

# Utilities and Public Services

## 7



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# 7

## Utilities and Public Services



*As development occurs in the Plan Area, additional utility infrastructure and public services will be needed. This chapter describes the backbone infrastructure systems necessary to serve anticipated development within the Plan Area. Phasing and financing related to utilities and services are described in Chapter 8, Implementation and Phasing.*

Providing high-quality public utility and services for future residents and employees of the Plan Area is a key objective of the Specific Plan. The infrastructure plans and policies set forth in this chapter will help ensure that the following Specific Plan goals and objectives are achieved and that the City's existing utilities and services are not adversely affected by new development within the Plan Area:

- Provide adequate facilities, services, and infrastructure to serve Mill Site Specific Plan development.
- Develop a land use and infrastructure plan that is consistent with the phasing plan set forth in Chapter 8 and that provides flexible phasing of infrastructure and facilities development in response to real estate market opportunities.

### 7.1 Utility and Service Providers

This chapter addresses the following utilities and services along with the responsible service providers:

- **Water** – The domestic water system in the Plan Area will connect to the existing City-operated water system. Georgia-Pacific anticipates temporarily using City-supplied water (as defined in the Development Agreement) for limited initial development and, once its petitions to change the type of water use are approved, using Georgia-Pacific's water supply and storage rights to serve all development within the Plan Area. Water treatment and distribution will be provided by the City.
- **Wastewater** – Wastewater from the Plan Area will discharge to the existing wastewater treatment facility owned and operated by the Fort Bragg Municipal Improvement District No. 1.
- **Stormwater** – Stormwater within Fort Bragg is managed by the City. Within the Plan Area, stormwater runoff will be managed, clarified, and minimized on-site via a series of low impact development (LID) features and then discharged through a series of bubble-ups at the west edge of Coastal Drive or directed into existing drainage features such as Maple Creek and the Mill Pond Complex.
- **Franchise Utilities** – The City of Fort Bragg is served by Pacific Gas and Electric (PG&E), AT&T, and Comcast. Natural gas is currently not available within the City.
- **Police** – The Plan Area is served and will continue to be served by the Fort Bragg Police Department. Mendocino County Sheriff and California Highway Patrol also serve the area on a limited basis.
- **Fire** – The Plan Area will be served by the Fort Bragg Fire Protection Authority.

- **Solid Waste** – The City of Fort Bragg and the County of Mendocino jointly manage the commercial and residential solid waste generated from Fort Bragg.
- **Schools** – The Fort Bragg Unified School District (FBUSD) will serve the Plan Area.

## 7.2 Utility Infrastructure

A Mill Site Specific Plan Utility Master Plan was prepared for this Specific Plan. Background information, detailed calculations, and assumptions for the wet utilities (water, wastewater, and drainage) and the findings of the Dry Utility Study (franchise utilities) are described in detail in the Utility Master Plan.

***Note:** Restoration plans for the Maple Creek riparian corridor are in development and may affect the alignment of existing and proposed infrastructure in the Plan Area. The figures presented in this chapter of the Specific Plan do not include the proposed Mill Pond / Maple Creek restoration project and realigned roadway. Infrastructure alignment around the Mill Pond Complex will be addressed when more details about the restoration corridor become available. The conceptual Maple Creek riparian corridor and possible circulation and land use adjustments are shown in Figure 2-2, Land Use Plan.*

Utility capacity was analyzed to accommodate buildout of the Specific Plan, additionally, the Utility Master Plan outlines a variety of phasing strategies for the development of site infrastructure.

The requirements for water, wastewater, stormwater, and franchise utilities are described below.

### 7.2.1 WATER

Water supply for development in the Plan Area will be provided by a combination of the existing Georgia-Pacific appropriative water rights and the City of Fort Bragg appropriative water rights. At this time, it is the intent of the Specific Plan to provide water to the Plan Area through the City's water treatment plant and existing potable water storage and distribution system. This section discusses the projected Specific Plan water demand, the existing water rights, the available water supply, and infrastructure improvements needed to serve the Plan Area.

#### A. Pre-Specific Plan Conditions

Historically, the Plan Area has received potable water from the City through a four-inch connection at the extension of Redwood Street. Industrial process water and fire suppression water for mill operations were provided through Georgia-Pacific's independent water system and water rights. The site's water system includes intake pump stations on both Noyo River and Pudding Creek, a dam and reservoir on Pudding Creek, holding ponds in the Plan Area, and an extensive network of piping to deliver the non-potable water to the point of use. Industrial

process water is diverted from Noyo River and conveyed to Pudding Creek where it is held in the Pudding Creek Reservoir until it is re-diverted at the Pudding Creek dam and diversion structure.

The City also maintains a four-inch-diameter water pipe connecting to the City's wastewater treatment plant, which is located immediately west of the Plan Area. The potable water piping to serve the wastewater treatment plant passes through the Southern District of the Plan Area.

The City's existing water system includes raw water intakes, raw water storage, a water treatment plant, potable water storage, transmission and distribution piping, and booster pump stations. The City's water treatment plant includes two clarification/filtration units, each with a rated capacity of 800 gallons per minute (gpm) (about 1.2 million gallons per day [mgd]). Therefore, the total capacity of the treatment system is about 2.4 mgd, and the firm capacity (with one unit out of service) is 1.2 mgd. The City's maximum day demand is also about 1.2 mgd. The water treatment plant has been designed to allow installation of a third treatment unit in the existing building.

The hydraulic grade for most of the City distribution system is provided by the potable water storage tanks at the water treatment plant.

Ground elevations on the east side of the City are too high to be served with adequate pressure from these tanks. Therefore a pressure zone (the East Fort Bragg Pressure Zone), with a hydraulic grade greater than that provided by the potable water storage tanks at the water treatment plant, is created by isolating the east side of the City's distribution system and pumping water into it with a booster pump station. Even with isolating this portion of the City distribution system, the full volume of potable water storage cannot be used because lowering the water level in the potable water storage tanks at the water treatment plant results in low water pressure on the northeast side of the main pressure zone, immediately west of the East Fort Bragg Pressure Zone. Expansion of the East Fort Bragg Pressure Zone (requiring the construction of additional booster pump capacity and extension of some distribution piping) would alleviate this low-pressure condition and allow greater use of the potable water in storage.

The City's water transmission system consists of an 18-inch-diameter transmission main in Sherwood Road/Oak Street that extends from the potable water storage tanks, reducing to 14-inch-diameter near Wall Street. The 14-inch-diameter transmission main continues for a few blocks to Lincoln Street, where it ties into the City's smaller diameter (6-inch- through 10-inch-diameter) distribution system. The City also has 12-inch-diameter distribution mains in Harold Street and Redwood Avenue, north of Oak Street. Delivery of potable water to the west end of Oak Street and to the extreme north and south ends of the City is restricted by small-diameter (6-inch and 8-inch) distribution piping.

## **B. Projected Potable Water Demand of the Specific Plan**

Potable water demand projections were developed based on the land use and green building standards described in the Specific Plan.

The total annual projected Normal Year water demand for the Plan Area at buildout of the Specific Plan is estimated to be 336 acre-feet, based on the assumptions described in the Utility Master Plan. A water demand reduction program may be required for drought years.

As shown in the detailed calculations documented in the Mill Site Specific Plan Utility Master Plan, the projected maximum-day demand of the Specific Plan at buildout is approximately 0.54 mgd, which is equal to 0.8 cubic feet per second (cfs). The projected maximum-day demand of the city at full buildout and maximum land use density is approximately 1.6 mgd, which is equal to 2.5 cfs. Together, the projected potential maximum-day demand at full buildout would be 2.1 mgd, which is equal to 3.3 cfs.

Policies in this Specific Plan require that proposed development within the Plan Area maximize water conservation opportunities and minimize potable water demand. Specific Plan policies also require site water use to remain within the net projected potable water demand, with a proposed increase in the projected potable water demand for one land use type or large lot being offset with a reduction in projected potable water demand from other land use types or large lots.

### **C. Proposed MSSP Water Supply**

As indicated above, the water supply for the Plan Area will be conveyed by City infrastructure, using a combination of the City's and Georgia-Pacific's water rights. The water rights are briefly described below.

The City of Fort Bragg maintains the following three water sources for domestic use within the City's Municipal Service District:

1. Newman Gulch: 300 acre feet per year (AFY) from January 1 through December 31. Pre-1914 appropriative right (S009340).
2. Waterfall Gulch: 475 AFY at a maximum rate of 0.668 cfs from January 1 through December 31 (License 12171).
3. Noyo River: 1,500 AFY (includes 475 AFY from Waterfall Gulch) at a maximum rate of 3 cfs from January 1 through December 31. The Noyo diversion has pumping restrictions during low river flows (Permit 11383).

Georgia-Pacific maintains two water rights licenses:

1. Noyo River: 475 AFY at a maximum rate of 1.33 cfs from May 15 through December 1. Some of this diversion can be stored in Pudding Creek Reservoir. The Noyo diversion has pumping restrictions during low river flows (License 6449).
2. Pudding Creek: Maximum rate of 1 cfs from January 1 through December 31 with no limit on volume, plus 200 AFY of storage in Pudding Creek Reservoir. The 200 AFY of storage includes flows from Noyo River (License 9143).

Both Georgia-Pacific water right licenses are currently restricted to industrial use. Georgia-Pacific is seeking a change petition to convert the permitted use from solely industrial to domestic, commercial, industrial, and in-stream beneficial use.

#### D. Comparison of Water Demand and Supply

The maximum combined potential projected maximum-day water demand at full buildout of the Plan Area and the rest of the city is 2.1 mgd, which is equal to 3.3 cfs. The existing water rights of both the City and Georgia-Pacific are sufficient to serve the full buildout of the Plan Area and the rest of the city. During severe drought conditions, such as the conditions that occurred during the summer of 1977, there is insufficient flow in both Noyo River and Pudding Creek to allow uninterrupted water supply. Under these drought conditions, reserve capacity would be drawn from Pudding Creek Reservoir to serve the Specific Plan development. The City could further restrict water use through demand management measures or, in extreme cases, through water rationing in accordance with existing City policy.

The City and Georgia-Pacific have developed several water supply scenarios depending on the outcome of the water rights Change Petitions. Under most hydrological scenarios, sufficient water supply will be available to serve the water demand of the Specific Plan, except under the most severe drought conditions, as described above. During severe drought conditions, water may be pulled from Pudding Creek Reservoir to make up for water supply deficits. The City may also implement both voluntary and mandatory water conservation measures, as currently authorized by City ordinance.

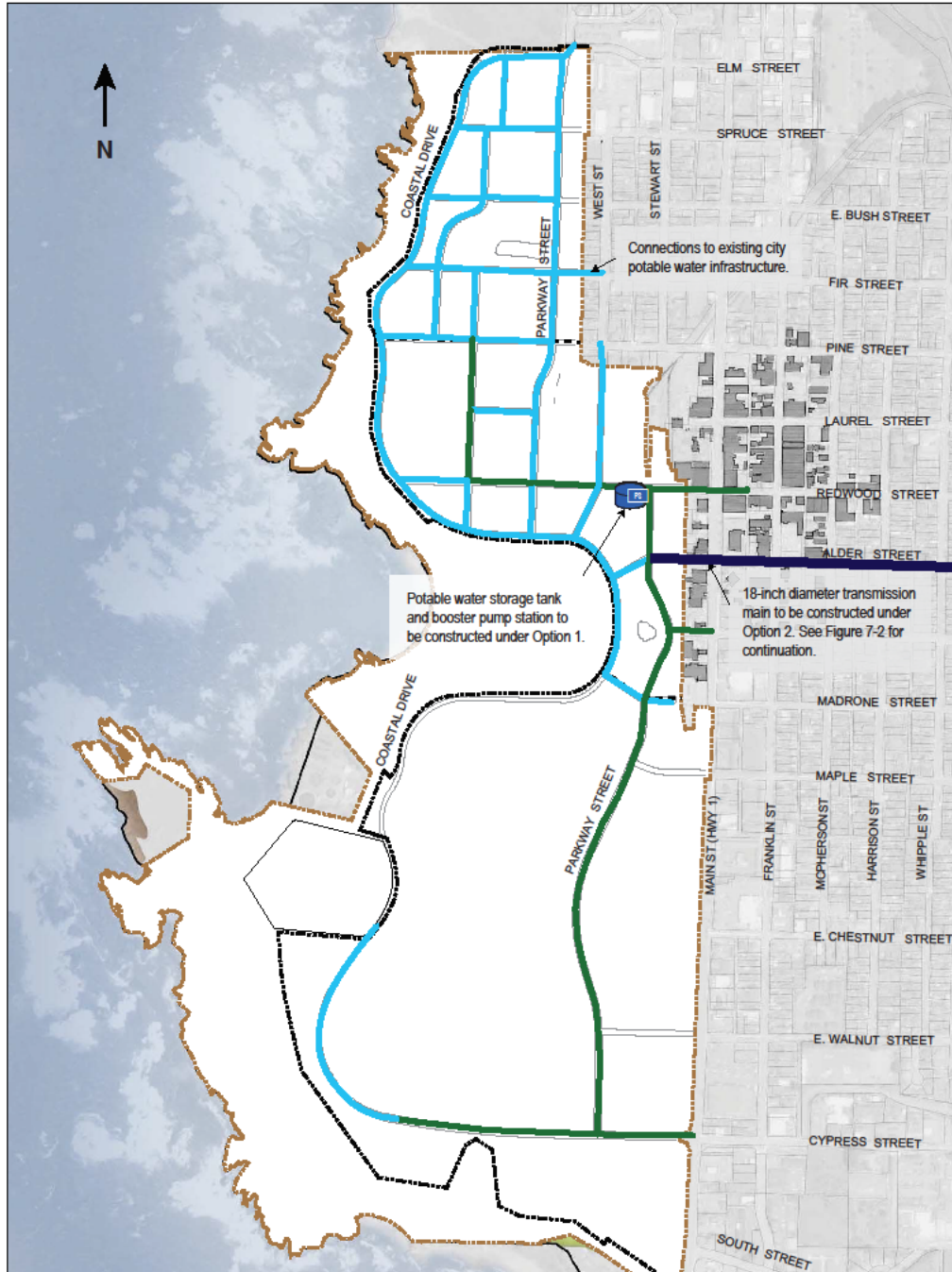
#### E. Planned Water Supply Infrastructure

**Plan Area Water System Requirements.** Plan Area potable water system requirements include minimum potable water distribution pipe of eight (8) inches in diameter, with a large, backbone system of up to 12 inches in diameter to serve fire flows. The backbone potable water infrastructure for the Plan Area is shown on Figure 7-1. To size the infrastructure, it has been assumed that connection to the City's potable water infrastructure would be at Redwood Avenue or Alder Street, depending on off-site infrastructure improvements discussed below. The water main on Redwood Avenue narrows from 12-inch-diameter to 8-inch-diameter just east of Main Street; this portion of the off-site water main will need to be improved to accommodate new development in the Plan Area. The Alder Street water main is 6-inch-diameter and is fed from mains on Redwood Avenue and Oak Street. The Alder Street main may need to be upsized and extended to Oak Street to provide water service in the Central District. Additionally a water main will have to be installed to connect Pudding Creek Reservoir with the City's water treatment plant (see Figure 7-2).

**Water Distribution System and Treatment Plant Upgrades.** Potable water for use in the Plan Area will be treated at the City's water treatment plant and conveyed through the City storage and distribution system to the Plan Area. Some improvements to the City's raw water pumping, treatment, and potable water distribution system will be required to ensure reliable delivery of fire flows to the Plan Area. These improvements are shown in Figure 7-2, briefly described below, and discussed in detail in the Utility Master Plan.




Figure 7-1 Potable Water Backbone Infrastructure (On-Site)



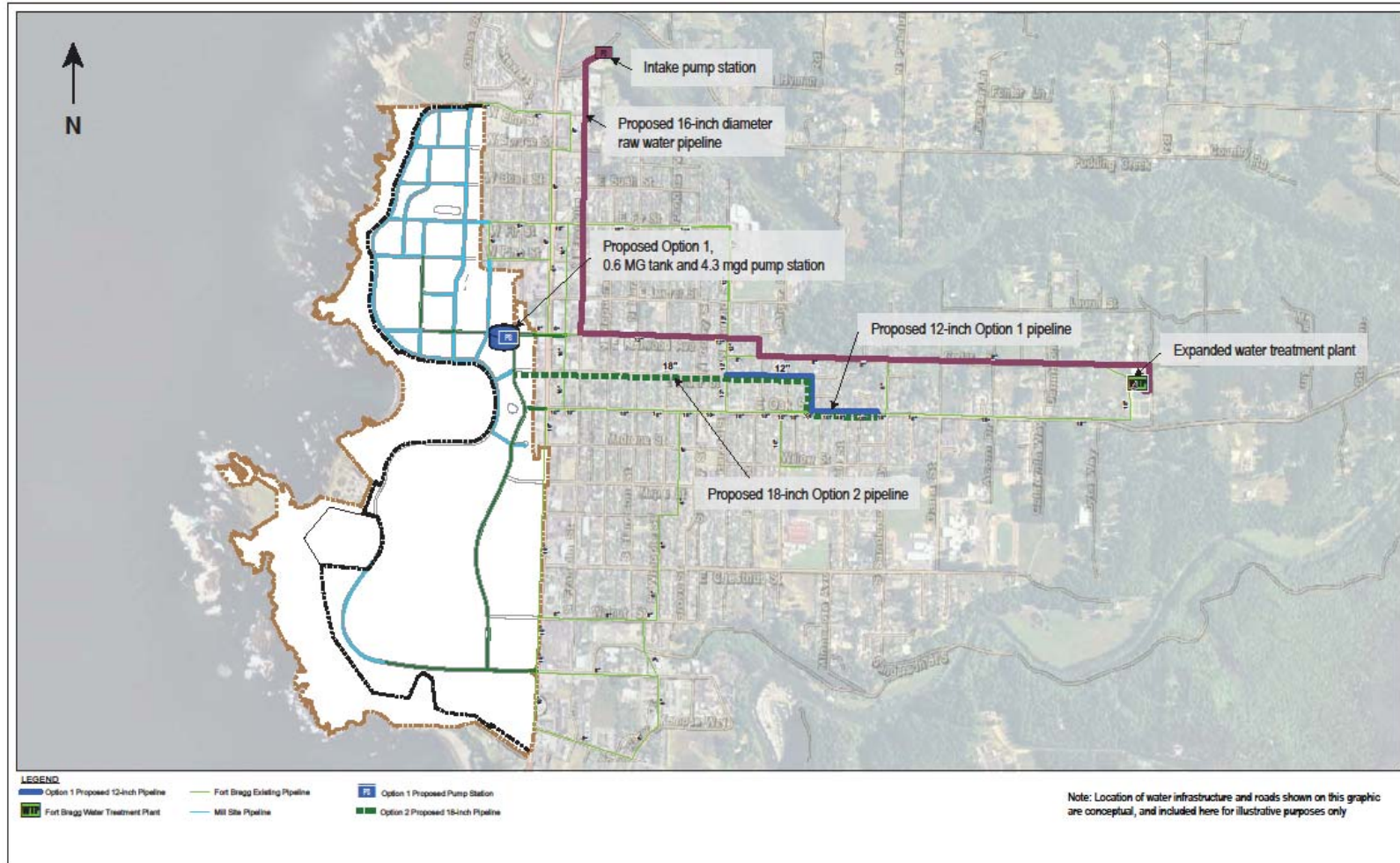
LEGEND / NOTES

- - - - - Specific Plan Study Area Boundary
- - - - - District Boundary
- Noyo Center Boundary
- 8-inch Diameter Water Pipe
- 12-inch Diameter Water Pipe
- 18-inch Diameter Water Pipe

 Potable Water Storage Tank & Booster Pump Station

Note: Location of water infrastructure and roads shown on this graphic are conceptual, and included here for illustrative purposes only

Figure 7-2 Potable Water Backbone Infrastructure (Off-Site)





The City has some capacity to serve early stages of development in the Plan Area using the City's water rights and the existing distribution system, depending on fire flow requirements. Fire flow requirements in excess of 750 gpm, however, cannot be reliably delivered through the City's system at this time without improvements to the existing distribution system.

As development in the Plan Area increases, the City's water treatment plant will require upgrades and the Pudding Creek raw water intake and transmission main will require improvement. The timing of these improvements has been developed in the project Phasing Plan.

The City's water treatment plant is currently operating near its firm capacity of 800 gpm (1.2 mgd) for short periods during the summer to serve maximum day demands. Prior to buildout of the City Coastal General Plan and buildout of the Specific Plan, additional treatment capacity will be required, ultimately adding a third 800-gpm treatment unit with associated hydraulic improvements. As shown in Figure 7-2, improvements to the Pudding Creek raw water intake will be required. Intake improvement options include construction of a raw water pipeline to deliver water stored in Pudding Creek Reservoir and directly diverted from Pudding Creek and Noyo River to the City's water treatment plant, or re-locating the raw water intake closer to the City's water treatment plant. Other raw water intake options may be considered as development proceeds.

As indicated above, the City currently has challenges delivering potable water to the west side of the city, especially to the extreme north and south ends of the west side. Therefore, improvements to the City's potable water distribution system will be needed to serve both existing city customers and Plan Area customers early in the development process. Once developed, the potable water infrastructure in the Plan Area will deliver water to both the north and south ends of the existing City distribution system, substantially improving the City's firefighting capacity and ability to deliver potable water at acceptable pressure during peak demand periods.

Two options have been identified to improve the City's ability to deliver potable water from the City's water treatment plant to the Plan Area:

- **Potable Water Storage Tank/Booster Pump Station** – One distribution system improvement option is to construct a potable water storage tank and booster pump station to serve fire flow demands prior to occupancy of any new development in the Plan Area requiring a fire flow in excess of 750 gpm. As development continues, additional upgrades to the City distribution system to facilitate refilling of the potable water storage tank would be required, as would expansion of the potable water storage tank and booster pump station to accommodate higher fire flow requirements.
- **Potable Water Transmission Main** – A second distribution system improvement option is to construct an 18-inch-diameter potable water transmission main extending from the end of the City's existing 18-inch-diameter potable water transmission main in Oak Street into the Plan Area via Alder Street, as described in the Utility Master Plan.

Either of these improvements would substantially improve the City's ability to deliver potable water to the City's existing Central Business District in addition to delivering water to the Plan Area.

In the Plan Area, high fire flow demands are expected to range from 1,000 gpm in the single-family residential areas up to 3,000 gpm for three hours in the industrial areas and at the south end of the Urban Reserve area, where a hotel/resort is anticipated. If the first distribution system improvement option is selected, the required potable water storage tank volume to serve the maximum projected fire flow requirement is approximately 600,000 gallons.

**Water Policies:**

**Policy U-1. City Allocation of Water Supply.** *The City of Fort Bragg may allocate water supply from the City's water supply for a limited amount of development in the Plan Area, prior to State Water Resources Control Board approval of Georgia-Pacific's water rights change petition.*

**Policy U-2. Two Points of Water Connection.** *A developer of a specific development project shall provide at least two points of connection to the existing City or Plan Area potable water piping, except as approved by the City.*

**Policy U-3. Water Facilities Near Residential Uses.** *Above-grade water facilities shall be located away from adjacent residential uses whenever feasible and shall be screened from residential uses through the use of evergreens or other suitable trees or vegetation.*

**Policy U-4. Water Conservation.** *Development shall be designed to maximize water conservation opportunities and minimize potable water demand as outlined in the water conservation policies of Chapter 4.*

**Policy U-5. Water Use Limitations.** *Development shall conform to the water use limitations identified in the Utility Master Plan. The City shall complete a water use analysis every five years to confirm that completed development complies with water use limitations in the Utility Master Plan. If water use exceeds the limitations in the Utility Master Plan, the City may decrease the water available to developments of the remaining undeveloped lots.*

**Policy U-6. Construction of Potable Water Infrastructure.** *Construction of potable water infrastructure shall be sequenced as described in the Utility Master Plan, Chapter 6 – Infrastructure Phasing Plan. If development proceeds in a manner other than described in the Infrastructure Phasing Plan, infrastructure upgrades and construction shall meet the intent of the Infrastructure Phasing Plan.*

## 7.2.2 WASTEWATER

Wastewater generated by the Plan Area will be conveyed to the existing Fort Bragg Municipal Improvement District No. 1 wastewater treatment facility (WWTF) for treatment and discharge or reuse.

### A. Pre-Specific Plan Conditions

At the time of the Specific Plan approval, no public sewage collection systems existed within the Plan Area except for a City 30-inch trunk sewer crossing the Southern District. The WWTF is located directly adjacent to and west of the Plan Area on the bluff above Fort Bragg Landing. The facility began service in late 1971 and was designed with a dry weather capacity of 1.0 million gallons per day (mgd) and a wet weather capacity of 2.2 mgd. The WWTF uses a secondary treatment system with two stage bio-filters and anaerobic sludge digestion.

### B. Wastewater Generation

The Mill Site Utility Master Plan calculates that, at full buildout, the three districts within the Plan Area will generate an estimated 0.26 mgd average dry weather flow (ADWF) of wastewater. The land uses, flow rates, applicable factors, and calculated flows are detailed in the Utility Master Plan.

Wastewater collection and/or pumping facilities must be designed for peak flow conditions, which are affected by two factors: diurnal peaks, generally during the morning and evening periods; and wet weather inflow and infiltration (I/I). An appropriate peaking factor and I/I estimate have been applied to arrive at peak flow rates to size the Specific Plan sewer facilities.

### C. Planned Wastewater Treatment

The Plan Area lies within the boundary of the Fort Bragg Municipal Improvement District No. 1, and will deliver its wastewater to the district's existing WWTF located at the bluff above Fort Bragg Landing.

From the May 2007 Fort Bragg Municipal Improvement District No. 1 Wastewater Treatment Facility Study by Nute Engineering, the estimated average daily flow at the WWTF was calculated to be 0.76 mgd. The actual measured dry weather flow during the summer months is about 0.7 mgd.

The historical sewer connection rate in the city has averaged an increase of 10 to 20 new household connections per year. At an average wastewater flow of 156 gallons per day per dwelling unit, there was treatment capacity to serve an additional 1,923 dwelling units in 2007. The 2002 City of Fort Bragg General Plan identified a buildout potential of 1,382 total residential units. The Specific Plan buildout is 520 units. Together, these amount to 1,902 units, which can be served with the City's current treatment capacity.

Based on the actual measured dry weather flow of 0.7 mgd, the Fort Bragg WWTF dry weather flow rated capacity of 1.0 mgd is adequate to serve the Plan Area's projected 0.26 mgd flow at buildout.

#### **D. Planned On-Site Wastewater Improvements**

The Plan Area is located north and south of and adjacent to the Fort Bragg WWTF. Natural terrain in the Plan Area falls westerly to the ocean and has an average gradient of one to two percent. New Specific Plan infrastructure will include backbone gravity and pressure wastewater lines from the development areas to the existing WWTF.

Within the Plan Area, wastewater will be collected in two sub-basins; the Northern and Central Districts north of the Mill Pond, and the Southern District south of the Mill Pond. The planned sanitary sewer collection, force main, and pump station system is shown in Figure 7-3.

Topography in the Northern and Central Districts and the Mill Pond Complex do not allow gravity service from the Plan Area to the WWTF. A wastewater pump station will be located in the Northern District near the intersection of West Pine Street and Coastal Drive. Wastewater from the Northern and Central Districts will be routed in 8-inch sewers to this location. From here, wastewater will be pumped in a force main south and east in Coastal Drive to Parkway Street and then south in Parkway Street, discharging to a new gravity sewer that connects to the existing 30-inch City trunk sewer. See Figure 7-3 for the pump station location and force main route.

A local collector system planned for Coastal Drive and Parkway Street will have adequate depth to provide gravity service to all development in the Southern District. The Coastal Drive and Parkway Street sewers will discharge to the existing 30-inch diameter gravity sewer line that connects to the WWTF inlet structure.

The Southern District has adequate natural grade to allow all parcels south of the existing 30-inch trunk sewer to develop and be served by gravity sewers.

The wastewater collection system within the Plan Area will be constructed using PVC or Ductile Iron pipe, which will minimize Specific Plan inflow and infiltration (I/I) flows to the pump station and WWTF.

Figure 7-3 Wastewater Backbone Infrastructure



LEGEND / NOTES

- Specific Plan Study Area Boundary
- District Boundary
- Noyo Center Boundary
- Proposed 8-inch Sewer Pipeline
- Existing Sewer Pipeline
- Proposed 6-inch Force Main
- Existing Force Main

Note: Location of wastewater infrastructure and roads shown on this graphic are conceptual, and included here for illustrative purposes only



**Wastewater Policies:**

**Policy U-7. Regional Sewer Lift Station and Force Main.** *As part of the Northern District and Central District improvements, developers shall construct a regional sewer lift station and force main. Until the regional sewer lift station is constructed, developers may construct temporary lift stations and force mains that connect to the City's existing collection system, if capacity is available, prior to construction of the regional lift station. Property owners will be obligated to maintain and service all temporary lift stations and provide a back-up generator for operation of temporary lift stations during power outages.*

**Policy U-8. Peak Wet Weather Wastewater Flows.** *All wastewater collection and pumping facilities shall be designed and constructed to convey peak wet weather flows without surcharging.*

**Policy U-9. Pipe Requirements.** *The wastewater collection system within the Plan Area shall be constructed with PVC or Ductile Iron pipe to minimize Specific Plan inflow and infiltration (I/I) flows to the pump station and wastewater treatment facility.*

**Policy U-10. Contributions to Citywide Wastewater Collection Improvements.** *The Specific Plan wastewater collection system is designed to accommodate future wastewater generated by development in the Plan Area without requiring a connection or improvements to the existing City wastewater collection system. Because buildout of the Plan Area will likely occur over a 20 to 30-year time period, future improvements to the City's wastewater collection system may occur outside of the Plan Area independent of the Specific Plan. In the event that the City constructs improvements to its existing wastewater collection system, and that reserve capacity is made available for future development in the Plan Area, then future specific development projects in the Plan Area that rely on such citywide wastewater collection improvements shall be required to contribute to the funding of the improvements in an amount proportional to their percentage of the total capacity of the improvements.*

### 7.2.3 STORMWATER

The stormwater system for the Plan Area will convey the peak runoff from the 10-year storm event. The streets will be designed to detain and convey runoff from storms from the 10-year event to the 100-year event without causing property damage. The peak runoff flow rate will be minimized through the use of low impact development (LID) techniques and stormwater best management practices (BMPs). Refer to Chapter 3 for policies that address LID requirements for specific development projects. The LID requirements and BMPs will also provide treatment of stormwater. A brief discussion of the stormwater system for the Plan Area is provided below.

A more detailed description and analysis of the stormwater system is provided in the Utility Master Plan.

#### **A. Pre-Specific Plan Conditions and Existing Drainage Patterns**

The Plan Area generally slopes westward away from the City of Fort Bragg and toward the Pacific Ocean. The Plan Area is mostly covered by paved surfaces and compacted soils, which result in high runoff rates and volumes. The paved surfaces also prevent infiltration or treatment of the runoff from the Plan Area.

The City of Fort Bragg's Storm Drain Master Plan divides the city into ten drainage basins that discharge at 20 locations. Seven of the existing outlets are into Pudding Creek, ten are into the Noyo River, and three are into the Pacific Ocean. Three of the designated drainage basins drain onto and across the Plan Area, as follows:

- **Basin C** – This watershed drains west through downtown Fort Bragg into the Plan Area and to the Mill Pond. Basin C is bounded on the south by Hazel Street and on the north by Oak Street, and flows into the Plan Area from near Main Street near Hazel Street and Maple Street. Basin C includes a total area of 130 acres. The Mill Pond has a spillway outlet into Fort Bragg Landing.
- **Basin D** – This watershed also drains into the Plan Area and to the Mill Pond. Basin D is bounded on the north by Redwood Avenue and on the south by Oak Street and flows into the Plan Area at Alder Street. Basin D includes a total area of 104 acres.
- **Basin G** – This watershed drains to the north of the Plan Area. Basin G is bounded on the south approximately by Redwood Avenue and Laurel Street and includes the area to the north almost to Pudding Creek. Basin G flows through parallel 42-inch and 24-inch storm drains in Elm Street and across California State Parks property and out to the Pacific Ocean. Basin G includes a total area of 174 acres.

The Coastal Trail area, which is adjacent to the westernmost portion of the Plan Area was recently acquired by the City of Fort Bragg for the development of a park and trail system. The Coastal Trail project includes a stormwater management system of culverts crossing beneath the trail, bio-swales, and small detention basins to convey the stormwater to seven outfalls that convey runoff to the ocean.

#### **B. Reduction and Treatment of Stormwater Runoff**

Each of the Specific Plan districts along with the watersheds tributary to the districts has a total area of less than one square mile. The City of Fort Bragg's design storm for the stormwater conveyance facilities is the 10-year storm.

The existing stormwater runoff rates and volumes from the Plan Area are very high because the Plan Area is mostly covered with pavement and compacted soils. The Specific Plan stormwater plan is designed to reduce the peak runoff rates to below existing conditions. This reduction will be achieved through the reduction of the impervious coverage by the removal of existing pavements and by use of LID features and BMPs where feasible, including the following:

- Roof drains will drain onto lawn areas, rain gardens or to vegetated swales (versus directly to streets). (See Policies MM-72, MM-75, and MM-76 in Chapter 3.)
- Vegetated swales, tree wells and streetscape planters will be used along most of the roads and streets. (See Policies MM-71, MM-75, MM-78, and MM-79 in Chapter 3.)
- Vegetated buffer strips will be used along most of the western side of Coastal Drive.
- Permeable paving materials will be used. (See Policy MM-77 in Chapter 3.)

The use of LID features and BMPs will also provide treatment of the runoff, including the removal of sediment and other pollutants.

The National Resources Conservation Service (NRCS) Web Soil Survey (WSS) identifies the soil type as “Urban Land.” The WSS does not identify a hydrologic soil group for Urban Land. Based on the soil types north of the site, however, the site likely originally included Hydrologic Group C soils. Group C soils are described as “having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.” Consequently, use of LID features and BMPs that result in infiltration of stormwater are not suitable for the Plan Area. The LID features and BMPs listed above are intended to slow down the runoff flows and reduce the peak runoff rate.

### **C. Planned Drainage Conditions**

The major planned drainage facilities are shown in Figure 7-4 and discussed below. The facilities shown in Figure 7-4 include storm drains, vegetated swales, vegetated buffer strips, and bubble-up structures with trash screens.

The Plan Area is divided into three general areas (Northern, Central, and Southern Districts), and each is discussed below.

#### **Northern District**

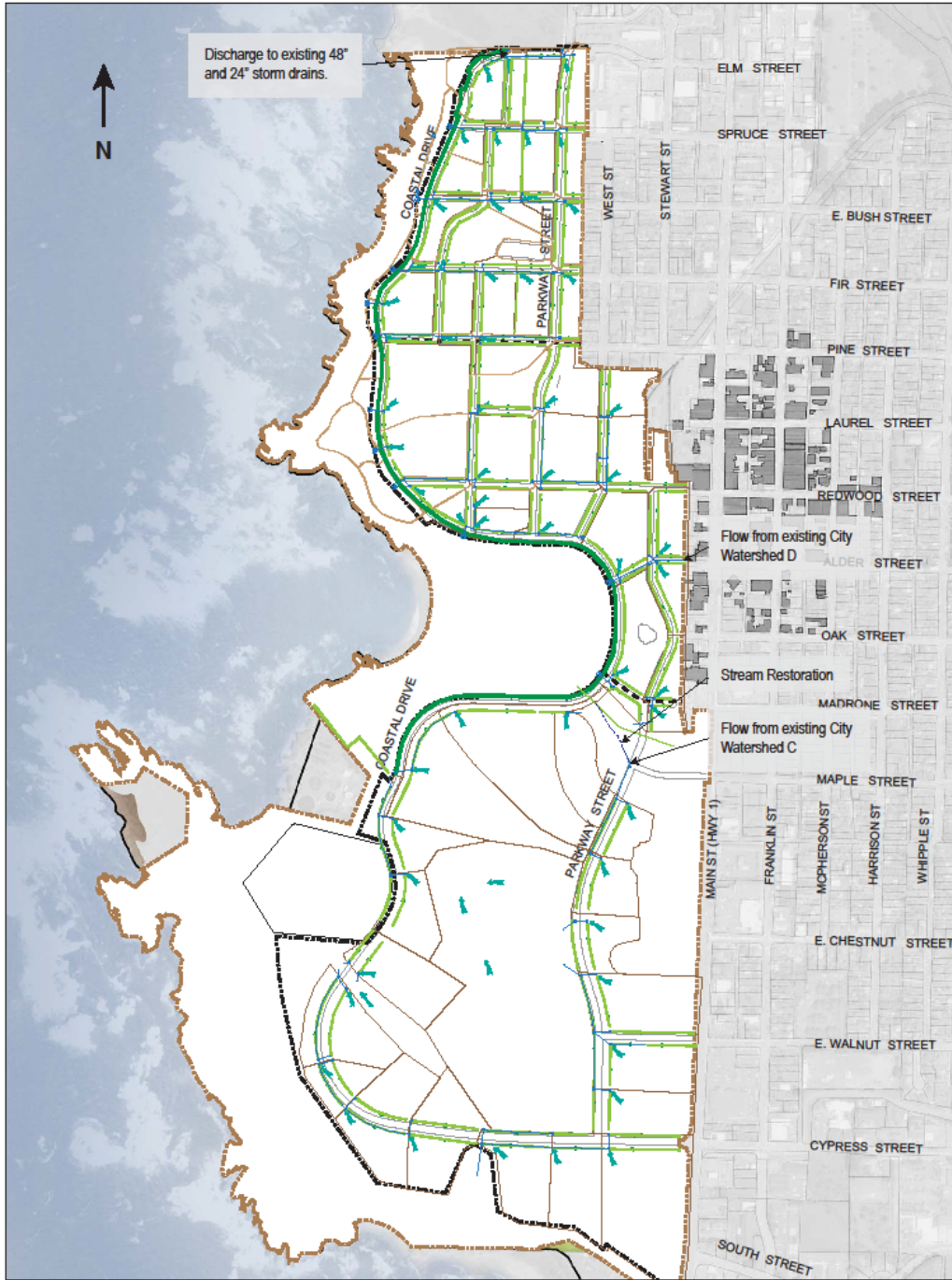
The Northern District will primarily consist of single-family residential development and parks. Vegetated swales will line Plan Area streets. The vegetated swales will slow down and treat runoff before it enters storm drain systems. The underground storm drains will convey the flow downstream (generally to the west) to the bubble-up structures. At the bubble-up structures, the runoff will rise up to the ground surface. Each bubble-up structure will have a trash screen that will trap the trash and other debris before runoff releases to the ground surface.

From the bubble-up structure, the runoff will flow over the Coastal Trail property to the Coastal Trail vegetated swales and detention ponds, which will provide additional detention and treatment of the runoff.

Runoff from the western side of Coastal Drive will sheet flow off the side of the street and onto a vegetated buffer strip, a strip of land planted with grasses and other vegetation that will slow and filter the runoff.

Runoff from developed areas adjacent to Pond 9 will flow into Pond 9 to help recharge this wetland feature, which has no natural source of water other than direct rainfall.

7-4 Stormwater Drainage Backbone Infrastructure



LEGEND / NOTES

- - - - - Specific Plan Study Area Boundary
- - - - - District Boundary
- - - - - Noyo Center Boundary
- Storm Drains and Drain Inlets
- Storm Drain Bubble Up Structure
- Grassy Buffer Strip
- Vegetated Swale
- Subwatershed Boundaries

Note: Location of stormwater infrastructure and roads shown on this graphic are conceptual, and included here for illustrative purposes only

### Central District

The Central District will largely consist of multi-family housing, lodging and commercial buildings, live/work, and industrial arts uses. Drainage from the Central District will largely flow to the Coastal Trail or the Mill Pond Complex and the Maple Creek drainage.

Runoff from the areas within the Central District that flow to the Coastal Trail will be managed as described above for the Northern District.

Runoff that flows to the Mill Pond area will also be managed as described above for the Northern District but will receive additional detention and treatment in the Mill Pond area. Water that flows to the Mill Pond Area will be detained there in marshes and ponds, allowing sediment to settle out of the water. Also, vegetation in the marshes will remove nutrients and other pollutants from the runoff. Eventually the runoff will flow out of the ponds and marshes to the Pacific Ocean.

### Southern District

Land uses in the Southern District will include open space/riparian areas and industrial, mixed-use employment, and commercial uses. The Southern District will also contain 80 acres designated as an Urban Reserve for future, longer-term planning and development opportunities that will arise as market opportunities emerge for this area. In the near term, only interim uses, a research and education center, and a hotel/resort are permissible within the Urban Reserve.

In the Southern District, Coastal Drive and Parkway Street will have vegetated swales along both sides. The swales will flow into storm drain systems that drain to existing channels, ponds, or the Mill Pond area.

### Stormwater Policies:

**Policy U-11. Low Impact Development (LID) Features and Best Management Practices (BMPs).** *Runoff rates and urban pollutants shall be minimized by requiring appropriate low impact development (LID) features and best management practices (BMPs) as defined below and in the Coastal Land Use and Development Code.*

**Policy U-12. Sizing and Installation of Stormwater Facilities.** *All stormwater facilities shall be sized and installed by the developer to accommodate stormwater from the Plan Area, including upstream areas.*

**Policy U-13. New Impervious Surfaces.** *Development of new impervious surfaces shall be designed to reduce future runoff rates and volumes.*

**Policy U-14. Runoff into Mill Pond Complex.** *The Mill Pond Complex shall be designed and constructed to receive and treat runoff from portions of the Plan Area.*

**Policy U-15. Buffer Strips along Coastal Drive.** *Vegetated buffer strips shall be installed along about 80 percent of the western side of Coastal Drive in order to slow stormwater and improve stormwater infiltration.*



## 7.2.4 FRANCHISE UTILITIES

The City of Fort Bragg, including the Plan Area, is served by the following franchise utility companies:

Electricity Service: Pacific Gas and Electric

Telephone Service: AT&T

Cable Service: Comcast

Electricity, telephone, and cable services to serve the Plan Area are currently available within the city limits. There is no natural gas service in Fort Bragg. Local propane gas providers can provide service on a site-specific basis.

### A. Electricity Service

Electric service to Fort Bragg is supplied via transmission lines following State Highway 20 from Highway 101 near Willits to PG&E's Fort Bragg Substation A. The substation is located at the northeast corner of Grove and Walnut Streets in Fort Bragg. Based on current information, PG&E estimates the future Specific Plan electric load demand at less than 20 megawatts.

PG&E is aware of the potential for future development of the Specific Plan and has scheduled the replacement of one of its existing transformer banks in the substation. This upgrade will increase available station output by +/- 20 megawatts. According to PG&E, the timing of the upgrade will depend on the progress of future development in the Plan Area.

Based on the Land Use Plan (Figure 2-2) and land use limitations (Table 2-1), PG&E has indicated that this upgrade will be sufficient to fully supply electricity to the Plan Area at buildout. PG&E will not need to reserve space within the Plan Area or adjacent area for a new substation.

The initial backbone route to the Plan Area will be through the existing PG&E circuit that enters the site at West Maple Street. This circuit currently supplies power to the wastewater treatment facility. Additional or alternative entry points will be considered as a part of the future design process.

PG&E has provided a will serve letter to provide service to the Plan Area. A preliminary backbone layout for electric service is included in the Utility Master Plan.

### B. Natural Gas Service

The nearest natural gas transmission pipeline terminates near Willits along the Highway 101 corridor. As a consequence, natural gas service is not available in Fort Bragg.

There are several commercial propane gas providers in the Fort Bragg area, including Amerigas, Kemgas, Suburban Propane, and Ferrell Gas.

### C. Telephone Service

AT&T is the franchise telephone service provider to the City of Fort Bragg and surrounding area. Telephone and broadband data connections to the subject property will be made via AT&T's Fort Bragg wire center.

At this time, AT&T does not have sufficient facilities in place to serve the Plan Area. However, AT&T has indicated that the wire center itself has more than enough excess capacity and would easily be able to accommodate the increase in demand when/if needed.

There are two initial backbone routes into the Plan Area. The northern area will be connected to the existing AT&T plant near the west end of Alder Street. The southern area will be connected to the existing AT&T plant near the west end of Cypress Street. Additional entry points will be considered as a part of the future design process.

AT&T has provided a will serve letter to provide service to the Plan Area. A preliminary backbone layout for telephone service is included in the Utility Master Plan.

### D. Cable Service

Comcast is the franchise cable service provider to the City of Fort Bragg and surrounding area. VOIP, video, and high-speed data connections to the subject property will be made via the Comcast head end in Fort Bragg.

Comcast has existing backbone in Fort Bragg on Oak Street west of Franklin Street, continuing south on Franklin Street to the south end. The initial backbone route into the Plan Area will follow Oak Street west from the point of connection at Franklin Street. Additional entry points will be considered as a part of the future design process. Comcast has provided a will serve email to provide service to the Plan Area. A preliminary backbone layout for cable service is included in the Utility Master Plan.

### **Franchise Utilities Policies:**

**Policy U-16. Facilities Extensions.** *Electrical, telephone, fiber-optic and cable television facilities shall be extended into the Plan Area to provide utility service to the new development.*

**Policy U-17. Siting and Design of Energy Facilities.** *The siting and design of energy facilities within the Plan Area shall ensure the provisions of safe, reliable, efficient, and economical utility service.*

**Policy U-18. Undergrounding of Utilities.** *Dry utilities shall be installed underground. Conduit shall be sized to allow for additional future underground utilities, such as fiber-optic lines. Additionally, once installed the conduit shall be dedicated to the City so that future companies can install dry utilities as*

## 7.3 Police

The Fort Bragg Police Department consists of three divisions: Administration, Support Services, and Operations.

### A. Staffing

The Police Department has 24 personnel, 17 of whom are sworn officers; the police chief, a lieutenant, three sergeants, and eleven police officers. Non-sworn staff include: an administrative assistant, three police services technicians, and two community service officers.

The Police Department will need an additional six officers to serve the new development within the Plan Area at buildout. New positions will be added as needed to serve the development. Cumulative staff positions are estimated to increase as follows: one half-time position by 2015, 1.5 positions by 2020, 2.5 positions by 2025, 3.5 positions by 2030, and 6 positions by 2040. Based on current staffing, Fort Bragg has a ratio of approximately 2.4 sworn officers per 1,000 persons of population and one sworn officer per 700 residents/jobs. The City does not have a specific population-based standard for service, though the Police Department is considering developing a standard to help plan for anticipated future growth. A Memorandum of Understanding (MOU) between the City and the Fort Bragg Police Association requires two on-duty officers 24 hours seven days a week. Neither the Mendocino County Sheriff's Office nor the California Highway Patrol provides 24-hour service; the Fort Bragg Police Department is the only 24-hour law enforcement agency on the Mendocino coast.

### B. Facilities and Equipment

The 8,500-square-foot Police station located at 250 Cypress Street was built in 1995. The station is relatively new and large enough to accommodate the required growth in service that would result from development of the Plan Area. At 20 vehicles, the police fleet offers each sworn officer his or her own patrol car. In total the Police Department has 14 marked cars, three unmarked cars, two motorcycles, and two bicycles. A new facility will not be needed to provide the service to the Plan Area.

### C. Response Time

In 2005, the Police Department's services included 11,998 responses to incoming calls and 5,677 officer-initiated responses, for a total of 17,695 responses. Average emergency response time is under three minutes.

#### ***Police Policies:***

**Policy U-19. Maintaining Current Levels of Police Service.** Police officers shall be hired as required to serve the Specific Plan development using the current ratio of one new police hire per 700 residents/jobs. Hiring shall be phased in proportion to population and job growth in the Plan Area. New hires necessary to serve Specific Plan Site development shall be funded with a community facilities district (CFD) tax.

## 7.4 Fire Services

Fire protection services are provided by the Fort Bragg Fire Protection Authority (FBFPA). The FBFPA's service area includes the City of Fort Bragg and the surrounding 75-square-mile Rural Fire District, which has about 15,000 residents. Dispatch services are contracted through the California Department of Forestry (CDF).

The FBFPA has mutual aid agreements with neighboring fire protection agencies and the County fire department. It participates in the State Office of Emergency Services (OES) Mutual Agreement Plan, which requires the FBFPA to respond to calls throughout the state.

### A. Staffing

The FBFPA has four full-time employees: a chief, an office clerk, a prevention officer, and a mechanic. The FBFPA is primarily staffed by 35 firefighting and emergency response (paramedic) volunteers.

The FBFPA anticipates that additional paid staff will be required as the number of service requests increases due to development in the Plan Area and the availability of volunteers decreases. A full-time force would include three firefighters on duty per shift (12 hours, 7 days per week) as well as continued use of volunteers.

It is anticipated that development within the Plan Area will require the addition of more full-time firefighters. A full-time force would include three firefighters on duty per shift.

### B. Facilities and Equipment

The FBFPA has two main facilities: a main fire station located at 141 North Main Street, and "Station 20" located at the corner of Highway 20 and Babcock Lane. Both of these facilities are the property of the City of Fort Bragg. The Main Street fire station was built in the late 1940s and is approximately 13,062 square feet. The station consists of three sections. The oldest of these sections dates to 1947 and is not seismically safe. The north section of the station, which includes a truck garage, storage rooms, and a firefighters' lounge, was built with unreinforced masonry. Based on the Public Facilities Master Plan, the main station will eventually need a seismic retrofit to meet State standards for emergency response facilities. The Station 20 facility does not fully meet the needs of the FBFPA. A planning process for rebuilding the station is needed.

FBFPA equipment includes: three engines, two water tenders, one new ladder truck, a boat, and various other vehicles. Equipment is adequate to meet current demand.

### C. Response Times

In Fiscal Year 2007-2008, the FBFPA responded to a total of 604 calls, including 35 structure fires, 62 vegetation fires, ten vehicle fires, 127 traffic accidents, 113 medical aid calls, 75 hazardous conditions calls, eight mutual aid calls, and 68 alarm sounding calls.

Average response time for the FBFPA varies widely by area. Crews are generally able to leave the station within 4 to 5 minutes and can arrive on scene within 5 to 7 minutes within the City limits. The

City's current Insurance Services Office (ISO) rating is Class 3 (with 1 being the highest and 10 being the lowest).

**Fire Services Policies:**

**Policy U-20. Maintaining Current Levels of Fire Service.** *Firefighters shall be hired as needed to serve the Specific Plan development and ensure a continued Insurance Services Office (ISO) rating of Class 3. Hiring shall be phased in proportion to population and job growth in the Plan Area. New hires needed to serve Plan Area development shall be fully funded with a community facilities district (CFD) tax.*

## 7.5 Solid Waste

The City of Fort Bragg and the County of Mendocino jointly manage the commercial and residential solid waste generated from Fort Bragg. Solid waste for Fort Bragg is currently conducted by Empire Waste Management (EWM). The Willits Transfer Station and the Potrero Hills Landfill in Suisun, California receive the commercial and residential solid waste of Fort Bragg. The City has entered into a contract with Solid Waste of Willits, owner and operator of the Willits Transfer Station, that requires the City to direct its solid waste disposal to the Willits Transfer Station until November 1, 2015. The landfill has a planned capacity sufficient to serve Fort Bragg until 2030. In addition, Fort Bragg Disposal operates a facility at 219 Pudding Creek Road in Fort Bragg that includes a truck garage, buy-back and drop-off recycling center, and permitted direct transfer facility.

The City, in conjunction with the Mendocino County Solid Waste Division, has identified and is in the process of completing a land swap for a site on State Highway 20 for a new commercial solid waste transfer station that will serve both commercial and self-haulers on the Mendocino coast from the Navarro River to Westport. Permitting, design, and construction of the facility will take approximately five years. The transfer station will handle all forms of garbage, recyclables, yard waste, household hazardous materials, and sorted construction debris. Once completed, the new transfer station will provide solid waste service for the City of Fort Bragg, including the Plan Area. In the meantime, the Willits Transfer Station and Potrero Hills Landfill have sufficient capacity to receive solid waste from Fort Bragg, including buildout of the Specific Plan. The planned capacity of the new transfer station will also be sufficient to accommodate the Specific Plan development at buildout.

**Solid Waste Policies:**

**Policy U-21. Solid Waste Management in the Plan Area.** *New development in the Plan Area shall participate in all solid waste management activities of the City, including but not limited to mandatory service by the City's franchise waste hauler, participation in the City's construction and demolition waste recycling ordinance, and all other waste reduction strategies of the City.*



## 7.6 Schools

The City of Fort Bragg is served by the Fort Bragg Unified School District (FBUSD). The FBUSD operates three elementary schools (one for grades K-2, one for grades 3-5, and one for grades K-3), one middle school for grades 6-8, one high school, and three alternative education schools (one high school, one community day school for grades 6-8, and one community day school for grades 9-12). Current enrollment is approximately 1,907 students. School-specific enrollment figures for the 2008-2009 school year are included in Table 7-1.

The FBUSD does not currently produce enrollment projections for its schools. However, annual enrollment trend data are available from the California Department of Education (DOE). According to the DOE, enrollment in the FBUSD has been in decline for the past 12 years, decreasing from 2,512 students in the 1996-1997 school year to 1,907 students in the 2008-2009 school year. Based on current trends, enrollment is expected to remain the same or decrease over the next few years, absent any residential development within the Plan Area.

Given the declining enrollment trend in the FBUSD, it is anticipated that, even at full Plan Area buildout, existing school facilities and bus services could absorb the expected increase in enrollment.

TABLE 7-1 FORT BRAGG UNIFIED SCHOOL DISTRICT (FBUSD) STUDENT ENROLLMENT FOR THE 2008-2009 SCHOOL YEAR

School	Enrollment
Dana Gray Elementary	466
Fort Bragg High	535
Fort Bragg Middle	414
Lighthouse Community Day	19
Noyo High (Continuation)	19
Redwood Elementary	438
Shelter Cove	12
Westport Village	4
<b>TOTAL</b>	<b>1,907</b>

SOURCE: California Department of Education. 2009. Enrollment Data 2008-2009. Accessed April 28, 2010. Website: <http://dq.cde.ca.gov/dataquest/Distenr2.asp?cChoice=DistEnrGr2&cSelect=2365565--FORT^BRAGG^UNIFIED&cYear=2008-09&cLevel=District&cTopic=Enrollment&myTimeFrame=S&submit1=Submit>.