

## 5.1 HYDROLOGY AND WATER RESOURCES

This section evaluates the hydrology and water resources impacts asking whether the proposed plan will: (1) substantially deplete groundwater supplies or interfere substantially with groundwater recharge; (2) create additional sources of substantially polluted runoff; or (3) violate water quality standards or waste discharge requirements. The water infrastructure (including capacity), drainage infrastructure (including capacity), and flooding impacts of the proposed plan are evaluated in Sections 7.1, 7.3 and 8.5 of this PEIR, respectively.

This section is based, in part, on the 2007 City of Fortuna Background Report, Section 6.2, Water Resources. The Background Report is included in its entirety (Appendix G); bound under separate cover.

### Environmental Setting

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#### Regional and Local Groundwater Basins

The California Department of Water Resources (DWR) Bulletin 118 provides a summary of groundwater basins and local groundwater conditions throughout California. The Bulletin, first published in the early 1970's, was last updated in 2003. DWR Bulletin 118 identifies one regional groundwater basin as underlying the Planning Area and its environs: the Eel River Valley Groundwater Basin (DWR Groundwater Basin Number: 1-10) (DWR, 2004). The Basin covers an area of 115 square miles (73,700 acres) and is composed of the Eel River delta and channel gravels, floodplain clays and silts, and older terrace gravels of the Eel River and Van Duzen River. According to the DWR Bulletin, the Basin is one of the principal groundwater basins in Humboldt County (DWR, 2004).

Groundwater recharge to the Basin is from direct precipitation and seepage from the Eel and Van Duzen Rivers. The valley is underlain with poorly sorted sand and gravel, and most of the groundwater used in the valley is obtained from wells tapping these beds. According to DWR, the estimated storage capacity of the Basin is 136,000 acre-feet, the estimated useable storage capacity is 100,000 acre-feet, and the estimated current annual groundwater extraction is 50,400 acre feet (DWR, 2004).

#### City of Fortuna Municipal Water Source

The City of Fortuna relies on the Eel River Valley Groundwater Basin as its municipal water source. Groundwater is pumped from five City-owned extraction wells located on Eel River Drive between Kenmar Road and Drake Hill Road. Approximately 457 million gallons (MG) or 1,402 acre-feet of potable water were produced by the City's wells in 2009 (DWR, 2009).

## Regional and Local Watersheds

The Planning Area is located within the Eel River watershed. The term *watershed* refers to a drainage area that is a tributary to or drains in to a particular river or creek system. The Eel River watershed has a total drainage area of approximately 3,680 square miles and extends from headwaters in the mountains to the east, to the river's mouth at the Pacific Ocean. Principal tributaries to the Eel River are the Van Duzen and Bear Rivers, and Yager, Larabee, Bull and Salmon Creeks. The Planning Area is located along the eastern edge of the lower Eel River Valley, approximately 11 miles upstream of the mouth of the river.

The Planning Area contains portions of four smaller watersheds, including the Palmer Creek, Strongs Creek, Wolverton Gulch and Barber Creek Watersheds (Figure 5-1). Each of these watersheds is described below.

**Palmer Creek.** The Palmer Creek watershed is located in the northwest section of the Planning Area, in an area comprised mainly of open space and residential zoning. The watershed drains to the southwest toward the Eel River via Little Palmer, Palmer and Rohner Creeks.

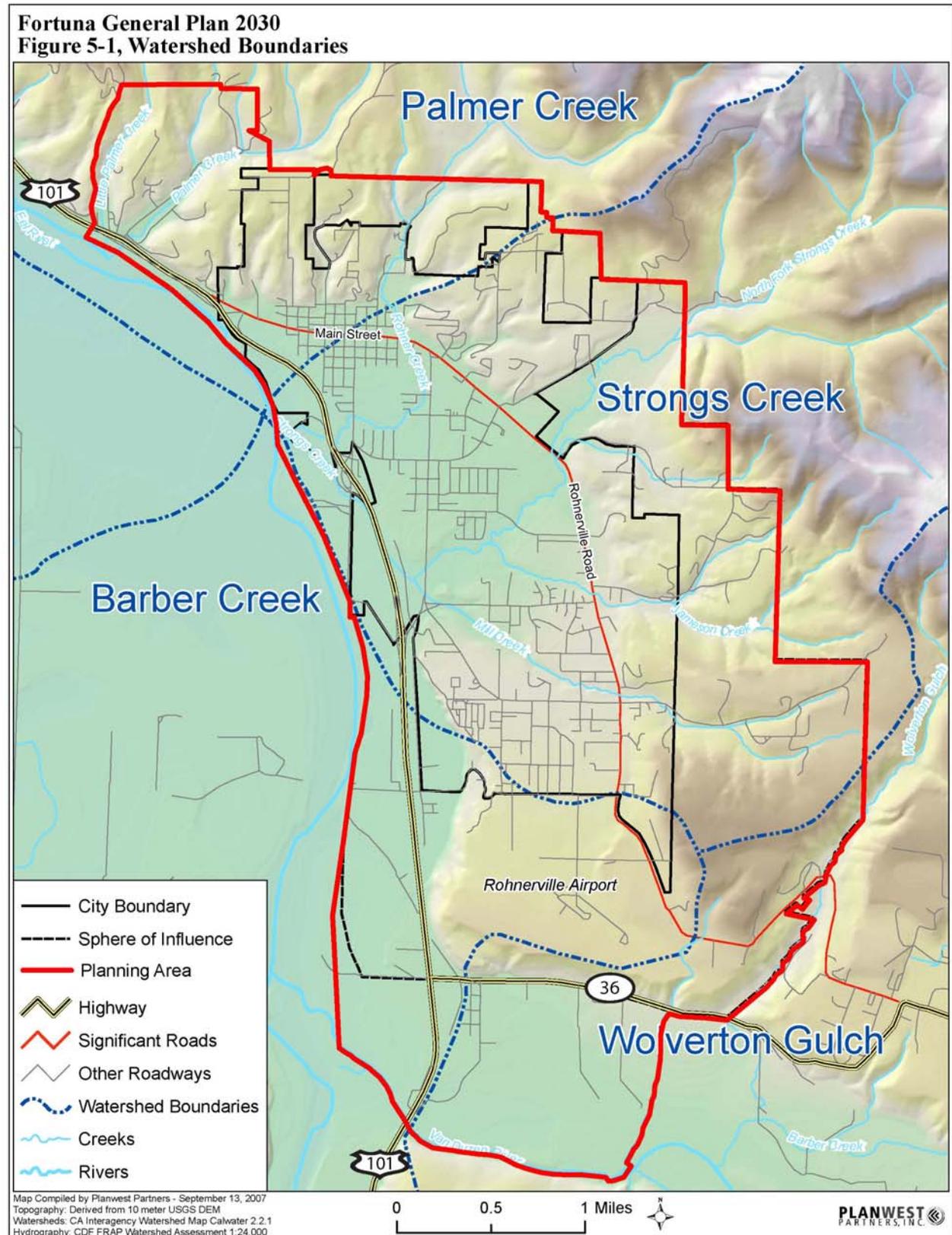
**Strongs Creek.** The Strongs Creek watershed extends east to west through the central portion of the Planning Area. The Strongs Creek watershed is the largest watershed in the Planning area, encompassing approximately 10,700 acres draining a mix of developed and undeveloped areas. The watershed drains to the west toward the Eel River via Strongs Creek and its tributaries (e.g., Rohner Creek, Jameson Creek, and Mill Creek (W&K, 2005).

**Wolverton Gulch.** The Wolverton Gulch watershed is located in the southern portion of the Planning Area. The area is comprised of agriculture, open space and residential land uses. Barber, Yager and Wilson creeks flow through the Wolverton Gulch watershed to the Van Duzen River and subsequently the Eel River.

**Barber Creek.** The Barber Creek watershed is located on the southwestern portion of the Planning Area. Both the Van Duzen and Eel Rivers traverse through the watershed. The majority of the area is utilized for agricultural purposes.

## Regional and Local Watercourses and Wetlands

The Planning Area is located adjacent to the Eel and Van Duzen Rivers, and is bisected by five smaller watercourses including Palmer Creek, Rohner Creek, the north fork of Strongs Creek, Jameson Creek Mill Creek, and Wolverton Gulch (Figure 5-1). Each of these watercourses is perennial (annual flowing) and drains to the Eel River and ultimately the Pacific Ocean. In addition, the Planning Area may be bisected by smaller ephemeral (seasonal flowing) watercourses, although such watercourses have not been identified and mapped owing to the programmatic nature of this PEIR.



In addition to the watercourses within and adjacent to the Planning Area, approximately 30 wetlands have been identified within the Planning Area by the U.S. Fish and Wildlife Service's National Wetland Inventory (NWI; USFWS, 1987). These wetlands are scattered throughout the Planning Area but are concentrated in the southernmost portion along the Van Duzen River (Figure 5-2 in Section 5.2 of this PEIR). In addition, because the NWI does not identify all wetlands, additional wetlands may occur in the Planning Area.

## Water Quality Standards

**Beneficial Uses.** Beneficial uses are uses of waters of the state that are protected against water quality degradation. The California Regional Water Quality Control Board's (RWQCB) Water Quality Control Plan for the North Coast Basin (e.g., Basin Plan) identifies the beneficial uses for individual water bodies, groundwater, and wetlands in the North Coast Region, including the Planning Area and its environs. The Planning Area is located in the Ferndale Hydrologic Subarea of the Lower Eel River Hydrologic Area of the Eel River Hydrologic Unit. The beneficial uses for surface waters in the Ferndale Hydrologic Subarea are listed in Table 5.1-1. As indicated, the beneficial uses of waters in the vicinity of the Planning Area include, but are not limited to: use as a municipal and domestic water supply; use for groundwater recharge; use to support fisheries, wildlife, and associated habitat including wetlands; and use (of wetlands) for natural water quality enhancement.

**Water Quality Objectives.** Numeric and narrative water quality objectives are set forth in the Basin Plan to ensure that designated beneficial uses for water bodies are maintained and protected. General water quality objectives established by the Basin Plan for surface waters/wetlands and groundwater are summarized in Tables 5.1-2 and -3, respectively, while specific water quality objectives established by the Basin Plan for the Eel River are summarized in Table 5.1-4. The RWQCB discharge permits currently held by the City of Fortuna for its municipal wastewater and storm drainage discharges to the Eel River have been formulated with RWQCB to comply with these water quality objectives.

**Municipal Water Quality.** The City of Fortuna is required to comply with the California State Department of Health Services (CDHS) and United States Environmental Protection Agency (USEPA) water quality standards for municipal water supply. Water treatment for the municipal supply includes treating water to raise the pH and make the water less corrosive to comply with state and federal requirements for copper and lead (John Carollo Engineers, 1994). As required by the state regulations for drinking water, the water is also chlorinated to prevent any bacteriological contamination (City of Fortuna, 2008).

**Table 5.1-1  
Beneficial Uses for Surface Waters, Groundwater and Wetlands**

<b>Beneficial Use</b>	<b>Description</b>
Municipal/Domestic Supply	Use for community, military or individual water supply systems. Surface Water, Groundwater, Wetlands
Agricultural Supply	Use for farming, horticulture or ranching. Surface Water, Groundwater, Wetlands
Industrial Services Supply	Use for industrial activities. Surface Water, Groundwater, Wetlands
Industrial Process Supply	Use for industrial activities that depend primarily on water quality. Surface Water, Groundwater
Groundwater Recharge	Use for recharge of groundwater. Surface Water, Wetlands
Freshwater Replenishment	Use for maintenance of surface waters. Surface Water, Wetlands
Navigation	Use for shipping, travel or transportation. Surface Water, Wetlands
Hydropower Generation	Use for hydropower generation. Surface Water
Contact Recreation 1	Use for recreational activities involving body contact with water. Surface Water, Wetlands
Non-Contact Recreation 2	Use for recreational activities involving proximity to water but not bodily contact. Surface Water, Wetlands
Commercial/Sport Fishing	Use for commercial and recreational fishing. Surface Water, Wetlands
Aquaculture	Use for aquaculture or mariculture operations. Surface Water, Wetlands
Warm Freshwater Habitat	Use that supports warm water ecosystems. Wetlands
Cold Freshwater Habitat	Use that supports cold water ecosystems. Surface Water Wetlands
Wildlife Habitat	Use that supports terrestrial ecosystems. Surface Water, Wetlands
Listed Species	Use that supports habitats necessary for the survival/ maintenance of listed species. Surface Water, Wetlands
Marine Habitat	Use that supports marine ecosystems. Surface Water
Spawning/Reproduction Habitat	Use that supports aquatic habitats suitable for reproduction and early development of fish. Surface Water, Wetlands
Shellfish Harvesting	Use that supports habitat suitable for the collection of filter-feeding shellfish. Surface Water, Wetlands
Estuarine Habitat	Use that supports estuarine ecosystems. Surface Water, Wetlands
Native American Culture	Use that supports the cultural and/or traditional rights of indigenous people. Surface Water Wetlands
Flood Peak Attenuation/Storage	Uses of riparian wetlands in flood plain areas to buffer passage of floodwaters to receiving waters. Wetlands
Wetland Habitat	Use that supports natural and man-made wetland ecosystems. Wetlands
Water Quality Enhancement	Use of wetlands for natural water quality enhancement. Wetlands

*Source California Regional Water Quality Control Board (RWQCB), 2001. Water Quality Control Plan for the North Coast Basin, 2005 Beneficial Uses Amendment.*

**Table 5.1-2  
General Water Quality Objectives for Surface Waters and Wetlands**

<b>Beneficial Use</b>	<b>Description</b>
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Taste and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.
Floating Material	Waters shall not contain materials in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended Material	Waters shall not contain suspended materials in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	Waters shall not contain settleable materials in concentrations that causes nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that adversely affect beneficial uses.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth that affect beneficial uses.
Sediment	Suspended sediment load/discharge shall not be altered in such a manner as to adversely affect beneficial uses.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels.
Hydrogen Ion (pH)	The pH shall not be depressed below 6.5 nor raised above 8.5.
Dissolved Oxygen	Dissolved oxygen concentrations shall not be reduced below the minimum levels set forth in the Basin Plan.
Bacteria	The bacteriological quality of waters shall not be degraded beyond natural background levels.
Temperature	Temperature of any COLD water shall not be increased by more than 5°F above natural receiving water temperature, and temperature of WARM intrastate waters shall not be increased more than 5°F above natural receiving water temperature.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Pesticides	No pesticides shall be present in concentrations that adversely affect beneficial uses. Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limits set forth in California Code Title 22.
Chemical Constituents	Waters designated as domestic or municipal supply shall not contain chemical constituents or in excess of Title 22.
Radioactivity	Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal or aquatic life.
<i>Source: California Regional Water Quality Control Board (RWQCB), 2001. Water Quality Control Plan for the North Coast Basin.</i>	

**Table 5.1-3  
General Water Quality Objectives for Groundwater**

<b>Beneficial Use</b>	<b>Description</b>
Tastes and Odors	Groundwater shall not contain taste-or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or exceed DHS and U.S. EPA standards as incorporated into waste discharge requirements.
Bacteria	In groundwater used for domestic or municipal supply, the median of the most probable number of coliform organisms over any 7-day period shall be less than 1.1 MPN/100 ml, less than 1 colony/100 ml, or absent (State Department of Health Services).
Chemicals and Radioactivity	Groundwater used for domestic or municipal supply shall not contain chemical constituents or concentrations of radionuclides in excess of the limits specified in Title 22.
<i>Source: California Regional Water Quality Control Board (RWQCB), 2001. Water Quality Control Plan for the North Coast Basin.</i>	

**Table 5.1-4  
Specific Water Quality Objectives for the Eel River**

Water Body	Specific Conductance		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH units)	
	90% Upper Limit	50% Upper Limit	90% Upper Limit	50% Upper Limit	Min	90% Upper Limit	50% Upper Limit	Max	Min
Eel River	375	225	275	140	7.0	7.5	10.0	8.5	6.5

*Source: California Regional Water Quality Control Board (RWQCB), 2001. Water Quality Control Plan for the North Coast Basin.*

### City of Fortuna Municipal Stormwater Discharges

The City of Fortuna stormwater drainage system serves the incorporated City of Fortuna and its immediate environs (11,350 acres total). It consists of a downtown system, several peripheral subdivision systems and outlying rural systems. The downtown drainage system is composed primarily of reinforced concrete pipe (RCP) and corrugated metal pipe (CMP) with diameters ranging from 8” to 54”, with older box culverts and cross drains at intersections. The subdivision drainage systems are composed of RCP, CMP and polyethylene pipe with diameters ranging from 12” to 48”. The outlying rural systems are composed largely of roadside ditches and culverts. Stormwater runoff from these systems flows by gravity to Rohner Creek, Hillside Creek, Strongs Creek, Jameson Creek, and Mill Creek before flowing to the main stem of Strongs Creek and discharging to the Eel River, except for the northwestern portion of the City where runoff flows to Palmer and Little Palmer Creeks before discharging to the Eel River. Each of the aforementioned creeks are primarily in their natural, unchannelized state, except for the lower reaches of Strongs Creek which is partially channelized (COF 2005a).

City of Fortuna stormwater discharges to the Eel River are subject to National Pollution Discharge Elimination System (NPDES) Phase II regulations as a State-designated “small” municipal storm sewer system (MS4). The City currently holds a Phase II NPDES General Permit for these point-source discharges, and implements Best Management Practices (BMPs) outlined in the Permit to minimize urban pollutants in these discharges (COF 2005a). A Phase III Permit will be issued sometime during the planning period (City of Fortuna, 2010).

### City of Fortuna Municipal Wastewater Discharges

The City of Fortuna wastewater collection, treatment and disposal system serves the incorporated City of Fortuna. The system consists of a network of collection pipes, eight pump stations, and a Wastewater Treatment Plant (WWTP) located west of U.S. 101 near the mouth of Strongs Creek. The collection system extends throughout most of the incorporated City, ultimately feeding into two main lines; a 15” gravity line located in Loni Drive and a 12” force main in Dinsmore Drive. The WWTP receives wastewater from both the City and the Palmer Creek Community Services District (PCCSD), and treats this wastewater to secondary levels before discharging it to the Eel River. The WWTP has a peak wet-weather flow capacity of 7.0 million gallons per day (MGD) and a dry-weather flow capacity of 1.5 MGD (City of Fortuna 2010).

WWTP treated effluent discharges occur at two locations. The City's primary discharge point is percolation ponds located near the Eel River. Treated effluent is discharged to groundwater through the percolation ponds during summer months when low river levels predominate. Treated effluent is discharged to Strong's Creek both during the winter months when high river levels predominate preventing the percolation ponds from receiving more effluent, and also during maintenance of the percolation ponds in early spring. These discharges occur under the City's NPDES permit for WWTP discharges (which is separate from the City's NPDES stormwater discharge permit). The NPDES WWTP discharge permit sets quantity, pollutant and temperature limitations for the discharge (City of Fortuna 2007).

## Water Quality Issues

The USEPA lists many North Coast Region rivers, including the Eel River, as impaired, including them on the 303(d) list for water quality. The Eel River is currently listed as "impaired" for sediment/siltation and temperature. Potential sources of the sediment/siltation impairment include range grazing, silviculture, and non-point sources. Potential sources of temperature impairment include removal of riparian vegetation and non-point sources (USEPA, 2003). Surface water quality impairment is also an issue within the Planning Area's watersheds. Urban streams are often susceptible to non-point source pollution introduced from a variety of sources including storm water runoff, erosion and sedimentation, failing septic tanks and contamination from nearby gas stations and industrial activities. Other water quality problems can be attributed to point source pollution violations associated with both stormwater and treated wastewater discharges.

## Applicable Plans, Policies, Codes and Regulations

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### Federal

**Clean Water Act.** In 1972, the Federal Water Pollution Control Act, also referred to as the Clean Water Act (CWA), was amended to establish that the discharge of pollutants to Waters of the United States was effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES program regulates point source discharges including discharges from stormwater systems, wastewater treatment plants, and other facilities that discharge directly to surface waters, along with non-point source discharges. NPDES programs are administered in California by the State water Resources Control Board (SWRCB) and the RWQCBs.

**National Drinking Water Standards.** The U.S. Environmental Protection Agency (USEPA) established minimum primary and secondary drinking water standards with the passage of the Safe Drinking Water Act in 1974 and subsequent amendments. Primary standards establish Maximum Contaminant Levels (MCLs) and Maximum Contaminant Levels Goals (MCLG) for materials that are known or suspected health hazards. The MCL is an enforceable contaminant level that water suppliers must not exceed. The MCLG is an unenforceable goal equal to the maximum level of a contaminant that is not expected to cause any adverse health effects over a lifetime of exposure. Secondary drinking water standards are intended to provide guidelines for control of taste, odor, color, and other aesthetic aspects of drinking water.

## State

**Water Quality Control Plan for the North Coast Basin--Region 1 (Basin Plan).** The Water Quality Control Plan for the North Coast Basin (Basin Plan) identifies beneficial uses and water quality objectives for receiving-waters and establishes specific discharge controls for discharges to receiving-waters that are implemented through waste discharge requirements issued by the California Regional Water Quality Control Board, North Coast Region (RWQCB). The Basin Plan also includes by reference the state and federal Anti-degradation Policies.

**Clean Water Act Section 303(d) (303d List).** Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of *limited water quality* river and stream segments. Waters on the list do not meet water quality standards, even after minimum required levels of pollution control technology have been installed at point sources of pollution. The law requires that these jurisdictions establish priority rankings for water on the list and develop action plans called Total Maximum Daily Loads (TMDL) to improve water quality.

**Total Maximum Daily Loads (TMDLs).** Total Maximum Daily Loads (TMDLs) are regulatory action plans that require additional control of discharges to impaired water bodies. A TMDL is a calculation of the maximum amount of a pollutant that a body of water can receive and still meet water quality standards, and insure the protection of the water's beneficial uses.

## Methodology

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### Policy Background

The following policy background is used to assess the visual resource impacts of the proposed plan:

- Surface water and groundwater resources in the general Planning Area have beneficial uses that must be protected against water quality degradation.
- The municipal water supply for the City of Fortuna relies primarily on groundwater resources.
- Extracted groundwater is treated for disinfection and corrosion control and additional testing is conducted to ensure the treatment system remains effective and in compliance.
- Existing federal and state laws that set forth water quality standards and protect water resources will continue to provide protection for water resources within the Planning Area.

### Thresholds of Significance

Proposed General Plan implementation will have significant hydrological and water resource impacts if it:

- Substantially depletes groundwater supplies or interferes substantially with groundwater recharge to the degree that there is a net deficit in aquifer volume or a lowering of the local groundwater table;
- Creates substantial additional sources of polluted runoff; or violates water quality standards or waste discharge requirements.

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## Implications of the Draft Land Use Diagram

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Projected growth associated with General Plan implementation will have the potential to impact the Planning Area's groundwater and surface water resources. Potential impacts are associated primarily with proposed changes in land use that could alter groundwater recharge rates and/or increase demand on the local groundwater basin. Potential surface water impacts are related to land use changes that could cause or contribute to changes in stormwater runoff and in treated wastewater discharges to surface waters.

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## General Plan Policy Response

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The proposed General Plan includes the following policies and programs relevant to hydrology and water resources.

**Policy PFS-3.2 Efficient Water Use.** The City shall promote efficient water use and reduced water demand by requiring new construction to comply with State and local water conservation requirements, encouraging water-conserving landscaping, and encouraging retrofitting of existing development with water-conserving devices.

**Policy PFS-3.7 Water System Capacity.** The City shall maintain an adequate water system capacity to meet domestic and commercial water demand, including adequate fire flow capacity and water storage reserves.

**Policy PFS-3.8 Water Rights Allocation.** The City shall renew/amend existing permitted water right allocations to accommodate existing and projected municipal water usage.

**Program PFS-8.** The City shall prepare an Urban Water Management Plan (UWMP) and update the plan every five years. The UWMP shall address the City's projected municipal supply and fire protection needs, water conservation practices, and management measures, as required by State law.

**Policy PFS-5.4. Runoff Quality.** The City shall improve the quality of runoff from proposed new development through use of appropriate and feasible mitigation measures.

**Policy PFS-5.6 Future Drainage Compliance.** The City shall require future drainage systems to comply with applicable State and Federal non-point source pollutant discharge requirements.

**Policy PFS-5.7 On-Site Drainage Treatment.** The City shall implement on-site storm drainage treatment facilities in City projects wherever feasible.

**Policy PFS-5.8 Detention Facilities.** The City shall use stormwater detention facilities to mitigate drainage impacts, including stormwater quality impacts.

**Policy PFS-5.10 Rainy Season.** The City shall prohibit grading activities during the rainy season, listed as October 15 – April 30, unless a Wet Weather Work Plan has been submitted and approved by the City in conjunction with a grading permit application.

**Policy PFS-5.20 Low Impact Development Techniques.** The City shall encourage development to incorporate Low Impact Development (LID) techniques, such as bioswales and permeable pavement, to minimize stormwater runoff and comply with City NPDES permits.

**Program PFS-18.** The City shall implement a Post Construction Stormwater Runoff Control Ordinance to minimize pollutants in post-construction stormwater discharges consistent with the City's existing Phase II Stormwater Management Program.

**Program PFS-19.** The City shall adopt a Manual of Stormwater Quality Control Standards for New Development which includes requirements for design and best management practices (BMPs) to control the volume, rate, and potential pollutant load of stormwater runoff from new development. The City shall incorporate such requirements in any land use entitlement and construction or building permit.

**Policy NCR-1.1 Watershed Protection.** The City shall condition development to minimize point source and non-point source pollutant discharges to local watersheds. The City shall also require mitigation for development that may change runoff quality and/or quantity for pollution prevention.

**Policy NCR-1.2 Reclaimed Water.** The City shall support programs that would supply reclaimed water for park irrigation and agricultural uses.

**Policy NCR-1.3 Groundwater.** The City shall seek additional groundwater locations to supplement existing drinking water sources.

**Policy NCR-2.13 Watercourse, Wetland and Riparian Buffers.** The City shall require appropriate watercourses and wetland buffers to protect water quality.

**Program NCR-1** The City shall implement a stormwater management program (SWMP) consistent with its National Pollutant Discharge Elimination System (NPDES) permit coverage and the adopted Stormwater Ordinance, which prohibits the discharge of non-stormwater discharges into the stormwater system.

**Program NCR-2.** For proposed development projects that would result in greater than one acre of ground disturbance, the City shall implement State provisions requiring the preparation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP shall identify measures to manage exposed soils, control deposition of pollutants by construction vehicles, cleanup spills of oil and other pollutants, and prevent pollutants from leaving the construction site in runoff. The SWPPP shall also identify BMPs to avoid significant sedimentation in runoff from the construction site.

**Program NCR-3.** The City shall require proposed new projects that result in parcels less than one (1) acre in size to connect to the City's municipal water wastewater, and storm drain systems.

**Program NCR-4.** The City shall manage the extent of impervious coverage in the Planning Area to reduce impervious area coverage and to minimize directly connected impervious areas. This will reduce impacts associated with runoff from new development and re-development projects in the Planning Area.

**Program NCR-5.** The City shall require the integration of best management practices in new development and re-development projects to control pollutant sources and prevent pollutants in runoff during and following development.

**Program NCR-6.** The City shall require the use of basic water quality strategies that self-treat runoff in new development and re-development projects. These strategies may include infiltrating runoff, retaining/detaining runoff, conveying runoff slowly through vegetation, and/or treatment of runoff on a flow-through basis using other standard treatment technologies.

**Program NCR-7.** The City shall comply with Clean Water Act requirements with the intent of minimizing pollutant discharge from point and non-point pollutant sources to surface waters. Mitigation may include, but may not be limited to restoration, off-site replacement for no net loss, project design/operation modification.

**Program NCR-14.** The City shall prepare a streamside management/wetland protection ordinance, following collaboration with resource agencies including but not limited to CDFG, establishing setback recommendations for perennial and intermittent streams, wetlands, and riparian corridors. See Chapter 5.2 of this PEIR for the full text of this program.

## Impacts and Mitigation

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### Impact 5.1-1: Groundwater Supply/Recharge

*The proposed General Plan implementation will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge to the degree that there will be a net deficit in aquifer volume or a lowering of the local groundwater table level.*

#### Discussion

The proposed General Plan will facilitate and guide additional population growth and development within the Planning Area. This development will: (1) affect the groundwater supply by increasing the demand for groundwater; and (2) affect groundwater recharge rates by increasing the amount of impervious surfaces. The significance of each of these impacts is evaluated below.

Although the City of Fortuna has designated surface-water rights (Permit 12390, issued by the State Water Rights Board on August 2, 1960 for 1,642 acre feet), it now utilizes the Eel River Valley Groundwater Basin as its primary municipal drinking water source. Five extraction wells access the Eel River Valley Groundwater Basin. In 2009, these wells produced 457 million gallons (MG) (1,402 acre-feet) (DWR, 2009).

At buildout, the service population within the Planning Area will increase from 11,351 to 24,904 persons. Assuming a per-capita water consumption rate of 40,260 gallons per year (457 MG/11,351 persons), annual water consumption under the proposed plan will increase to 1,003 MG (3,078 acre-feet). This additional demand will not substantially deplete groundwater supplies for several reasons:

- (1) The Eel River Groundwater Basin holds approximately 130,000 acre-feet of water. Based on an annual recharge rate of 100,000 acre-feet per year, the City's projected annual extraction of 3,078 acre-feet at buildout will not affect the basin's overall volume. Total extraction from the basin by all sources (50,400 acre-feet) plus the incremental increase in extraction under the proposed plan (1,676 acre feet) will amount to an estimated 52,076 acre-feet per year. Thus, annual basin recharge will continue to exceed annual withdrawals by a large margin, and existing positive flow conditions in the basin will continue;
- (2) Although the City's groundwater use will increase under the proposed plan, this will be partially mitigated by a reduction in groundwater use by agriculture in the Planning Area resulting from the re-designation of several hundred acres of farmland to other uses under the proposed plan (see Section 5.3 of this PEIR for further discussion); and
- (3) The proposed plan includes policies to minimize water use and maximize water conservation:
  - Policy NCR-1.2 requires the City to support programs to supply reclaimed water for park irrigation and agricultural use;
  - Policy PFS-3.2 requires projects to comply with State water conservation requirements and encourages projects to use water-conserving landscaping and to retrofit existing development with water-conserving devices;
  - Policy PFS-3.7 requires the City to maintain adequate water system capacity to meet demand, including fire flow requirements and water storage reserves;
  - Policy PFS-3.8 requires the City to renew/amend existing permitted water right allocations to accommodate projected water demand; and
  - Program PFS-8 requires the City to prepare an Urban Water Management Plan to address projected future City water needs, and to update this plan every five years.

For these reasons, the proposed plan will not substantially deplete groundwater supplies to the degree that there will be a net deficit in aquifer volume or a lowering of the Eel River Groundwater Basin level. Therefore, a less-than-significant impact will occur.

Despite the fact that there will not be a lowering of the Eel River Groundwater Basin level, additional municipal groundwater withdrawals at the City's well field could potentially reduce groundwater levels on a localized basis within portions upstream of the Planning Area. Reduction seems unlikely given the annual positive flow/replenishment of the groundwater and the fact that City wells access the Eel River underflow rather than isolated pockets of groundwater.

However, because no new wells are proposed at this time and because a subsurface hydrologic study is outside of the scope of this program EIR per CEQA Guidelines §15146, further discussion of this potential impact is not required in accordance with CEQA Guidelines §15145. At such time additional groundwater wells are proposed, the City will conduct the requisite project-level CEQA review, and will evaluate the potential for new wells to influence localized groundwater levels.

The 8,051-acre Planning Area currently includes approximately 2,301 acres of urban use.<sup>1</sup> Under buildout of the proposed plan, this will increase to approximately 2,948 acres.<sup>2</sup> Assuming that this urban acreage is developed as an impervious surface (a very conservative assumption given the density limitations of the proposed land use designations and setback, yard and open space requirements of the proposed General Plan and the City's Zoning Ordinance), the increase in impervious surfaces under the proposed plan would represent less than 1% of the 73,700 acre Eel River Valley Groundwater Basin. This area is too small to substantially interfere with groundwater recharge in the Basin. In addition, the majority of Basin recharge occurs with infiltration of river water through the beds of the Eel and Van Duzen Rivers where no development is proposed. Finally, the proposed plan includes policies to minimize the development of impervious surfaces and maximize recharge:

- Policy PFS-5.20 encourages bioswales and permeable pavement in new development;
- Program NCR-4 requires the City to manage the extent of impervious coverage and minimize impervious areas; and
- Program NCR-14 requires development setbacks along perennial streams, ephemeral streams, and wetlands [thereby protecting important infiltration areas from urban development].

For these reasons, projected population growth and development will not interfere substantially with groundwater recharge. Therefore, a less-than-significant impact will occur.

### **Determination of Level of Significance**

Less-Than-Significant

### **Mitigation**

No mitigation necessary

### **Impact 5.1-2: Runoff Water Quality**

*Proposed General Plan implementation will not create substantial additional sources of polluted runoff.*

### **Discussion**

The proposed plan will guide and facilitate new development in the Planning Area. This new development will include impervious surfaces and new land uses with activities (such as new motor vehicle use) which could deposit fuels, oils, rubber, and other pollutants onto the

<sup>1</sup> The impervious surfaces estimate includes the single family, multi-family, commercial, industrial and public rights-of-way land use categories in Table 3.1-2.

<sup>2</sup> This impervious surfaces estimate includes the residential very low, residential low, residential medium, residential high, commercial, mixed-use, industrial and public rights-of-way land use categories in Table 3.1.5.

impervious surfaces. These deposited pollutants could be transported in stormwater runoff. However, federal, State, County and City regulations, plans and permits are in place to minimize the quantity of pollutants in urban runoff. These include, but are not limited to the federal Clean Water Act, State Water Quality Control Plan for the North Coast Basin (Basin Plan), SWRCB General Permit for Storm Water Associated with Construction Activity, State TMDLs for the Eel River, Fortuna Storm Water Management Plan (2005), Fortuna Storm Drainage Master Plan (2005), and Fortuna NPDES Phase II municipal stormwater discharge permit and associated BMPs. These regulations, plans and permits are designed to prohibit additional sources of polluted runoff. Future development under the proposed plan will be required to comply with the regulatory environment. In addition, as discussed under the preceding impact, the proposed plan includes policies and programs designed to reduce development of impervious surfaces. The proposed plan includes the policies and programs to minimize pollutants in stormwater runoff:

- (1) Policy PFS-5.7 which requires the City to implement on-site storm drainage treatment facilities in City projects;
- (2) Policy PDS-5.8 which requires stormwater detention facilities to mitigate stormwater quality impacts;
- (3) Policy PFS-5.10 which prohibits grading activities during the wet weather period unless a Wet Weather Plan is implemented to control erosion and sedimentation;
- (4) Program PFS-18 which requires the City to develop a Post Construction Stormwater Runoff Control Ordinance to minimize pollutants in post-construction stormwater discharges;
- (5) Program PFS-19 which requires the City to adopt a Manual of Stormwater Quality Control Standards for New Development which includes requirements for BMPs in new development to control the volume, rate and pollutant load of stormwater runoff;
- (6) Policy NCR-1.1 which requires the City to condition development to minimize point and non-point source pollutant discharges to local watersheds;
- (7) Policy NCR-2.13 which requires development and activity buffers around watercourses and wetlands to protect water quality;
- (8) Program NCR-1 which requires the City to implement a stormwater management program (SWMP) which prohibits the discharge of non-stormwater discharges into the municipal stormwater system;
- (9) Program NCR-2 which requires projects with greater than one acre of ground disturbance to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) which identifies measures to manage exposed soils, control deposition of pollutants by construction vehicles, cleanup spills of oil and other pollutants, and prevent pollutants from leaving the construction site in runoff, and which identifies BMPs to avoid significant sedimentation in runoff from the construction site;
- (10) Program NCR-3 which requires that new projects that result in parcels of less than one acre in size to connect to the City's municipal water, wastewater and storm drain system;
- (11) Program NCR-5 which requires the integration of BMPs in new development and re-development to control pollutant sources and prevent pollutants in runoff during and following development; and

- (12) Program NCR-6 which requires the use of water quality strategies that self-treat runoff in new development and re-development, such as infiltrating runoff, retaining/detaining runoff, conveying runoff through vegetation, and/or treatment of runoff.

When implemented, these policies and programs will substantially increase current City requirements for new development to incorporate stormwater pollution reduction facilities and to implement construction- and operational BMPs that minimize point and non-point source stormwater pollutants. These policies and programs will also require new subdivisions to connect to the City's stormwater drainage system, thereby bringing new stormwater discharges under the City's NPDES Phase II municipal stormwater discharge permit. Under this permit BMPs are implemented to meet specified water quality criteria and discharges are monitored to ensure compliance. By adhering to the regulations, plans and permits, and with implementation of the listed policies and programs, development projected by the proposed plan will not create additional sources of substantial polluted runoff. Therefore, a less-than-significant impact would occur.

### **Determination of Level of Significance**

Less-Than-Significant

### **Mitigation**

No mitigation necessary

### **Impact 5.1-3: Water Quality Standards and Waste Discharge Requirements**

*Proposed General Plan implementation will not violate any water quality standards or waste discharge requirements.*

### **Discussion**

The proposed General Plan will facilitate and guide future development within the Planning Area. New development will not substantially increase "non-point-source" stormwater or treated wastewater discharges to the Eel River. Proposed Program NCR-3 requires new subdivisions to connect to the City of Fortuna's municipal wastewater and storm drain systems. At the same time, because new development will discharge to the City's municipal systems, "point-source" discharges of treated wastewater and stormwater to the Eel River will increase.

As discussed on page 5.1-8, the Eel River is USEPA 303(d) listed as "impaired" for temperature and sediment. The Basin Plan identifies beneficial uses for the river (Table 5.1-1) and sets numeric and narrative water quality objectives for the river to protect these beneficial uses (Tables 5.1-2 and 5.1-4). The State has adopted specific TMDL's for the river that identify additional discharge controls required to maintain sediment and temperature at accepted levels.

City stormwater and treated wastewater discharges to the Eel River occur under NPDES permits. Any future increases in City discharges will be consistent with these permits or amended versions

thereof. These permits are and will be formulated by the RWQCB consistent with the discharge requirements of the Basin Plan and Eel River TMDLs. Increased municipally treated wastewater and stormwater discharges under the proposed plan will not violate water quality standards or waste discharge requirements. In addition, under the proposed plan the amount of farmland within the Planning Area will decrease, reducing associated non-point source stormwater discharges and thereby partially offsetting any increases in point-source discharges. Finally, the proposed plan includes policies and programs designed to minimize wastewater and stormwater flows as well as pollutants in these flows. These include, in addition to those listed under the previous impacts:

- (1) Policy PFS-4.1 requires all new urban development to construct sewer infrastructure according to the City's municipal standards and incorporate it into the City's sewer collection system;
- (2) Policy PFS-4.3 requires the City to comply with the requirements of the Federal Clean Water Act to minimize the discharge of pollutants to surface waters, as required by the City's NPDES permit;
- (3) Program PFS-12 requires all new subdivisions, PUD's and other large development project route urban runoff through onsite grassy swales, infiltration/sedimentation basins, and oil/grit separators prior to discharging to the City's municipal storm drain system;
- (4) Program PFS-13 requires proposed new industrial and manufacturing projects greater than 5 acres in size include wastewater studies that quantify the pollutant consistent to be generated, evaluate the impacts of adding the new stream to the City's wastewater stream (including impacts on the City's ability to comply with its wastewater WDRs, NPDES permits and TMDL discharge requirements for discharges to the Eel River), and identify mitigation measures if the additional waste stream would compromise the City's ability to comply with its discharge requirements; and
- (5) Program PFS-14 requires proposed new industrial or manufacturing uses of greater than 5 acres file a Notice of Intent to comply with the California General permit for Discharges of Storm Water Associated with Industrial Activities adopted by the SWRCB.

Through compliance with the discharge permits and federal, state and local regulations, and implementation of the proposed policies and programs, this impact would be less-than-significant.

### **Determination of Level of Significance**

Less-Than-Significant

### **Mitigation**

No mitigation necessary

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