resources - Standards of Significance

This analysis uses the significance criteria from the California Environmental Quality Act (CEQA) Guidelines Appendix G. The proposed General Plan Update would result in a significant impact on scenic resources (aesthetics as listed in the CEQA Guidelines Appendix G checklist) if it would:

a) Have a substantial adverse effect on a scenic vista.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
c) Substantially degrade the existing visual character or quality of the site and its surroundings.
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Items "a" and "b" are discussed in Impact 3.16.3.1, Scenic Vista. Item "c" is discussed in Impact 3.16.3.2, Visual Character. Item "d" is discussed in Impact 3.16.3.3, Sources of Light and Glare.

3.16.3 Scenic Resources - Impacts and Mitigation Measures

Impact 3.16.3.1: Adverse effect on Scenic Vistas and Scenic Resources

Implementation of the General Plan Update would allow additional development and changes in land use, and contains new policies that could lead to damage or destruction of scenic resources and vistas.

This impact analysis addresses items "a" and "b" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.16.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

a) Have a substantial adverse effect on a scenic vista.
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

3.16 Potential impacts could include land use map changes or new policies that would lead to the destruction of scenic resources and vistas, such as the conversion of timber or agricultural lands adjacent to communities or along candidate scenic highways or roadways, or allow the construction of structures that would block coastal views or damage scenic vistas.

Aesthetic and visual resources are subjective by nature. In addition, specific development proposals that could take place under the proposed General Plan Update are currently unknown. As a result, site-specific impacts resulting from allowable development cannot be determined until it is proposed and undergoes design review and/or environmental review. Consequently, the visual resource analysis in this Environmental Impact Report (EIR) is qualitative, assessing the potential aesthetic implications of the General Plan Update to degrade the existing visual character of the County. The analysis evaluates the land use diagram and policies of the General Plan Update to determine the extent to which policies protect existing aesthetic resources and minimize the degradation of visual quality.

Important scenic vistas and resources in Humboldt County include those that are visible from major public roadways and public areas those that contain views of the coast, forests, open space or agricultural lands, as well as views of historic districts, landmarks, and cultural sites (see Section 3.13.1, Cultural Resource Setting, for a listing of historic and cultural resources). To date, scenic resources in Humboldt County have not been mapped.

Adverse changes to scenic resources resulting from the implementation of the proposed General Plan Update could result from a number of circumstances. These include dramatic large and small-scale shifts from one land use to another, such as the change from open space to urban use, or project-specific impacts such as construction of large homes on hillsides or

ridgelines. Such changes may also be caused by an incremental change over time, such as the trend towards residential use in areas where the existing principal land use is timber or grazing.

It is estimated that 1,721 housing units will be needed to accommodate the peak population in the unincorporated area in 2028, and 3.1 million square feet of commercial and industrial building to accommodate projected new employment by 2040. Although new construction would be distributed across the unincorporated area, over 90 percent of housing units, and of commercial and industrial square footage, is projected to be developed within the more urbanized community plan and coastal zone areas. Over 60 percent of new housing units are projected to be located within the communities in the Humboldt Bay area, including the residential areas of Cutten, Ridgewood, and McKinleyville. Almost 50 percent of commercial and industrial square footage is projected to be located within the communities around Humboldt Bay, two-thirds of which would occur in the industrial areas along the Samoa Peninsula and Fields Landing.

Land uses that could affect scenic vistas and scenic resources visible from major roadways or other public areas include currently undeveloped land planned for urban levels of development and existing developed land for which a significant change in use is planned, such as the reuse of former industrial sites. The following is a discussion of the potential visual resource impacts involving significant land use changes that could occur as a result of the implementation of the General Plan Update land use diagram.

Industrial Site Reuse

The General Plan Update encourages the reuse of former industrial sites, including mill sites. Several such large industrial sites are visible from candidate scenic roads as identified in the setting section above. The following sites are described below because the reuse of the former industrial site could substantially alter views from scenic roads.

Carlotta. The former Pacific Lumber mill in Carlotta contains remnant mill structures, is planned for industrial uses, and is proposed to be redesignated Mixed Use (MU). This former mill site is visible from State Route 36.

Orick. A former mill site in Orick is located along State Highway 101 and adjacent to Redwood National Park land. The mill site contains only remnants of mill buildings and paved areas, and is proposed to be redesignated Commercial Recreation (CR).

The former industrial sites listed above are currently unused or are significantly underutilized. Implementation of the proposed land use diagram would involve the reuse of these sites and could result in a substantial change to scenic views along candidate scenic roadways. Development could involve the construction of new residences at a density of at 16 dwelling units per acre for land designated MU, with the addition of non-residential development at a floor to area ratio of 3, depending upon the availability of water and sewer service. Where former mill buildings have been removed and industrial land is sitting idle, reuse at these urban levels of residential and commercial development could substantially alter views. Where reuse would involve the replacement of vacant industrial buildings, viewshed changes would include new and different types of structures, likely at higher density. Such development could represent a substantial change to the viewshed from these candidate scenic highways. However, development consistent with the land use diagram could also be considered an improvement from the current blighted condition.

New Development in Undeveloped Areas

Several currently undeveloped areas that may be visible from candidate scenic highways have been, and continue to be, planned for urban uses, the development of which could change scenic vistas. The most prominent undeveloped area that is planned for urban levels of development is the Barry property, which is located on Humboldt Hill and is visible from portions of State Highway 101 and numerous coastal access points. This area contains open fields interspersed with trees and shrubs, and is currently planned Residential Low Density (RL). The General Plan Update land use diagram maintains this land use designation. This land could be developed as planned during the period of the plan. Development of this site would involve the construction of homes at a density of 3 to 8 dwelling units per acre, site serving roads and utilities, and streetlights. Such development would represent a substantial change to the viewshed from State Route 101 and other public areas.

In addition to the potential scenic resource impacts that could occur as a result of industrial site reuse and new urban development along candidate scenic roadways, the development of new residences within resource lands could also result in scenic resource impacts. As indicated in Chapter 8, Scenic Resources, of the *Natural Resources and Hazards Report*, the amount of public land in a viewshed contributes to the potential for preservation of the viewshed because public land is more easily protected from development than private land. Development would be expected to occur on privately owned timber and agricultural land that is within the viewsheds of candidate scenic roadways and many other important County roads. Such development could include homes and accessory structures, roads, and new interior and exterior sources of lighting. Development in these areas, even at low densities, could result in potentially significant scenic resource impacts.

Analysis of Relevant General Plan Update Policies

Coastal Area Plans contain policies to ensure that new development does not block coastal views to the detriment of the public and to protect areas that are mapped as scenic. Local Coastal Programs also contain policies to protect natural landforms, such as natural contours, including slope, visible contours of hilltops and tree lines, bluffs and rock outcroppings, which have informed proposed new policies in the General Plan Update.

The General Plan Update land use diagram largely maintains existing resource and open space land use designations, which would serve to limit the development of forested and agricultural open space lands. In addition, in Conservation and Open Space Element, Scenic Resources, Policy SR-P1, Development in Identified Scenic Viewsheds, in combination with Implementation Measure SR-IM1, Mapping of Scenic Areas and Scenic Highways, would identify and map scenic areas and allow development within such lands only in a manner consistent with natural slopes and contours. Scenic viewsheds are not currently identified or mapped, and would be mapped as part of a public process as an implementation of the General Plan Update. Standard SR-S1, Development in Mapped Scenic Areas, requires that discretionary and ministerial development avoid visual disturbance of natural contours, hilltops, tree lines, forest landscapes, bluffs and rock outcroppings, to the maximum extent feasible. It further requires that roads and public utility corridors be as narrow as feasible and follow natural contours, natural features disturbed by construction be restored as close to natural condition as feasible, and prohibits new off-premise billboards.

The General Plan Update acknowledges the importance of existing resource and open space lands between communities. Conservation and Open Space Element, Open Space, Policy CO-P4, Community Separation, requires that separation of urbanized communities be maintained

through appropriate land use designations and zoning density, and requires avoidance of the merging of urban development boundaries of adjacent communities. Policy CO-P4X, Development Within Community Separation Areas, in combination with Standards CO-S6, Development in Community Separation Areas , and CO-S7, Subdivisions in Community Separation Areas , would establish development standards to minimize the view of new development within community separators and establish tools such as the permanent dedication of open space and clustering of development that would preserve to the greatest extent possible such community separator lands, while allowing some development compatible with surrounding properties, especially those used for agricultural pursuits.

In addition, one of the goals of the General Plan Update as stated in Conservation of Open Space Goal (CO-G1) is open spaces that distinguish and showcase the County's natural environment, including resource lands, without impacting livelihoods, profitable economic returns and ecological values.

As indicated above, there are several local candidate scenic highways specified in the California Streets and Highways Code, but no scenic highways are officially designated in Humboldt County. Policy SR-P3, Scenic Highway Protection, would establish a policy to protect the scenic quality of designated Scenic Highways, with standards for protection provided through the implementation of SR-S3, Scenic Highway Standards.

Although the General Plan Update would provide general policies and standards for development projects, it does not specifically identify the design elements that would be included in such standards (e.g., landscape earth forms, building architecture, façade treatments, or lighting fixtures), or the effectiveness of the design elements in reducing the potential visual impacts of the development. Policies in the General Plan Update require urban development to implement features that would reduce the potential impacts on views of scenic vistas; however, the development envisioned in the General Plan Update could permanently alter views, partially or wholly. In addition, the General Plan Update would allow development, subject to development standards, within community separators, which could permanently alter scenic views.

Conclusion

The policies, standards, and implementation measures described above would reduce impacts to scenic vistas and damage to scenic resources, including, but not limited to, trees, rock and outcroppings. A total of 1,721 housing units and 3.1 million square feet of commercial and industrial buildings are projected to be constructed countywide during the General Plan Update planning period. The majority of new residential, commercial, and industrial development projected to occur during the General Plan Update planning period is projected to occur within already urbanized areas or areas that been planned for urbanized development in the Humboldt Bay region as part of existing community or coastal plans. Implementation of scenic resources policies in the General Plan Update would ensure that projects are designed in a manner that would lessen significant impacts to scenic views in the County. Development could permanently change views of scenic vistas throughout Humboldt County. In addition, scenic roadways have not yet been identified and as a result, development consistent with the General Plan Update that permanently affects such roadways could occur prior to the development of a program for coordinated protection of scenic roads. Therefore, this impact is potentially significant.

Mitigation

Mitigation 3.16.3.1.a. Standard SR-SXXX, Scenic Highway Map , shall be added to the General Plan Update to reduce potential adverse impacts to scenic highways that could be caused by ministerial projects until SR-IM1, Mapping of Scenic Areas and Scenic Highways, is implemented:

> ***SR-SXXX. Scenic Highway Map.*** *Until such time as a General Plan Scenic Highway Roadway Map is prepared and adopted, Humboldt County Highways listed in Sections 263.1 through 263.8 of the California Streets and Highways Code shall be considered to be Scenic Highways pursuant to Policy SR-P3, Scenic Highway Protection, and the County shall address the potential for significant impacts to scenic resources during ministerial and discretionary permit review.*

Implementation this mitigation measure would lessen impacts to some scenic resources resulting from development consistent with the General Plan Update; however, because scenic resources including Highways and viewsheds have not been mapped and are therefore not specifically identified, such impacts would remain **significant and unavoidable**.

Impact 3.16.3.2: Visual Quality and Community Character

Implementation of the General Plan Update would result in increased development that could impact the visual quality and community character within the County.

This impact analysis addresses item "c" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.16.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

> c) Substantially degrade the existing visual character or quality of the site and its surroundings.

3.16 Implementation of the General Plan Update could result in impacts to the visual quality and community character within the County through the construction of additional residential, commercial and industrial development, and the construction of roads and other infrastructure supporting such development, or the continued use of illegal billboards or the installation of new billboards. Unless carefully sited and designed, this development would have the potential to alter visual character or quality within and around communities.

Development consistent with the land use diagram could affect the visual character of existing communities. The most likely development types that could affect visual character of existing communities would include large subdivisions on undeveloped land or underdeveloped areas that are planned for significantly higher development density.

The following is a discussion of specific changes to community character that could occur as a result of the implementation of the General Plan Update land use diagram. Orick, South Eureka, McKinleyville, and Carlotta are highlighted in this analysis because each of these areas contains vacant land, typically comprised of an old industrial facility, which is planned for more intensive development as part of this General Plan Update. However, other areas within the County could also experience the construction of additional residential, commercial and industrial development that could alter views. However, changes to visual character for the areas evaluated below would likely be substantial.

Orick

Under the proposed General Plan Update, a 15-acre undeveloped parcel on the north side of the Redwood National and State Parks Thomas H. Kuchel Visitor Center in Orick will be re-designated from Commercial Recreation (CR) to Mixed Use (MU). Although many of the commercial uses allowable in the CR land use designation are also allowable in MU, multi-family residential uses at a density of up to 16 dwelling units per acre would now be allowable, subject to the availability of community wastewater service. The proposed General Plan Update land use diagram would allow for the potential development of this parcel with mixed uses at urban densities. Such development could change the character of this portion of Orick.

South Eureka Urban Development Area

The South Eureka Urban Development Area includes Cutten, Ridgewood, Bayview, and Rosemont. The Bayview and Rosemont areas have only limited undeveloped land, and new development would be expected to primarily occur as infill. The Ridgewood and Cutten areas contain substantial amounts of undeveloped land that was designated as part of the 1995 Eureka Community Plan for single-family residential use. These sites were identified in the Eureka Community Plan as the Robinson or Robinson-Dunn property (now referred to as the Forster-Gill Property), which consists of forest land located on the north side of Ridgewood Boulevard near Home Drive; McKay Tract (North, Mid, and South), which consists of forest land located east of Walnut Drive between Harris Street to the north and North Ridge Road to the south; Eggert (North and South), which consists of forest land between Ridgewood Drive and Elk River Road on either side of Eggert Road; and Slack and Winzler, which consists of forest land located west of the Forster-Gill Property and north of Westgate Drive.

Development of these parcels consistent with the proposed land use diagram and the 1995 Eureka Community Plan would replace forested areas with urban levels of development. Although gulch areas would be retained as open space, new houses, commercial structures, and roads with attendant utilities and lighting would be developed. The character of this area and the surrounding community would be permanently changed.

McKinleyville Town Center Area

Under the General Plan Update, approximately 44 acres in McKinleyville west and south of the McKinleyville Shopping Center is proposed to be redesignated from Commercial Services (CS) to MU. This proposed change would not necessarily increase the intensity of urban development in this area, but could change the ultimate mix of uses. The development of the McKinleyville Town Center area would substantially alter the existing visual character of the project site and its surroundings by replacing open fields containing interspersed trees and shrubs visible from adjacent areas with urban development. The McKinleyville Community Plan acknowledged the importance of the Town Center and states that it should contribute to the sense of community character, should respect the community's social, cultural and economic diversity, and should emphasize human scale and pedestrian orientation. The Community Plan established policies to guide the design of mixed-use development within the McKinleyville Town Center area and requires the adoption of a design review ordinance.

Carlotta

The former Pacific Lumber mill in Carlotta (also analyzed in Impact 3.16.3.1, Scenic Vistas) is currently planned industrial with remnant mill structures and is proposed to be redesignated MU. This former mill site is visible from State Route 36. The General Plan Update land use diagram

would allow the development of this parcel with mixed uses at urban densities. The MU designation would allow many commercial uses; multi-family residential uses at a density of up to 16 dwelling units per acre would now be allowable, subject to the availability of community wastewater service. Such development could change the character of this portion of the Carlotta area.

The General Plan Update encourages development in urban areas and seeks to reduce development within forested and agricultural land located between communities; these lands are referred to as community separators. These areas are subject to pressure to develop due to their proximity to developed areas and infrastructure. Development within community separators would degrade the individual identity of communities, and left unchecked, could create a corridor style of urbanization. However, development would be expected to occur within community separators on privately owned forest and agricultural land between communities. Development within these areas could include homes and accessory structures, roads, and even at low densities, could result in potentially significant impacts to community character.

Analysis of Relevant General Plan Update Policies

The General Plan Update Land Use Element, Urban Lands Chapter goals UL-G2, Design and Function, and UL-G4, Community Character, call for aesthetically appealing urban development areas that preserve and enhance existing community character and identity. A number of policies within the Urban Lands Chapter serve to lessen impacts to community character. Urban Land Policy UL-P5, Community Identity, directs the County to preserve community features that residents value and encourages new development that compliments or adds to community identity and character. Policy UL-P9, Historic Resources, encourages designated historic resources to be retained and restored to serve as focal points of neighborhoods and communities. The retention of historic resources within communities would serve to preserve the original character of communities; however, this policy is not mandatory because it only encourages, rather than requires, the retention and restoration of historic resources. It should be noted that the Cultural Resources Chapter of the Conservation and Open Space Element contains Policy CU-P1, Identification and Protection, would protect cultural resources found to be significant during ministerial and discretionary project review, including historic structures, from deterioration, loss, or destruction.

Policy UL-P11, Natural Amenities, encourages incorporation of natural amenities such as landmark trees and rock outcroppings, into their design, thereby retaining important features of neighborhoods and communities. However, this policy is not mandatory because it only encourages, rather than requires, the retention of natural amenities. In addition, neither this policy nor other policies or standards sufficiently define natural amenities, especially landmark trees. Policy UL-P12, Design Review, would require that development within designated Design Review overlay zones shall undergo design review consistent with an adopted Design Review Ordinance. In addition, Policy UL-P20, Landscaping, requires that all designs shall use landscaping to enhance the appearance of neighborhoods, control erosion, conserve water, improve air quality and improve pedestrian and vehicular safety. However, this policy does not specify if the intent is to use common species or native species.

Police SR-P1, Development in Mapped Scenic Areas described in Impact 3.16.3.1, Scenic Vistas and Scenic Resources, above is important to the protection of visual character within the unincorporated area. Scenic Resources Goal SR-G1, Conservation of Scenic Resources, calls for the protection of high-value scenic forest, agriculture, river, and coastal areas within the County. Standard SR-S1, Development in Mapped Scenic Areas, specifies that discretionary and

ministerial development shall avoid visual disturbance of natural contours, hilltops, tree lines, forest landscapes, bluffs and rock outcroppings, to the maximum extent feasible; that roads and public utility corridors shall be narrow as possible and follow natural contours; that natural features disturbed for construction purposes shall be restored to as close to natural condition as feasible; and that the construction of new off-premise billboards is prohibited. Conservation and Open Space Element, Open Space, Policy CO-P4X, Development Within Community Separation Areas, in combination with Standards CO-S6, Development in Community Separation Areas, and CO-S7, Subdivisions in Community Separation Areas, identify the need to protect community separators and set forth several development standards such as standards for tree removal, cut and fill, landscaping, building color, and clustering.

Proposed policies, standards, and implementation measures relating to scenic roadways would also limit potential degradation of the visual character or quality within and around communities that could occur because of the implementation of the proposed General Plan Update. Policy SR-P3, Scenic Highway Protection, would establish a policy to protects the scenic quality of designated Scenic Highways. The Scenic Highways would be protected through the implementation of SR-S3, Scenic Highways Standards. Scenic highway standards would establish a visual buffer of not more than 200 feet adjacent to mapped Scenic Highways, within which grading and construction would be required to occur in a manner harmonious with surrounding development and the natural terrain. In addition, utilities shall be placed underground wherever feasible, and potentially unsightly features shall be screened or located in areas not visible from the scenic roads.

The continued use of illegal billboards and the installation of new billboards could also degrade the visual character or quality within and around communities. Policy SR-P6 Term of Off-Premises Billboards and Prohibition, would limit the term of new and existing off-premise billboards by ordinance to provide for removal, and prohibit the construction of new off-premise billboards along mapped Scenic Highways s and coastal views. Policies SR-P9, Removal of Illegal Billboards, and SR-P8, **Removal** or Relocation of Billboards on Public Lands and Right-of-Ways in the Northwestern Pacific Railroad Right-of-Way, supports efforts of public agencies, such as the North Coast Railroad Authority and the U.S. Fish and Wildlife Service, to remove or relocate billboards from their right-of-way between Fields Landing and Arcata on lands under their control.

Conclusion

Implementation of the General Plan Update land use diagram would result in substantial changes to the visual character of developed communities, especially those communities listed above. These areas would experience urban levels of development that would change their appearance and character. While urban uses are planned primarily in areas that already contain urban development, the introduction of additional urban development in these areas would irreversibly alter the visual character of these areas.

The General Plan Update and Community Plans contain policies intended to avoid and minimize adverse impacts to visual character. These policies emphasize land use compatibility and the preservation of resource and open space areas. Nonetheless, implementation of the land use diagram would alter the visual character of urban areas and would be an irreversible consequence of General Plan Update buildout. In addition, while the proposed General Plan Update does discourage the extension of urban services into community separators, it does not prohibit development at higher densities within open spaces between communities, and would therefore allow growth between communities that could diminish the value that these open

spaces provide to community character. Therefore, impacts to visual character or quality of unincorporated communities and their surroundings would be significant.

Mitigation

Mitigation 3.16.3.2.a. The following policy would lessen potential impacts to natural amenities that are important to visual character:

> ***BR-Px. Landmark Trees.*** *Establish a program to identify and protect landmark trees, including trees that exhibit notable characteristics in terms of their size, age, rarity, shape or location.*

Level of Significance after Mitigation

The effectiveness of Standards CO-S6 & CO-S7, Development and Subdivisions within Community Separator Areas, would depend on landowner participation, the extent of which cannot be predicted. Consequently, it cannot be determined if this program would be effective in substantially changing the development pattern in community separator areas. Therefore, this impact is significant and unavoidable.

The implementation of the above mitigation measures identified above would lessen impacts to community separators, but not to a less than significant level. No other feasible mitigation measures are available to further reduce impacts to community separators or further reduce impacts to the visual character of existing communities that would result from additional planned urban development that would permanently alter community character. This impact remains **significant and unavoidable**.

Impact 3.16.3.3: Sources of Light and Glare

Implementation of the General Plan Update would result in increased development that would be new sources of light that could have adverse impacts day or nighttime views.

This impact analysis addresses item "d" of the significance standards listed in Appendix G of the CEQA Guidelines as provided in Section 3.16.2 above. Pursuant to these standards, the proposed County General Plan Update would have a significant impact if it would:

> d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Urbanized areas of Humboldt County currently generate significant sources of light, glare, or light trespass into the night sky. New urban development planned as part of the General Plan Update would likely be located within or adjacent to these existing urban communities and would increase sources of light, glare, or light trespass into the night sky. In addition, development proposed under the General Plan Update could increase the amount of light in the County due to new street lighting, signage, floodlights, security lighting, private residential lights, automobile lights, and other similar sources.

The California Department of Fish and Wildlife (previously Department of Fish and Game) submitted a comment letter regarding the General Plan Update Notice of Preparation on July 17, 2007 letter (comment letters are available at the General Plan Update website at http://www.co.humboldt.ca.us/gpu/ documentsdraft1publiccomments.aspx) indicating that

adverse ecological effects of artificial night lighting can occur to terrestrial and aquatic resources such as fish, birds, mammals, and plants (Comment Letter W-96, Department of Fish and Game, 2007, page 16)). Some of these effects include altered migration patterns and reproductive rates, changes in foraging behavior and predator-prey interactions, altered wildlife species richness and community composition, and phototaxis (attraction and movement towards light). A significant amount of the future development potentially allowed by the General Plan Update could take place on land close to resource areas with significant wildlife habitat values. (Comment Letter W-96, Department of Fish and Wildlife, 2007, page 16).

The General Plan Update would allow development near wetland and other streamside management areas and within forest land and other sensitive habitat areas that support insects, mammals, birds, fish, reptiles, and other wildlife species. Sensitive habitat areas are present in urban and rural areas. New development could introduce new exterior lighting such as street lights, exterior and safety lighting, or aviation hazard/warning lighting that, for example, would be installed on tall structures. Such lighting could have the effect of altering wildlife behaviors, foraging areas, and breeding cycles.

The Humboldt County Zoning Regulations contain general exterior lighting requirements for new development within several combining zones such as the "D" Design Review and Planned Development (P) combining zones, as well as exterior lighting performance standards for several uses such as for Cottage Industry, and industrial uses. These regulations require that new lighting be compatible with the surrounding setting and not be directed beyond the boundaries of the parcel.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes policies, standards and implementation measures that are intended to reduce impacts from nighttime lighting and glare. The creation and impact of new light sources is addressed as it relates to street lighting in the Community Infrastructure and Services Element. Policy IS-P25, Street Lighting, requires that street lighting be provided if there is a need to improve public safety in urban and suburban areas and Village Centers. Standard IS-S10, Street Lighting, specifies that streetlights be designed to block upward transmission of light, avoid light trespass, and achieve design illumination in prescribed areas with limited scatter. Implementation Measure IS-IM30, Street Lighting, directs the preparation of street lighting standards that allow for community-specific priorities and standards and that specify when streetlights are required based on intersection type and functional classification, and directs the establishment of lighting criteria, considering AASHTO and International Dark-Sky Association guidelines. Conservation and Open Space, Scenic Resources, Standard SR-SX, Light and Glare, requires that new outdoor lighting be compatible with the existing setting, and that exterior lighting fixtures and street standards (both for residential and commercial areas) be fully shielded, and designed and installed to minimize off-site lighting and direct light within the property boundaries.

Conclusion

Implementation of scenic resources policies in the General Plan Update would ensure that street lighting is installed in a manner that would lessen significant light or glare impacts. For other development, however, light pollution remains an issue. To address this potential adverse impact, additional mitigation will be required. The following mitigation measure addresses the impacts related to light and glare:

Mitigation

Mitigation 3.16.3.3.a . In order to minimize light trespass, light pollution, and glare, new development and projects that would make significant parking lot improvements or add new lighting would be required to prepare a lighting plan. The following new program would need to be added to the Scenic Resources Chapter of the Conservation and Open Space Element:

> ***SR-IMX Lighting Design Guidelines.*** *Amend the Zoning Regulations to include lighting design guidelines for discretionary projects. Require new development and projects that would make significant parking lot improvements or add new exterior lighting to submit a lighting plan consistent with these guidelines. Lighting design guidelines should address:*
>
> A. *Intensity – Acceptable standards shall be defined for various land uses and development types specifying the maximum allowable total lumens per acre.*
> B. *Directional Control – Standards shall be developed to minimize the upward transmission and intensity of light at various distances from its source through the use of full-cutoff lighting, downward casting, shielding, visors etc.*
> C. *Signage – Standards with respect to illuminated signs shall be developed that prohibit or limit the size, spacing, design, upward transmission of light, and hours of operation. In addition, signs should be white or light colored lettering on dark backgrounds.*
> D. *Night Lighting – Hours of operation for various uses shall be specified in order to prohibit all night lighting except when warranted for public safety reasons. On demand lighting shall be encouraged.*
> E. *Incentives – The County shall develop incentives for residents and businesses encouraging the conversion of existing lighting sources to compliant ones.*
> F. *Enforcement – These standards shall be incorporated into the County Development Code and design review process for new development.*

Level of Significance after Mitigation

Implementation of the above mitigation measure would reduce adverse changes to scenic resources and ecological impacts to wildlife resulting from additional sources of lighting that would occur from implementation of the proposed General Plan Update. However, because some of the additional sources of lighting could increase as a result of ministerial projects, it may not be reasonable to assume this impact would be reduced to a less-than significant level. Therefore, this would be a **significant unavoidable impact**.

3.17 Energy Consumption and Conservation

This section provides background information and contains an analysis of the impacts that the General Plan Update (GPU or Plan) may have on the consumption of energy, including but not limited to the measures proposed to minimize the environmental effects of the consumption of energy that is wasteful, inefficient, and unnecessary. Energy consumption as an environmental impact is to some extent evaluated and discussed in other sections of the RDEIR, including sections 3.1 Land Use, Housing and Population; 3.3 Utilities and Services; 3.5 Transportation; and 3.13 Greenhouse Gas Emissions. This section is intended to provide an overall perspective on energy consumption to address the requirement in CEQA, Government Code section 21100 (b)(3) that an EIR include mitigation measures that are proposed to reduce the wasteful, inefficient, and unnecessary consumption of energy, and an analysis of the potentially significant energy implications appropriate and relevant to a programmatic EIR for a General Plan Update, as outlined in CEQA Guidelines, Appendix F. At this first tier programmatic level of analysis, it will necessarily be more general than the analysis that would be required for a specific development project.

3.17.1 Energy Consumption and Conservation - Environmental Setting

Energy Resources

Climate and Energy Demand. Humboldt County is a region with moderate temperatures and considerable precipitation. Average temperatures along the coast vary only about 10 degrees from summer (58°F) to winter (48°F), although a greater range is found over inland areas. Maximum temperatures on the coast typically do not exceed 80°F, while inland areas may reach 100°F or greater. Temperatures of 32 degrees or lower are experienced nearly every winter throughout the area, and colder temperatures are common in the interior. Because of its moderate summer temperatures, Humboldt County's electricity demand peaks in the winter, rather than the summer when the peak is reached in most of California.

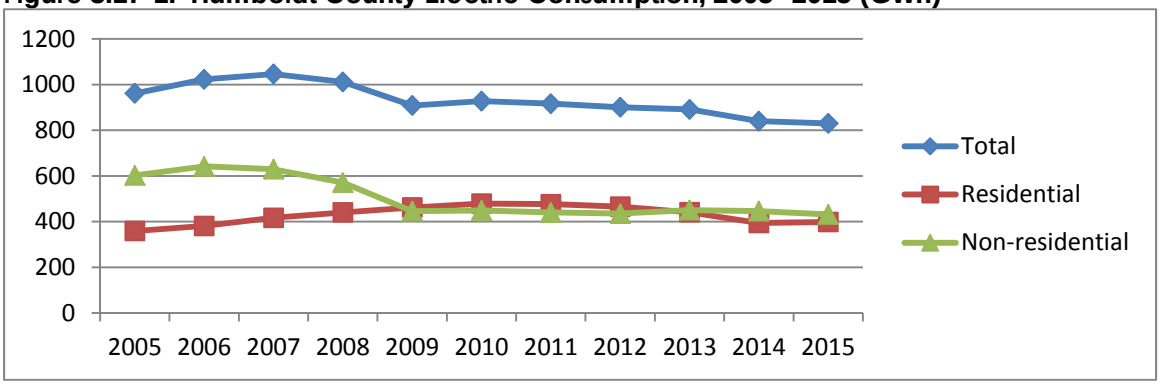
Energy Production and Use. Humboldt County is geographically isolated and is almost an energy island. The majority of petroleum-based transportation fuels are imported to the county by barge. There is only one pipeline connecting the county to the larger natural gas grid, and only two major connections to the larger electric grid. The electric transmission capacity (approximately 60-70 MW) that connects Humboldt County to the regional grid is less than half of the County's 170 MW peak electrical demand. For this reason Humboldt County generates much of its own electricity, mostly using natural gas and biomass fuels. (RePower Humboldt a Strategic Plan for Renewable Energy Security and Prosperity, Schatz Energy Research Center for the Redwood Coast Energy Authority, Page 11-Humboldt Energy Background)

According to the Humboldt County Energy Element Background Technical Report, the residential, commercial, industrial and agricultural sectors consumed 940 Gigawatt-hours (GWh) in 2003, and total peak electrical demand was 158 Megawatts (MW). This comprised approximately 0.3% of the State total (note that Humboldt County's population accounted for 0.4% of the State total). Electricity use was divided almost

evenly between the residential, commercial and industrial sectors, with a remaining 2% consumed in the agricultural sector. Electricity use per capita for Humboldt County and the State of California as a whole were both in the range of 7000 to 7500 kWh per year.

The following figures show electrical and natural gas energy use by sector between 2005 and 2015 (data from the California Energy Commission). Total residential electrical consumption ranged from a low of approximately 360 GWh in 2005 to approximately 400 GWh in 2015, peaking at almost 480 GWh in 2010. While population in the County has increased at an average annual rate of 0.27 percent, residential electrical energy consumption increased at an average annual rate of 0.77 percent. Humboldt County's per capita residential energy consumption increased at a higher rate than the rest of California during this period, due at least in part to the "suspected connection between indoor (marijuana) cultivation and a rise in residential per capita electricity consumption" (Energy Consumption and Environmental Impacts Associated with Cannabis Cultivation, Jessica M. Arnold, May 2013, Humboldt State University, Master's Thesis http://humboldt-dspace.calstate.edu/bitstream/handle/2148/1461/Arnold_Jessica_M_Sp2013-r.pdf?sequence=4).

Figure 3.17-1. Humboldt County Electric Consumption, 2005- 2015 (GWh)



Source: California Energy Commission, 2017

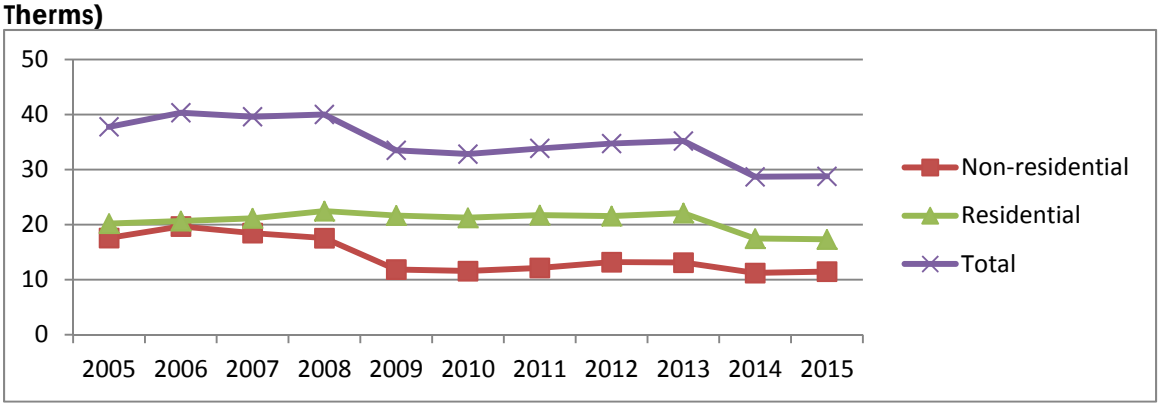
On September 13, 2016, Humboldt County adopted the Commercial Medical Marijuana Land Use Ordinance (CMMLUO), which regulates the cultivation of marijuana for medical purposes consistent with State law. These regulations specify that indoor cultivation shall only be permitted within commercial and industrial zoned property. In addition, CMMLUO regulations specify that electric power for indoor cultivation shall only be provided by renewable power or with the purchase of carbon offsets for any portion of power provided by non-renewable sources. These regulations alone do not ensure energy conservation or efficiency, but limit the likelihood that residential per capita electricity consumption will continue to rise due to indoor marijuana cultivation.

Between 2005 and 2015, non-residential electrical consumption dropped from approximately 600 GWh in 2006 to roughly 430 GWh in 2015, an average annual decrease of -3.54 percent. According to California Forestry Association (Calforests), a statewide trade association, nine lumber mills in Humboldt County were closed or consolidated between 2000 and 2012. In addition, the Samoa Pulp Mill permanently closed in 2010 and the California Redwood Company Korbel Sawmill closed in 2015, which, when combined with the other mill closures during this period, could account for the significant decrease in non-residential electric consumption.

For natural gas, the total amount consumed was estimated at 93.9 million therms, which makes up approximately 0.34% of the State total. Almost half that amount was burned to generate electricity, and the remainder was used primarily in the residential (22%), industrial (18%) and commercial (10%) sectors. The peak demand for natural gas occurs in the winter months. Lighting and refrigeration accounted for the majority of electricity consumption, whereas space heating and water heating account for the majority of natural gas consumption. Electricity use in the industrial sector is primarily in saw mills (2003), with a small amount used in food and kindred products and durable and non-durable goods industries. Similarly, natural gas use in the industrial sector is almost entirely associated with saw mills (for drying wood), with the remainder being used in the food and kindred products and non-durable goods industries.

Residential natural gas consumption exceeds non-residential in Humboldt County. While non-residential natural gas consumption declined after a peak in 2006, residential consumption peaked in in 2008 and remained generally stable until 2013 and then declined thereafter. It should be noted that natural gas is not available outside of the greater Humboldt Bay area (south to Scotia).

Figure 3.17-2. Humboldt County Natural Gas Consumption, 2005 - 2015 (Millions of Therms)



Source: California Energy Commission, 2017

While the majority of electricity (73%) is generated within the County, a large portion of this locally generated electricity is generated using natural gas (the new PG&E Humboldt Bay Generating Station that began operation in September- 2010), and the natural gas is primarily imported (89%). The generating station provides 163 MW of total output, which can serve approximately 120,000 homes. The rest of locally generated electricity is primarily produced from biomass (Pacific Lumber and Fairhaven Power), with the remainder coming from local hydroelectric facilities and a very small amount from distributed rooftop solar electric and wind energy systems.

In 2003, diesel/gasoline for transportation comprised 49% of the energy used in the County. Gasoline and diesel consumption in Humboldt County in 2003 was about 71 million gallons. Between 1997 and 2003, gasoline consumption rose at 1.5% per year, according to the Humboldt County Energy Element Background Technical Report. The use of transportation fuels is closely linked to the number of vehicle miles traveled (VMT). Because it is rural, Humboldt County has a higher average VMT than many more densely populated areas.

The *Humboldt County General Plan 2025 Draft Energy Element* prepared by the Redwood Coast Energy Authority in 2005 for consideration in the update of the

Humboldt County General Plan presents the following energy consumption data for Humboldt County:

Table 3.17-1. Consumption of Local Versus Imported Energy Sources.

Energy Resource	% imported	% local
Gasoline	100%	0%
Diesel	100%	0%
Natural gas	89%	11%
Electricity	27%	73%
Biomass	0%	100%
Propane	100%	0%

Source: Humboldt County General Plan 2025 Draft Energy Element Technical Report, Table 4, Consumption of Local versus Imported Energy Sources.

Energy Development Potential. Table 3.17-2 below shows the potential to develop and enhance energy resources in Humboldt County varies by resource. For example, there are many potential opportunities to capture solar energy in the County. However, while

Table 3.17-2. Potential Local Energy Resources for Humboldt County.

Resource	Potential	Technology Status	Geographic Location	Comments
Wind Electricity	Large 400 MW, 1000 GWh/yr	Mature	Cape Mendocino, other	Good resource, need transmission access, few viable sites
Wave Electricity	Large 500-1000 MW, 2500-5000 GWh/yr	Early Development	Coastline	Good resource, technology too new to assess
Biomass Electricity	Medium ≥60 MW, 300-400 GWh/yr	Mature	Variable	Already developed, may be opportunity for growth
Natural Gas	Medium >1 million MCF/yr	Mature	Eel River Basin	Existing, further development underway, non–renewable
Hydroelectricity	Medium 20-40 MW, 80-160 GWh/yr	Mature	Rivers	Existing, more potential but environmental barriers including high costs, regulatory hurdles, lack of financing, siting and transmission access issues , and lack of public support
Solar Electricity	Medium 10-30 MW, 10-30 GWh/yr	Mature	Dispersed	Many small systems
Solar Water Heating	Medium	Mature	Dispersed	Many small systems
Solar Space Heating	Small	Mature	Dispersed	Hard to retrofit
Biogas Fuels	Small	Mature	WW Treatment Landfill, Dairies	Existing, opportunity for growth
Biodiesel Fuel	Small 40,000-80,000 gal/yr	Mature	Variable	Existing, opportunity for growth

Source: Redwood Coast Energy Authority, Table 5, Potential Local Energy Resources for Humboldt County, 2005.

there are several producing natural gas wells currently in operation, such as in the Tompkins Hill and Grizzly Bluff areas; further development is limited by the availability of gas resources. The background reports for the General Plan Update assessed the potential of developing Humboldt County's local energy resources.

Biomass. Biomass energy generally refers to the combustion of plant and plant-derived material for heat and power generation. Biomass fuel from forest and mill residues can be associated with wood waste from mill operations, as well as forest slash left over from timber harvest operations and other forest residue fuel reduction programs aimed at minimizing forest fire hazards. Timberlands located throughout the county are the primary source of biomass fuels.

Biomass energy has been used in Humboldt County for many years. The Pacific Lumber Company in Scotia has produced steam and electricity for the mill and the town since 1931. In the early 1980's there were three mills (LP Samoa, PALCO, Simpson Paper Co.) generating electrical power from wood waste in Humboldt County. Their total capacity was approximately 75 MW. Much of the power was consumed on site, with the remainder supplied to the town of Scotia or sold to PG&E. The Ultrapower facility in Blue Lake is the newest facility in the County and was originally brought online in 1985.

Today there are two operating wood waste fired plants in Humboldt County, the combined heat and power plant in Scotia and the Fairhaven plant, with a total electrical capacity of 48 MW. The Blue Lake Power facility (13.8 MW), formerly Ultrapower, suspended operation in 1999, and was in the process being brought back on-line; however, these efforts were suspended in 2011. The two operating plants provided approximately 30% of Humboldt County's total electricity needs (including their on-site loads), or about 13% of the rest of the county's needs (excluding their on-site loads) in 2003.

Natural Gas. Natural gas deposits represent a significant underdeveloped energy resource in Humboldt County. Natural gas deposits also exist offshore but have not been developed locally to date. Active gas wells in Humboldt County are concentrated in the Tompkins Hills Gas Field of the Lower Eel River planning watershed. As of 2008, there were 39 gas wells in the County, 31 of which are currently producing and eight are considered shut in, meaning they cannot produce gas at their current depths and are sealed off in order to maintain the pressure on remaining deposits. In 2000, net gas production was 1,337,796 million cubic feet (mcf); this represents a 31 percent decrease in gas production since 1992, when net production was 1,927,787 mcf. Also in 1992, 34 gas wells were in production and five were shut in.

Wind. Since the publication of the California Wind Atlas by the California Department of Water Resources in 1985, portions of Humboldt County have been rated as having "excellent" or "good" wind energy generation potential. All of the areas rated as "excellent" with mean annual wind speeds above 14 mph are near Cape Mendocino in the Cape Mendocino Planning Watershed. Additional areas rated as "good" with mean annual wind speeds from 10 to 14 mph include more areas near Cape Mendocino, an area northeast of Loleta in the Lower Eel River Planning Watershed, Patrick's Point and Big Lagoon in the Trinidad Planning Watershed, Schoolhouse Peak in the Redwood Creek and Lower Klamath Planning Watersheds, and an area in the Trinity Alps in the Lower Trinity Planning Watershed. A wind resource assessment for Northwestern California presented in the California Wind Atlas focuses on Bear River Ridge (Cape Mendocino Planning Watershed) and estimates a potential wind power generation capacity of 425

MW for the 60 miles of ridgeline with 14-16 mph average annual wind speed. There are several small scale wind turbines in use in Humboldt County, including three turbines located at dairies in the Lower Eel River Valley and a turbine at the Bear River Rancheria.

Hydroelectric. Hydroelectric power systems convert the energy in flowing water into electrical energy by spinning a turbine. Federal law and the State of California define "small hydroelectric" as having a capacity of 30 MW or less, which the State of California further defines as a renewable energy source. Small hydroelectric systems typically use small dams or employ run-of-the river techniques where only a portion of the river flow is diverted so that fish passage is not blocked.

There are currently six small hydroelectric facilities that serve Humboldt County. These facilities have a combined rated capacity of 11.5 MW. All but one of these systems is run-of-the-river type. The Mathews Dam facility at Ruth Lake, located in Trinity County and operated by the Humboldt Bay Municipal Water District (HBMWD), does not employ run-of-the-river techniques. Similarly, the Kekawaka Creek project is just over the county line in Trinity County; however, PG&E lists the Kekawaka unit as serving the Humboldt area. There are also many, (likely 100 or more), micro-hydroelectric systems in Humboldt County that serve off-grid homes. The total capacity of these systems is unknown, but it is likely rather small (i.e. less than a few hundred kW cumulative capacity).

Solar. Solar electric, or photovoltaic (PV), systems convert sunlight directly into electricity. Grid-connected systems are comprised of PV modules, often roof mounted, and an inverter that converts DC electricity to AC electricity. No batteries are required. Instead, these systems effectively use the electrical grid for energy storage. When excess power is produced, it is fed out to the larger electrical grid and consumed by a neighboring customer. When the PV power production is less than what is required onsite (e.g., at night) electrical power is drawn from the grid to meet the onsite loads.

California is one of the leading states in the U.S. in PV installations. Since 1998, the California Energy Commission has offered installers of small (< 30kW) PV systems a substantial rebate that has covered as much as half of the installed system cost. The interest in PV in Humboldt County has been even greater than for the state as a whole. Between 1998 and 2010, the residents of Humboldt County have installed over twice as many grid-connected solar electric systems, per capita, compared to the State of California as a whole. The total grid-connected capacity in 2010 was 1.44 MW from 428 systems (Humboldt County as a Renewable Energy Secure Community, Resource and Technology Assessment, Final Draft, March 2013, Schatz Energy Research Center). Humboldt County also features a strong solar installer/supplier network, one that has been developed over the last 25 years.

Humboldt County also has a significant number of off-grid solar electric systems, many of them in the southern part of the county. In the mid-1980's one of the largest distributors of off-grid PV systems was Alternative Energy Engineering in Redway, and most of the systems they sold were installed in Humboldt County. It is estimated that well over 1,000 off-grid PV systems are installed in the county, representing perhaps 1.0 MW or more of capacity (Humboldt County Energy Element Background Technical Report, 2005).

Wave Energy. Wave Energy Conversion (WEC) devices capture energy in ocean waves and convert it to electrical power. Because this technology is still in the early stages of development, its potential is uncertain. The primary wave energy resource sites for Humboldt County coastline were estimated to have a total theoretical potential

capacity of 3,910 MW. Primary sites for the southern Humboldt and northern Mendocino coastlines (an 81 mile stretch) were estimated to have a total theoretical potential capacity of 3,709 MW, approximately half of which falls within Humboldt County's coastline.

In 2009, PG&E proposed an ocean wave energy pilot study to be conducted off the coast of Humboldt County, the Humboldt WaveConnect™ Pilot Project. This study was intended to give WEC manufacturers the opportunity to test their devices on a common site and facilitate the development of wave energy technology. The wave energy was to be captured by the WECs and transferred through a sub-sea power cable to land, where the energy would be fed to the electrical grid. In 2011, PG&E suspended permitting efforts on the Humboldt WaveConnect™ Project, stating that the decision was made after several major challenges caused the project to be unviable at its proposed configuration and location.

Other Energy Resources. The first production oil well drilled in California was located in Humboldt County in 1861 (Oil and Gas Production History in California, State of California Department of Conservation, 2003). This well was unsuccessful, like numerous other Humboldt County wells drilled between 1861 and 1864. Humboldt County contains three inactive oil wells and has not produced oil in the past decade or more. There is no record of geothermal production in Humboldt County.

Electric and Natural Gas Transmission and Distribution

Electricity. According to Humboldt County as a Renewable Energy Secure Community - Resource and Technology Assessment Report, Schatz Energy Research Center August 2012 (CEC-500-2013-005), the Humboldt area electrical grid covers about 3,000 square miles and is connected to the bulk PG&E transmission system by four transmission circuits, each ranging from 31 to 115 miles in length. Electricity imports are primarily transmitted through two 115kV circuits originate near the community of Cottonwood in the Central Valley and follow a route roughly parallel to Highway 36 and Highway 299 to the Humboldt County coast. Lower capacity circuits include a 60 kV circuit coming from the south between the Bridgeville and Garberville areas (roughly parallel to Highway 101) and a second 60 kV line coming from Trinity County to the east that connects to the 115 kV lines. The total electrical transmission capacity into Humboldt County through the existing lines is 60 to 70 MW, less than half of the county's current peak demand. Therefore, local electrical generators are critical to meeting local electricity needs.

According to the Community Infrastructure and Services Technical Report, electric service for most of the unincorporated area is provided by PG&E. PG&E is an investor owned utility regulated by the California Public Utilities Commission (CPUC). The CPUC establishes rules for operation, customer rates, and PG&E's rate of return. The PG&E electric distribution system serving the County is largely in place, and PG&E is obligated to provide service to users within its service area. New service requests, or requests for additional service, are generally governed by CPUC approved Rule 15 (Distribution Line Extensions) and Rule 16 (Service Extensions). Among other things, the line extension rules specify the allocation of construction cost between PG&E and the customer.

In the Shelter Cove area electricity is provided by Resort Improvement District No. 1, which is the entity that establishes rates and provides electric service to multiple privately owned properties. Unlike PG&E, Resort Improvement District No. 1 is a government entity and is not subject to regulation by the CPUC. The Resort Improvement District No. 1 is

regulated by the locally elected district Board of Directors and establishes rates, charges, and standards for service. PG&E transmission facilities extend to a substation in Shelter Cove. Resort Improvement District No. 1 operates and maintains the substation as well as its own distribution facilities that serve the residents of the district. Resort Improvement District No. 1 also maintains three 500 kW diesel generators that provide backup service within the district when there are problems with PG&E service.

Natural Gas. According to Humboldt County as a Renewable Energy Secure Community - Resource and Technology Assessment Report, Humboldt County is remotely located at the end of the electrical and natural gas supply grids. PG&E owns the natural gas and electricity transmission and distribution systems in Humboldt County. There is one major natural gas supply line that comes from a compressor station in Gerber in the Central Valley and follows a route roughly parallel to Highway 36. This pipe is between two and 12 inches in diameter and according to PG&E is capable of transporting enough natural gas to meet current local needs. There are no gas storage fields in the local area, though there are some native gas fields in the Eel River Valley. It is estimated that approximately 65 to 70 percent of households in Humboldt County have access to the natural gas grid

Natural gas service provided by PG&E is regulated in a manner similar to electric service. Natural gas is generally available to residents of the broader Humboldt Bay area communities and as far south as Scotia. As with electricity, PG&E is obligated to provide service to users proximate to its natural gas facilities. New service requests or requests for additional service are generally governed by Rule 15 (Gas Main Extensions) and Rule 16 (Gas Service Extensions). Where natural gas is not available, residents can purchase propane for cooking and heating, from a variety of suppliers.

3.17.2 Energy Consumption and Conservation - Regulatory Setting

Federal Laws and Programs for Energy Consumption and Conservation

Federal Energy Regulatory Commission. The Federal Energy Regulatory Commission (FERC) is an independent agency that regulates the transmission and sales of electricity, natural gas, and oil in interstate commerce, licensing of hydroelectric projects, and oversight of related environmental matters. The setting and enforcing of interstate transmission sales is also regulated by FERC.

Fuel Economy Standards. The national program for greenhouse gas emissions (GHG) and fuel economy standards for light-duty vehicles (passenger cars and trucks) was developed jointly by U.S. Environmental Protection Agency (EPA) and the National Highway Traffic Safety Administration (NHTSA). The standards were established in two phases: Phase 1 - Model years 2012 - 2016; and Phase 2 - Model years 2017 - 2025. Together the final standards are projected to: result in reductions of 6 billion metric tons of GHG over the lifetimes of the vehicles sold in model years 2012-2025; achieve an average industry fleetwide fuel consumption of 54.5 miles per gallon (mpg) by model year 2025, save families more than $1.7 trillion in fuel costs; and reduce America's dependence on oil by more than 2 million barrels per day in 2025 (https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and#annual).

State Laws and Programs for Energy Consumption and Conservation

Greenhouse Gas Emissions. The State of California established legal framework for GHG emission reductions has come about through Executive Orders, legislation, regulations, and court decisions. The State's GHG emissions reductions standards are heavily reliant upon "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by ARB to be vehicles whose primary use is on commercial personal transportation in the state" (Assembly Bill 1493, January 1, 2005), which would clearly also have the benefit of reducing fuel consumption. Section 3.13 Greenhouse Gas Emissions, contains a detailed discussion of State regulations relating to greenhouse gas emissions that would also improve energy efficiency and reduce energy consumption, including: Lighting Efficiency and Toxics Reduction Act; and various fuel efficiency standards.

California Senate Bill 1037 and Assembly Bill 2021. In 2003 (and updated in 2005 and 2008), the CPUC and the California Energy Commission (CEC) adopted an Energy Action Plan that prioritized resources for meeting California's future energy needs, with energy efficiency identified as the highest priority. Since then, this policy has been codified as SB 1037 and AB 2021 into statute through legislation that requires electric utilities to meet their resource needs first with energy efficiency. This policy also set new targets for statewide annual energy demand reductions of 32,000 GWh and 800 million therms from business-as-usual—enough to power more than 5 million homes or replace the need to build about ten new large power plants (500 MW each).

Building Energy Efficiency Standards. Title 24, Part 6, of the California Code of Regulations (CCR), was established in 1978 in response to a legislative mandate to reduce California's energy consumption. Also known as the Title 24 of the Building Code, these regulations apply to energy consumed for heating, cooling, ventilation, water heating and lighting in new residential and non-residential buildings. The CEC updates these standards periodically, with the most recent update in 2013. The next update is slated for December 2016.

2010 California Green Building Standards Code. The Green Building Standards Code includes the following provisions that would reduce waste and energy consumption and increase the efficiency of building, including: 20 percent mandatory reduction in indoor water use; mandatory periodic inspections of energy systems (i.e., heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies. The intent of this code to achieve more than a 15 percent reduction in energy use when compared to existing standards, to reduce indoor potable water demand by 20 percent, to reduce landscape water usage by 50 percent, and to reduce construction waste by 50 percent. It should be noted that public water and wastewater pumping and treatment systems involve significant electrical service demand, so that water conservation can also contribute to electrical energy conservation.

Local Laws and Programs for Energy Consumption and Conservation

Humboldt County General Plan. The Humboldt County Housing Element contains Implementation Measure H-IM18, Encourage Energy and Water Conservation, which directs the County to support changes to the County's tax code (likely to Division 5, Assessment of Property, of Title VII - Finance, Revenue and Taxation, of the County Code) to encourage new alternative energy systems, such as solar, wind and hydroelectric energy systems, among other water related items. This measure is intended to limit increases to a property's assessed value for property tax purposes when any of the above improvements are made and is to be fully implemented by April 30, 2018.

Redwood Coast Energy Authority (RCEA). In 2003, the Redwood Coast Energy Authority (RCEA) was formed as a joint powers authority (JPA), representing seven municipalities (the cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad, and Rio Dell) and Humboldt County. As a JPA, RCEA is governed by a board composed of a representative from each jurisdiction. RCEA's mission statement is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region.

The RCEA adopted the Comprehensive Energy Action Plan (CAPE) in September 2012, which is intended to foster, coordinate, and facilitate countywide strategic energy planning, implementation, and education. The CAPE does not directly regulate land use or energy use; instead it contains energy efficiency and conservation strategies and programs that could be implemented by RCEA, its member agencies, and others. The CAPES's broad strategies that are intended to achieve the above objectives include: coordinated strategic energy planning within Humboldt County; energy reliability and security programs; support for the development of emerging energy technologies; support for energy efficiency and renewable energy retrofits in existing buildings. A proposed revision to the CAPE is currently under development by RCEA.

The following is a list of non-regulatory support programs administered by RCEA relating to energy efficiency for homes, businesses, and other facilities that are intended to help reduce energy cost and consumption for existing and new development.

- **Community Choice Energy program**, (also known as Community Choice Aggregation) where the Redwood Coast Energy Authority is the default electricity provider for Humboldt County and provides an alternative means of procuring electricity by offering electricity consumers a choice in their service, with the option to purchase cleaner electricity at competitive prices (http://cce.redwoodenergy.org/).
- **Property Assessed Clean Energy (PACE),** funding program includes unincorporated area properties in the California Statewide Communities Development Authority (CSCDA) Open PACE programs that provide 100 percent upfront financing to residential and commercial property owners for a wide range of eligible property improvements, such as renewable energy, energy efficiency, water efficiency, electrical vehicle charging, and other such improvements, with flexible repayment terms ranging from five to twenty years. The improvements are financed by the issuance of bonds that are secured by a voluntary assessment on the property. Repayment is made in annual installments through a county property tax bill.(http://www.cscda.org/getdoc/205a5831-

d67d-40e8-b726-086edfae2358/Open-PACE-Property-Assessed-Clean-Energy-Program).

- **Redwood Coast Energy Watch (RCEW)**, in partnership with PG&E, provides a wide set of in-house no/low cost resources based services to drive energy efficiency investment in the residential, commercial and public sectors (https://www.pge.com/en_US/residential/save-energy-money/savings-programs/home-upgrade/home-upgrade.page), and non-resource based support that are referred to as Strategic Energy Resource (SER) activities. Activities are either considered in alignment with the CPUC's Strategic Plan Menu Items or innovative pilots (http://eecoordinator.info/wp-content/uploads/2012/08/JBattis-LG-SP-Update-9-2014-9_23_2014.pdf, http://eecoordinator.info/2011-ee-strategic-plan-updates/)
- **Grid Alternatives**, a non-profit organization that provides local job training and solar at no-cost for families with limited or fixed incomes (http://www.gridsolar.org/)
- **USDA Rural Energy Assistance Program (REAP) Renewable Energy Systems and Energy Efficiency Improvement Loans and Grants**, provides guaranteed loan financing and grant funding to agricultural producers and rural small businesses for renewable energy systems or to make energy efficiency improvements (https://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency)
- **Low-Income Programs**, income qualified services through the Redwood Community Action Agency (http://rcaa.org/division/energy-services) including: Weatherization Assistance Program; Energy Assistance Program; Energy Education, and PG&E's Energy Saving Assistance Program, which accesses federal dollars and PG&E accesses ratepayer dollars under the auspices of the CPUC (https://www.pge.com/en_US/residential/save-energy-money/help-paying-your-bill/energy-reduction-and-weatherization/energy-savings-assistance-program/energy-savings-assistance-program.page)
- **PG&E Programs**:
    - **PG&E 3rd Party Programs**, several distinct programs that assist our customers' efforts towards saving energy (https://www.pge.com/en_US/business/save-energy-money/contractors-and-programs/find-partner-programs/find-partner-programs.page)
    - **PG&E Core Rebates,** Any ratepayer can access PG&E's core rebates to offset the incremental cost of an eligible energy efficiency measure (https://www.pge.com/en_US/business/save-energy-money/business-solutions-and-rebates/product-rebates/product-rebates.page)
    - **PG&E Customized Retrofit Incentives,** a program for non-residential customers based on calculated energy savings and permanent peak demand reduction (https://www.pge.com/pge_global/common/pdfs/save-energy-money/facility-improvements/custom-retrofit/Customized-Policy-Procedure-Manual.pdf)
    - **Above Code Support,** services to building designers and owners intended to exceed California's Title 24 energy-efficiency standards (https://www.pge.com/en_US/business/save-energy-money/facility-improvements/savings-by-design/savings-by-design.page)

3.17.3 Energy Consumption and Conservation - Standards of Significance

This analysis uses the significance criteria from the CEQA Guidelines Appendix F:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction, operation, maintenance and/or removal. If appropriate, the energy intensiveness of materials maybe discussed;
2. The effects of the project on local and regional energy supplies and on requirements for additional capacity;
3. The effects of the project on peak and base period demands for electricity and other forms of energy;
4. The degree to which the project complies with existing energy standards;
5. The effects of the project on energy resources; and
6. The project's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

Based on the above topics, the proposed General Plan Update may result in a significant impact related to energy, if the General Plan Update would:

a) Land uses or development patterns cause wasteful, inefficient, or unnecessary consumption of energy;
b) Land Uses require or result in the construction of new or expanded energy production or transmission facilities, the construction of which could cause significant environmental effects

Item "a" is discussed in Impact 3.17.4.1, Land uses or development patterns cause wasteful, inefficient, or unnecessary consumption of energy. Item "b" is discussed in Impact 3.17.4.2, Land Uses require or result in the construction of new or expanded energy production or transmission facilities, the construction of which could cause significant environmental effects.

3.17.4 Energy Consumption and Conservation - Impacts and Mitigation Measures

Impact 3.17.4.1: Land uses or development patterns cause wasteful, inefficient, or unnecessary consumption of energy

Residential and commercial development generated by population growth during the General Plan Update planning period could cause wasteful, inefficient, or unnecessary consumption of energy that have an adverse physical effect on the environment.

This impact analysis addresses item "a" of the significance standards listed in Section 3.9.2 above and is based on Appendix F of the CEQA Guidelines. Pursuant to these standards, the proposed General Plan Update would have a significant impact if it resulted in land uses or development patterns that cause wasteful, inefficient, or unnecessary consumption of energy.

Approximately 1,721 new housing units and 3,130,717 square feet of commercial and industrial buildings are projected to be constructed during the General Plan Update planning period. During construction and following the occupancy of homes and commercial spaces, energy would be consumed in the form of fossil fuels and electricity, including for transportation, which could have an adverse physical effect on the environment.

The current pattern of development within the County is not expected to change substantially during the General Plan Update planning period. In addition, the plan establishes new policies and programs to support mixed uses in developed areas, placing homes near business, thereby reducing travel distances associated with commutes and shopping trips. According to Section 2.4 of the Project Description, the GPU land use maps and land use policy are intended to:

- Generally maintain the characteristics of existing communities.
- Apply land use designations that support mixed-use development and other techniques to increase efficiency of land utilization, including the use of alternative subdivision standards, density bonuses, second unit incentives, live-work commercial centers, etc.
- Maintain current planned residential densities outside of community planning areas and facilitate opportunities for second residential units.
- Increase available resource production land protections using a range of planning tools such as, clustered development incentives, open space standards, conservation easements and regulatory reform.

In April 2017, RCEA and Environmental Indicator Accounting Services staff prepared energy consumption forecasts for population, households, employment, commercial and industrial building square feet, and vehicle miles travelled. Forecasts, using actual values from 2005, based on population and employment growth levels for the years 2010, 2016, 2028, 2030, and 2040 during the General Plan Update planning period. See Appendix U, Humboldt County Energy Consumption Forecast- Calculation Methodology, for additional detail regarding forecasts of unincorporated area energy consumption during the General Plan Update planning period.

Energy consumption results from the 2005 County-Wide Community GHG Inventory were converted to MMBtu (Million British Thermal Units) to enable aggregating consumption across different fuel types. The MMBtu results were used from the following sectors: Residential, Commercial, Industrial, and Transportation. Using the MMBtu totals from the Inventory as a baseline, estimated energy consumption for years during the General Plan Update planning period was forecast using compound annual growth rates developed using specific growth metrics.

To forecast energy consumption for the requested years, sector-specific compound annual growth rates were calculated for the periods of 2005-2010, 2010-2016, 2016-2028, 2028-2030, and 2030-2040. Compound annual growth rates were calculated using data provided by the County for 2010, 2028, and 2040, and then extrapolating/interpolating for 2005, 2016, and 2030. Because the County requested compound annual growth rates that reflect projected growth for Unincorporated County, the following data was either provided by the County for Unincorporated County, or a calculation was applied to County-Wide data to estimate the fraction attributable to Unincorporated County.

Sector-specific compound annual growth rates were calculated based on the following data:

- Residential energy consumption growth – Unincorporated household estimates
- Commercial energy consumption growth – Unincorporated commercial and industrial square footage estimates calculated using employment data. Employment data by sector was provided for Unincorporated County. The number of jobs for each sector was then multiplied by the estimated square footage per employee, as provided by the County and shown in Appendix A. Estimated square footage for each employment sector was summed to produce a total square footage estimate each year.
- Industrial energy consumption growth – Identical to estimates used for Commercial energy consumption growth.
- Transportation energy consumption growth – Unincorporated vehicle miles traveled

Table 3.17-3. Forecasts of Unincorporated Area Energy Consumption.

Sector	Fuel Type						
		2005	**2010**	**2016**	**2028**	**2030**	**2040**
Residential	Electricity	766,840	777,780	790,909	817,167	814,154	799,091
	Natural Gas	861,015	873,299	888,040	917,522	914,139	897,226
	Propane	180,753	183,332	186,426	192,616	191,905	188,355
	Wood	231,109	234,406	238,363	246,276	245,368	240,829
Commercial	Electricity	517,714	527,157	538,487	561,149	567,132	597,046
	Natural Gas	1,484,301	1,511,372	1,543,858	1,608,829	1,625,982	1,711,749
Industrial	Electricity	21,915	22,315	22,794	23,754	24,007	25,273
	Natural Gas	19,602	19,960	20,389	21,247	21,473	22,606
Transportation	Gasoline	3,648,759	3,738,804	3,846,859	4,062,968	4,054,859	4,014,315
	Diesel[2]	1,472,529	1,508,868	1,552,476	1,639,691	1,636,419	1,620,056
Total		**9,204,536**	**9,397,293**	**9,628,601**	**10,091,217**	**10,095,439**	**10,116,546**

1) Note that the number of significant figures reported do not indicate precision, but are provided for transparency in calculation results. A formal error analysis was not conducted for these projections.
2) Projected diesel consumption for 2005 in the Inventory was roughly 18% less than tracked fuel sales provided by the North Coast Unified Air Quality Management District for the year 2005. The source of this discrepancy has not been addressed. The potential impact to total MMBtu values shown here is roughly 3%.
Source: Humboldt County Energy Consumption Forecast- Calculation Methodology, Redwood Coast Energy Authority and Environmental Indicator Accounting Services, April 4, 2017.

According to Section 3.5, Transportation, of this RDEIR, vehicle miles travelled is projected to increase by 8.7% between 2010 and 2028; the year population is projected to peak during the planning period. During the same period, population is projected to increase by 4.8%. Humboldt County's average number of vehicle miles travelled is currently higher than more urban counties due to the size of the County and its rural nature (Humboldt County Energy Element Background Technical Report, July 2005, Page 1, Energy Use and Cost).

The General Plan Update seeks to reduce vehicle miles traveled per person by providing balanced transportation opportunities, whereby the needs of motorized vehicles, public

transit, bicyclists, and pedestrians are considered during land use and transportation planning. However, due to already established auto-oriented land use patterns, the private automobile would likely continue to be the dominant mode of transport in Humboldt County.

The PACE program is currently available in the unincorporated area and provides 100 percent upfront financing to residential and commercial property owners for a wide range of eligible property improvements, such as renewable energy, energy efficiency, water efficiency. This program would result in significant improvements in energy conservation and efficiency for existing and future residential and commercial building owners that implement energy or water efficiency retrofits or renewable energy installations.

RCEA administers a number of other programs focused on improving energy efficiency, including the Redwood Coast Energy Watch, which provides a wide set of in-house no/low cost resources based services to drive energy efficiency investment in the residential, commercial and public sectors; energy efficiency programs for low income programs in partnership with PG&E and the Redwood Community Action Agency; and a broad range of programs from PG&E for eligible energy efficiency measures. These programs would also result in significant improvements in energy conservation and efficiency if existing and future residential and commercial building owners were to participate.

When it is implemented in 2018, Housing Element Implementation Measure H-IM18, Encourage Energy and Water Conservation, would amend the County Code to limit increases in assessed value for property tax purposes to encourage improvements to real property such as new alternative energy systems, such as solar, wind and hydroelectric energy systems, and new water conservation measures. This program would reduce demand on the regional power generation and distribution system and, given the most water is pumped using electric motors, reduce energy consumption through water conservation. In addition, fuel economy standards specified in Federal regulations and the various fuel efficiency standards established as part of the State's legal framework for GHG emissions reduction would reduce fuel consumption associated with vehicle trips within the County by new cars and trucks.

Current state regulatory requirements for new building construction contained in the 2010 California Green Building Standards Code and Title 24 would increase energy efficiency and reduce energy demand in comparison to existing residential and commercial structures, and therefore reduce actual environmental effects associated with energy use. Programs available through RCEA and PG&E provide incentives and savings to install energy efficient light bulbs and appliances in existing structures as well as increased insulation and renewable energy systems, which will help reduce energy consumption for existing development.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes a number of policies and standards in the Energy Element intended to increase energy efficiency and conservation. For example, Goal E-G2, Increase Energy Efficiency and Conservation, guides efforts to decrease energy consumption through conservation and efficiency in building, transportation, business, industry, government, water and waste management. A number of policies are intended to carry out this goal, including E-P1, Energy Conservation Standards and

Incentives, which calls for the development of incentives for building to exceed California Building Standards Code requirements for energy conservation. Although E-P1 does not specify increased energy conservation standards, Implementation Measure E-IM8, Energy Efficiency Standards, would direct the development and implementation of energy-efficiency standards that incorporate cost effective measures for subdivision, mixed use, infill, and planned unit development. Specific measures would be developed and analyzed on a project-by-project basis, so the measurable results of these measures cannot be determined at this time.

E-P10, Transportation Management Plans, requires that major commercial, business, or industrial facility developments submit a transportation management plan that addresses energy conservation measures such as connectivity to alternative transportation modes. E-P10 requirements are also intended to become incentives for projects not deemed as "major". In addition, E-M1, Alternative Energy Use, specifies the establishment of land use of regulations that eliminate obstacles to alternative energy use.

Other than those described above, the Energy Element does not have specific standards and additional requirements for energy efficiency and conservation. Examples of elective, non-mandatory, policies and programs that promote energy efficiency and conservation include: E-P13, Water Efficiency, which promotes the efficient use of water in residences, businesses, industries, and agriculture; E-P14, Incentives for Using Alternative Energy; E-IM6, Energy-conserving Landscaping, which directs the County to consider natural and drought-resistant planting materials and other measures to reduce energy demand in the preparation of the County landscaping ordinance; E-IM14, Energy Conservation, which requires the adoption of residential and commercial energy conservation for building construction and retrofit that establishes energy conservation incentives and performance standards for projects exceeding state building codes.

The Energy Element also contains Policy E-P5, Regional Energy Authority, and Implementation Measure, E-IM2, Comprehensive Action Plan for Energy, which recognizes RCEA as the regional energy authority for coordinating countywide energy planning and supports implementation of the Comprehensive Action Plan for Energy, or CAPE, which includes sustainable energy initiatives that reduce energy demand, increased energy efficiency, and advances the use of clean, efficient, and renewable resources available in the region. The CAPE could include recommended specific standards and requirements that could be implemented if adopted by the authority's member local governments, including the County.

For County owned buildings, E-P7, County Government Energy Consumption, specifies that the County shall reduce building and transportation energy consumption by implementing energy conservation measures and purchasing renewable energy and energy efficient equipment and vehicles whenever cost-effective. E-P8, County Building Design Standards, states that all new and renovated County-owned facilities shall be designed, constructed and operated U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED)"Silver" or better energy efficiency standards, including the installation of cost-effective conservation measures, renewable energy systems, cogeneration systems, and distributed energy systems (E-IM4. Install County Systems). In addition, E-IM3, County Energy Consumption Reduction, directs the development of a program to reduce the County's energy consumption in buildings and facilities, street lights, vehicle operation, and equipment procurement.

The Air Quality Element contains policies and programs that relate to greenhouse gas emissions, and although greenhouse gas emissions and energy efficiency and conservation are not one in the same, there is a close relationship-the less energy used, the fewer emissions produced. Policy AQ-P9, County Climate Action Plan, requires the development and implementation of a multi-jurisdictional Climate Action Plan to achieve reductions in greenhouse gas emissions consistent with the state law. This would be expected to result in increased energy efficiency and reductions in energy waste. Implementation measure AQ-IM4, County Government Greenhouse Gas Emission Reductions, specifies the components of a climate action plan for government operations that seeks emissions reductions through energy efficiency and conservation; "green building;" waste reduction and recycling; and efficient transportation. AQ-IM3, County-wide Climate Action Plan, directs the development and implementation of a climate action plan and AQ-IM5, Greenhouse Gas Emissions, directs the update to the General Plan and land use regulations to reflect the adopted countywide Climate Action Plan. Although the General Plan Update does not contain additional detail regarding the contents of the countywide Climate Action Plan, it is assumed that it will contain similar topics to the County Climate Action Plan for County government greenhouse gas emission reductions, such as energy efficiency and conservation; "green building;" waste reduction and recycling; and efficient transportation.

The Land Use Element includes policies and programs to promote mixed use development, which places higher density residential development adjacent to jobs and shopping. UL-P6, Mixed-Use Zoning, directs the application of mixed use zones in Urban Development Areas.

There are several policies in the Circulation Element that encourage modes of transportation other than automotive trips. C-P23, Public Transit Service, provides for coordination with transportation providers so that a full range of travel patterns and connectivity with other modes of transportation are provided. C-Pxx, Long Term Transit Plan, supports planning with the goal of increasing transit vs. automobile trips. C-P25, Multimodal Level of Service (LOS) and Quality of Service Standards (QOS), would consider "walkability audits" and "bikeability audits" suitable for the locality to assess and plan the multi-modal quality and capacity of county roads and intersections.

Conclusion

The General Plan Update does not include specific development projects. Rather, the Plan identifies land uses and policies to accommodate the growth that is projected to occur during the planning period. In accommodating projected growth, the General Plan Update encourages energy efficiency, maintains existing land use patterns, and promotes mixed use land use patterns in urbanized areas which would reduce vehicle trips by placing residences near services. The proposed Energy Element requires that major development submit a transportation management plan that addresses energy conservation measures such as connectivity to alternative transportation modes and proposes the use of incentives to encourage energy efficiency and conservation from other development and supports the implementation of the CAPE by RCEA and its member jurisdictions.

The Air Quality Element also specifies that a County-wide CAP be prepared and that the General Plan and land use regulations be amended to reflect that plan. Energy efficiency and conservation would be an important component of the County-wide Climate Action Plan. For new County-owned buildings, the General Plan Updates

specifies LEED "Silver" or better energy efficiency standards and the preparation of a Climate Action Plan for County government greenhouse gas emission reductions would also result in energy efficiency and conservation.

The proposed General Plan Update policies, standards and implementation measures addressing energy efficiency, greenhouse gas emission, land uses, and development patterns, combined with current laws and regulations would help to reduce the wasteful, inefficient, or unnecessary consumption of energy resulting from new development. In addition, the RCEA CAPE and the other RCEA incentives to encourage the installation of increased insulation and renewable energy systems in existing structures; and will help reduce energy consumption from existing development.

The General Plan Updates specifies the development and implementation of a County-wide Climate Action Plan that is intended to achieve reductions in greenhouse gas emissions consistent with state law. It is assumed that a County-wide Climate Action Plan that is consistent with state law would include measures to increase energy efficiency, reduce energy consumption, and reduce energy waste in new and existing development.

However, because specific information about new development projected to occur during the General Plan Update planning period is unknown at this time; the effectiveness of the soon to be updated CAPE and the yet-to-be developed CAP measures at reducing energy use or increasing energy efficiency cannot be determined; and because the County has not yet adopted GHG thresholds that would strongly influence future energy use, the degree to which General Plan Update land uses or development patterns cause wasteful, inefficient, or unnecessary consumption of energy cannot be determined. Consequently, this impact is conservatively determined to be significant. Ensuring that could cause wasteful, inefficient, or unnecessary consumption of energy that have an adverse physical effect on the environment is not feasible at this time. Therefore, this impact is considered **significant and unavoidable.**

Mitigation

None identified, beyond those to be included in the pending CAPE update and CAP.

Impact 3.17.4.2: Land Uses require or result in the construction of new or expanded energy production or transmission facilities, the construction of which could cause significant environmental effects

Projected population and job growth during the General Plan Update planning period would lead to increased housing and non-residential development in the unincorporated area. Energy demand would be expected to increase due to the use of heating, cooling, and electricity in homes and businesses; for public infrastructure and service operations; and for industry, commercial, and a variety of other uses. Energy consumption during the General Plan Update planning period may result in the need for new or expanded energy production or transmission facilities, the construction of which could cause significant environmental effects.

This impact analysis addresses item "b" of the significance standards listed in Section 3.9.2 above and is based on Appendix F of the CEQA Guidelines. Pursuant to these

standards, the proposed General Plan Update would have a significant impact if it resulted in land uses that require or result in the construction of new or expanded energy production or transmission facilities, the construction of which could cause significant environmental effects.

As described in Section 3.9.3.4 above, approximately 1,721 new housing units and 3,130,717 square feet of commercial and industrial buildings are projected to be constructed during the General Plan Update planning period. The precise location of new development is not known. Construction would likely occur throughout the County, but most development would likely occur within Community Plan Areas that are served by existing energy production or transmission facilities. Construction may occur adjacent to existing electrical and natural gas distribution facilities that are sized appropriately to accommodate the new development or may require the construction of new transmission or distribution facilities. The Humboldt Bay Generating Station has the capacity to serve 122,000 housing units, which is nearly twice the number of housing units that are currently within the entire County, although, energy produced at the Humboldt Bay Generating Station is both used locally and exported to other parts of the state. The potential need for new power generation facilities is unlikely.

Most development would be served by PG&E electric facilities and, if located in the greater Humboldt Bay area, may be served by natural gas. PG&E is obligated to provide service to new development within its service area, subject to CPUC Rules governing the service and that also define responsibility for the cost of construction and the manner in which construction occurs. Electric transmission and distribution lines are typically located along overhead powerlines and both powerlines and underground gas lines are typically located within public rights of way. PG&E conducts periodic load forecasts to ensure the reliability of its electricity and gas service. As growth occurs during the General Plan Update planning period, PG&E would be expected to incorporate these new levels of demand into its reliability forecasts. For new development that would occur within Resort Improvement District No. 1, requirements contained in the adopted "Capacity Buy-In/Connection Costs & New Installation Fees" govern the construction of new or expanded energy production or transmission facilities for new electric service, subject to other applicable land use regulations.

Analysis of Relevant General Plan Update Policies

The General Plan Update includes the following policies and standards in the Energy Element relating to energy production and transmission facilities. Policy E-P9, Electrical Transmission, promotes PG&E funded capacity upgrades to electric distribution lines. Standard E-S5, Electrical Transmission Lines, establishes standards to reduce environmental impacts resulting from the siting and construction of electric transmission lines, including consolidating new facilities with existing facilities and within existing rights of way, minimizing visual impacts, and minimizing alterations to landform. In addition, the Conservation and Open Space Element Scenic Resources Chapter Standard SR-S3, Scenic Highway Standards, specifies standards for mapped scenic highways that would minimize the impacts of new, relocated, or existing utility distribution lines within the visual buffer areas.

The General Plan Update Energy Element Goals also encourages countywide strategic energy planning focused on self-sufficiency, the development of renewable energy resources, and energy conservation. The Energy Element contains policies and programs that are intended to protect known energy resources and encourage the development

of renewable energy. Specifically, E-P9x, Electricity Buyback, supports revisions to the electricity buyback program that encourages more distributed local generation. E-P14, Incentives for Using Alternative Energy, encourage the use of renewable energy and environmentally preferable distributed energy generation systems in the county. E-IM9, Develop Incentives for Private Sector, specifies incentives to encourage the installation of distributed generation, and solar electric and solar heating systems, in all new construction and building retrofits. E-IM13, Renewable Energy Permitting Process, would provide for a clear permitting process for distributed energy generation systems and identifies zones where distributed energy generation facilities will be allowed as a permitted use.

Policies and programs that address construction related environmental impacts to water quality, air quality, biological resources, cultural resources, and scenic resources are analyzed throughout this EIR. These analyses would also address environmental impacts relating to the construction of new or expanded energy production or transmission facilities. The following is a summary of General Plan Update policies that would reduce construction related environmental impacts from new or expanded water facilities:

- The Circulation Element contains policies to reduce traffic impacts of new and expanded wastewater facilities by utilizing traffic impact thresholds (C-P5, Level of Service Criteria) and by requiring that new development be conditioned to proportionally mitigate significant traffic impacts through construction of on- and off-site improvements and dedication of rights-of-way (C-P4. Mitigation Measures).
- The Biological Resources Chapter within the General Plan Update contains policies to reduce impacts to plants, animals, and habitat by planning land containing sensitive and critical habitats for uses for long term habitat sustainability (BR-P1, Compatible Land Use); conditioning projects to avoid impacts to critical and essential habitat where such resources are present (BR-P2, Critical Habitat); regulating development within streamside management areas to minimize adverse environmental effects (BR-P6, Development within Streamside Management Areas); and through the delineation and protection of wetlands (BR-P-7, Wetland Identification, and BR-S10 Development Standards).
- The Water Resources Element contains policies regarding critical watersheds to protect municipal water supplies from the environmental effects of development (WR-P4, Critical Municipal Water Supply Areas) and to limit the effects of development upon threatened and endangered species including Coho salmon habitat (WR-P5, Critical Watershed Areas); minimizing erosion and sediment discharge through the implementation of performance standards (WR-Px2, Mitigate Controllable Sediment Discharge Sites, WR-P8 Erosion and Sediment Discharge and WR-P36 Erosion and Sediment Control Measures); and by limiting the transmission of contaminants from parking lots to the storm water system by requiring oil water separators (WR-P35, Oil/Water Separation).
- Noise Element policies are intended to minimize short-term noise and noise from stationary sources through the application of appropriate standards (N-P1, Minimize Noise from Stationary and Mobile Sources) and through application of noise performance standards (N-S8 Short-Term Noise Performance Standards-Maximum Noise Level).
- The Safety Element contains policies to plan land use and new development to reduce hazards (S-P1, Reduce the Potential for Loss); applying state geologic and seismic standards to new development (S-P6, Structural Hazards); regulating uses around airports consistent with Airport Land Use Compatibility Plans (S-P21,

Development Compatibility and S-P22, Airport Land Use Compatibility Criteria), and by regulating land uses in flood hazard areas (S-P10, Federal Flood Insurance Program).

- Air Quality Element policies require that construction and grading dust control measures achieve local air quality standards (AQ-P4, Construction and Grading Dust Control) and air quality impacts of new development are reduced through the implementation of mitigation measure during discretionary review (AQ-P5, Air Quality Impacts from New Development).

Conclusion

Federal and state regulations and ongoing planning by PG&E consistent with its obligation to the CPUC to provide reliable power service with its service area would help to ensure that sufficient energy supplies are available to serve projected development during the General Plan Update planning period. The General Plan Update includes policies and programs to encourage distributed renewable energy production, locating renewable generation near consumption, and could reduce the need for additional energy production or transmission facilities.

Policy E-P9, Electrical Transmission, Standard E-S5, Electrical Transmission Lines, Scenic Resources Chapter Standard SR-S3, Scenic Highway Standards, are specific General Plan Update policies and standards that are intended to reduce environmental impacts from electrical transmission facilities. In addition, the proposed policies, standards, and implementation measures listed above that relate to all construction consistent with the General Plan Update would help to avoid environmental impacts associated with the construction of new or expanded energy production or transmission facilities. The Noise, Hazards and Hazardous Materials, Geology and Soils, Hydrology and Water Quality, Air Quality, Biological Resources, Cultural Resources, and Scenic Resources sections of this EIR identify existing regulations, measures contained in the General Plan Update, and additional mitigations to further reduce potential environmental impacts resulting from new or expanded energy production or transmission facilities.

However, the nature and location of any potential new or expanded energy production or transmission facilities that may be constructed by PG&E or Resort Improvement District No. 1 and that do not trigger a land use approval by the County is not known. As a result, the potential impacts of these facilities are too speculative for evaluation in this first tier programmatic EIR. If potential new or expanded energy production or transmission facilities are within the responsibility and jurisdiction of other public agencies, and not the County, appropriate mitigations can and should be adopted by such other agency, or other findings made after certification of an EIR in accordance with CEQA.

If the new or expanded energy production or transmission facilities were to be constructed as part of a subdivision map approval or other process requiring County discretionary land use approval, such as an amendment to the General Plan Land Use Map, rezone, use permit, or a special permit, the County would ensure that environmental impacts are addressed through appropriate site-specific mitigation measures and the application of the policies listed above, appropriate Zoning Regulations, and its land use authority. Therefore, with implementation of the General Plan Update policies, impacts relating to new or expanded energy production or transmission facilities or expansion of existing facilities triggered by the General Plan would be **less than significant**.

Mitigation

None required.