

City of Fortuna

Mill District Specific Plan



Final Draft
February 2025

**City of Fortuna Mill District Specific
Plan Final Draft
February 2025**

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EXECUTIVE SUMMARY

The Mill District Specific Plan (Specific Plan or Plan) implements the City of Fortuna General Plan and serves as a tool to guide the orderly development of land. The area is envisioned as a high quality industrial and commercial infill site that supports mixed use development, and the Specific Plan establishes planning and development standards to realize this vision. It plans for the redevelopment of a former lumber mill site and surrounding lands that are conveniently located close to Fortuna's downtown area, two U.S. 101 exits, and the Fortuna Boulevard commercial corridor.

Chapter One: Introduction. Chapter One establishes the purpose of the Specific Plan and its history and physical context. The Specific Plan will guide future decisions regarding land use, intensity of development, circulation, public services, and the necessary infrastructure improvements to support future growth. The Plan will provide a mechanism for ensuring that future development and infrastructure will be feasible, coordinated, and efficient. The Specific Plan envisions the project area as an important and diverse center for local and regional economic, employment, tourism, and residential growth and development.

Chapter Two: Vision. This chapter provides the guiding principles for development within the Plan area. The principles are based on input from community stakeholders, City staff, technical consultants, the City Council and Commissions, and requirements of State law and City policies and regulations. The guiding principles provide broad, overarching guidance for the development of the Specific Plan area. The policies and performance measures implementing each of the guiding principles are presented fully in the related Specific Plan chapters. The chapters include Land Use, Open Space & Design, Circulation; Infrastructure & Community Services; Infrastructure Financing; and Specific Plan Implementation & Relationship to Other Documents. The objectives, policies and performance measures, and zoning represent statements of intent that will guide the implementation of the Specific Plan. They are intended to work in conjunction with the policies of existing City documents.

Chapter Three: Land Use, Open Space & Design. This chapter describes the characteristics and locations of the various land uses that will develop in the Specific Plan area based on a conceptual plan for the former mill site. Land use characteristics include the type of development and uses permitted within the Specific Plan area. The Specific Plan consists of six sub areas, including the Pond Street Area, Existing Residential Area, Creek Riparian and Trails Area, Central Area, Strongs Creek Area, and the Mill Creek Area. Overall, the Specific Plan envisions a compatible integration of land uses. The land use plan will allow for a range of uses including light industrial, flex space, commercial, office, and residential. The design guidelines are intended to assure attractive and cohesive building and landscape design and compatibility between uses.

Chapter Four: Circulation; Infrastructure & Community Services. This chapter describes the circulation, infrastructure, and public services improvements necessary to accommodate anticipated Specific Plan area development and provides implementing policies and performance measures.

Significant improvements are necessary to enhance connectivity from the Specific Plan area to surrounding areas and to support wastewater flows to the Tom Cooke Memorial Wastewater Treatment Plant. The proposed plans for the public infrastructure elements will provide individual property owners, developers, and the City with a framework of improvements necessary to support future development in the Specific Plan area. Existing and future needs for increased demand for police and fire services, as well as electric, natural gas, and telecommunication systems within the Specific Plan area, are also briefly discussed in this chapter, which can be enhanced through the implementation of the Specific Plan goals, policies, and programs.

Chapter Five: Infrastructure Financing. This chapter summarizes the infrastructure improvements to be constructed or reconstructed to implement the Specific Plan and the general cost, identifies the distribution of cost burdens to the different land uses, and describes the various options for financing public improvements.

Chapter Six: Implementation and Relationship to other Documents. This chapter describes the steps needed to implement the Specific Plan and the relationship of the Specific Plan to other City documents. The Specific Plan also relies on the City's Zoning and Subdivision Ordinances.

CHAPTER 1: INTRODUCTION

The Mill District Specific Plan area (Mill District or MDSP area) comprises approximately 104 acres generally bordered by Newburg Road to the north, the South Fortuna Boulevard corridor to the east, U.S. 101 to the west, and Kenmar Road to the south. A significant element of the MDSP Area is the 73-acre former Pacific Lumber Company (PALCO) mill Fortuna site, which was an important local economic engine for the City from its inception in the 1970's to its closure in 2004. The size and location of the former mill site provides an exceptional economic development opportunity for the community, the property owner, and the surrounding developed and undeveloped commercial areas.

The MDSP area is comprised of a large, underutilized infill industrial area with several owners, and a mixed residential neighborhood of predominantly single-family homes, with some multifamily and commercial buildings. The largest industrial property has recently changed hands and the area is poised for future growth and redevelopment due to several factors.

Firstly, the MDSP area is unique in Humboldt County because it is a large infill site with two adjacent highway access points; nearby infrastructure and utilities with sufficient potential capacity; easy access to restaurants, services, and housing, and the community is generally supportive of its development. Secondly, the City of Fortuna is taking an active role in Mill District development planning. The City independently initiated specific plan preparation in the fall of 2021, recognizing that the then current owner of the former PALCO Mill property was not engaged in planning, marketing, improving, or developing this important site. And finally, approximately 64 acres of the former PALCO Mill portion of the MDSP Area was sold to a developer in 2023 and is now being actively marketed as the Fortuna Mill Commerce Center (FMCC).

The Mill District, particularly the Fortuna Mill Commerce Center as envisioned in the Specific Plan will transform the most underutilized area of the City into an important hub for economic, employment, tourism, and residential development as encouraged and allowed by the General Plan and Zoning Regulations.

HISTORY OF THE AREA

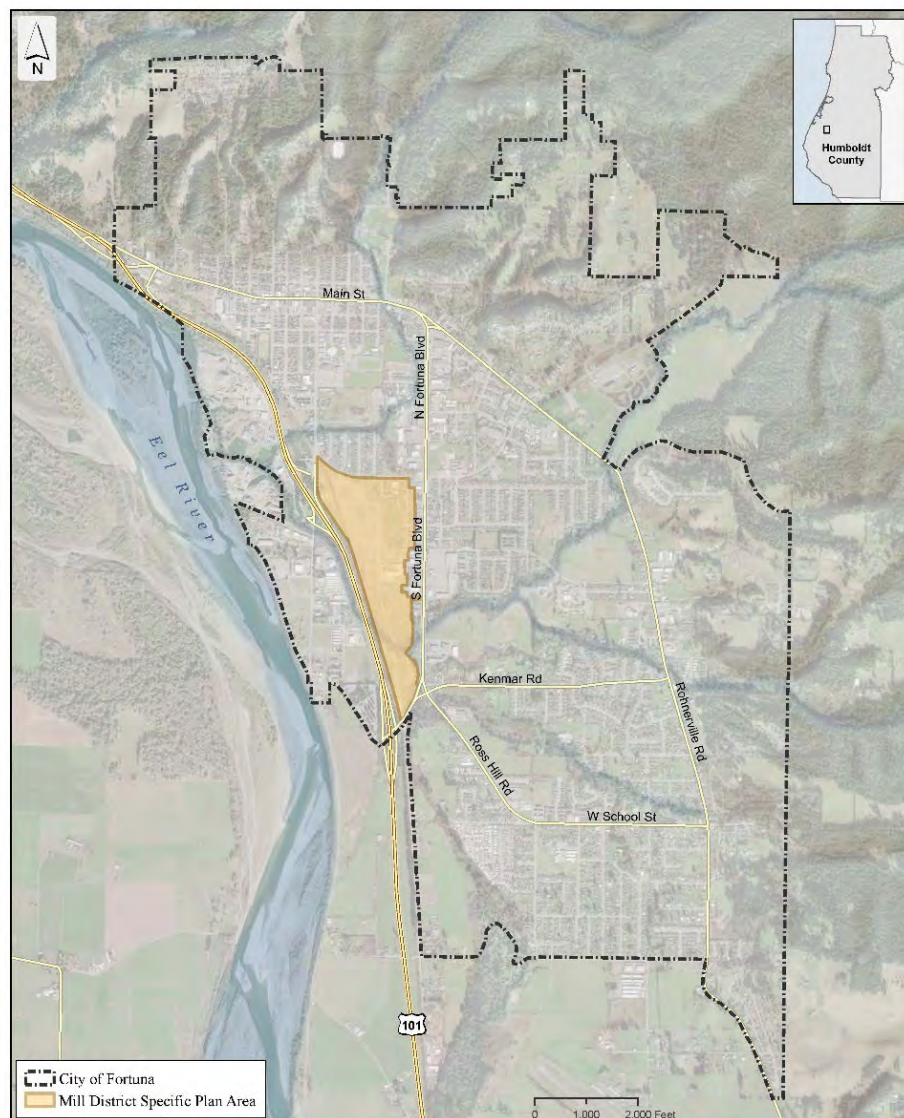
Residential subdivisions in the north east of the MDSP Area occurred in the mid-1900's. As of the 1940's, the center portion of the MDSP area and the area along the rail line were almost entirely agricultural land. By 1956, various timber-related uses were developed including timber ponds, a veneer plant, boilers and kilns. The PALCO Fortuna mill was constructed in the 1970's



and occupied approximately 73-acres. The PALCO Fortuna mill was an important local economic engine for the City from the 1970's to its closure in 2004.

THE MILL DISTRICT TODAY

Since the mill's closure in the early 2000's most mill buildings have been demolished. A former mill building and approximately eight acres of the mill site was sold to Wendt Construction company in 2007. The Wendt site has been modified and improved and is now operated as a multi-tenant light industrial complex. Other portions of the former mill site have become blighted, representing a physical barrier for the surrounding area and a source of nuisance complaints and fires. The Sequoia Gas Company operates a propane gas delivery operation within six acres on the west side of the rail line that was never a part of the PALCO mill. The residential area in the northeast of the MDSP area has not changed significantly since it was originally developed.





FORTUNA MILL COMMERCE CENTER

The Fortuna Mill Commerce Center is the name given by the property owner to approximately 64 acres of the former 73-acre PALCO Fortuna mill. The FMCC offers easy access to Hwy 101 as well as nearby retail amenities. The FMCC property owner's concept plan envisions development that will accommodate the wide variety of uses allowed by the Mill District General Plan Land Use Designation and zoning. Building designs and construction are intended to contain modern features and functionality and may be modified to suit individual tenant needs.

WHAT IS A SPECIFIC PLAN?

Under California Law (Government Code Sections 65450 through 65457) cities and counties may adopt specific plans to develop policies, programs and regulations to support the implementation of their General Plan. A specific plan can serve as an effective tool to implement the General Plan and as a bridge between land use policy and development regulations for large development projects.

This Specific Plan has been prepared in accordance with the requirements for specific plans in Sections 65450 to 65457 of the California Government Code. The Specific Plan includes text and

diagrams that generally describe the following:

- The distribution, location and extent of all land uses;
- The proposed distribution, location, extent, and intensity of major components of public infrastructure such as transportation and drainage systems and other essential facilities needed to support the land uses;
- Standards and criteria which specify how the development of the Mill District will proceed;
- Statements of consistency between the Specific Plan and the goals and policies contained in the General Plan; and
- A program of implementation measures such as regulations, programs, public works projects, and financing measures necessary to complete the essential facilities to allow for the development of the Specific Plan area.

SPECIFIC PLAN PROCESS

The City of Fortuna initiated the preparation of the Specific Plan in 2021. This staff-led effort was conducted in close coordination with the property owners at the time, regional economic developers, and the California Department of Fish and Wildlife. The Mill District Specific Plan involved public outreach that consisted of stakeholder meetings, community workshops, and public hearings.

Participants included residents, business owners, and public agencies. Input was solicited on goals for the Specific Plan, including development standards and land uses.

HOW TO USE THE MILL DISTRICT SPECIFIC PLAN

This Specific Plan is the policy document guiding development in the Mill District Specific Plan area. It addresses issues of land use, zoning, infrastructure, and circulation. The Specific Plan also includes a financing plan for the development of public infrastructure. The Financing Plan provides a guiding framework to fund the construction of public infrastructure improvements needed for planned development. A supplemental environmental impact report (SEIR) was also prepared for the Specific Plan. The Specific Plan works in conjunction with the Fortuna General Plan, 2030 which is the City of Fortuna's overarching planning document and the City of Fortuna Zoning Regulations to provide development regulations and site-specific land use policies.

CHAPTER 2: VISION

This chapter sets forth the vision and guiding objectives for MDSP area development. The implementing goals and policies implementing each of the principles are contained in the related chapters of the Specific Plan. MDSP chapters include Land Use, Open Space & Design, Circulation; Infrastructure & Community Services, Infrastructure Financing, and Implementation and Relationship to Other Documents.

The MDSP area land use plan will allow for a range of development and uses that will support, improve, and increase the City's economic, employment, tourism, and residential potential. Factors that are expected to drive area development over the coming years include location, development potential, innovation sources, and community support.

The guiding principles and goals provide an overarching vision and direction for the development of the MDSP area. They will establish a framework in which measures for implementation of the Specific Plan will be created and prioritized. The goals and policies were developed to work in conjunction with the policies of existing City documents including:

- Fortuna General Plan 2030, 2010
- John Campbell Memorial Greenway and Strongs Creek Trail Final Master Plan, 2014
- City of Fortuna Housing Element, 2019
- City Fortuna Drainage Master Plan, 2005
- City of Fortuna Local Road Safety Plan, 2021

GUIDING PRINCIPLES

The Mill District Specific Plan is intended to:

- **Compatible Single-Use and Mixed-Use developments:**
 - Allow a variety of compatible uses in the Mill District including industrial, retail, manufacturing, civic, tourism and lodging, entertainment, office, commercial, medical, recreation and open space, mixed use, and residential among other uses.
 - Provide building frontages, landscape designs, and landscape buffer strips to ensure that future development is attractive and compatible with adjacent uses.
 - Plan for water, drainage, and wastewater infrastructure to address the needs of new development and the existing housing areas along 15th, 16th, and Spring Streets and to accommodate the vacant land planned for multifamily uses.
 - Allow for unique uses and establishments that may benefit from proximity to, or high visibility from, U.S. 101, including in the southern portion of the Mill District.
 - Continue South Fortuna Boulevard shop front commercial and mixed use development into the Mill District along the new through road with off street parking located behind and to the side of buildings.

- Encourage pedestrian-oriented development of varying scale and size along the new through road near South Fortuna Boulevard and along the Newburg Road portion of the Mill District.
- **Leverage the Mill District location advantage:**
 - Maximize the benefits of:
 - exceptional access to, and visibility from, U.S. 101, and
 - equal proximity to downtown Fortuna via 12th Street or Fortuna Boulevard, which will enhance the importance of the 12th Street corridor.
- **Provide for a balanced transportation network:**
 - Design a safe and convenient street system in the Mill District that supports commerce and facilitates multimodal transportation including the use of public transit, bicycle, and pedestrian facilities for employees, residents, and visitors.
 - Integrate interchange and roundabout improvements for -12th Street and Kenmar Road into Mill District designs, enhancing the Mill District's already excellent freeway access.
 - Make private connections to the interior industrial land from Newburg Road, South Fortuna Boulevard, and the new through road that also supports a potential future Mill District public street network.
 - Provide direct public connections to the John Campbell Memorial Greenway / Strongs Creek Trail and the Great Redwood Trail
 - Allow for a potential Pond Street connection from the new through road and accommodate a potential future widening of 15th Street.
- **Protect the industrial character within the core of the Mill District in a manner compatible with existing and planned residential and commercial areas:**
 - Create sites for flexible commercial / industrial uses that allow for a range of building types and spaces compatible with adjacent uses.
 - Integrate building design and landscaping criteria to demonstrate compatibility with the surrounding residential and commercial areas.
 - Remediate parcels restricted by environmental land use covenant as feasible to provide for the maximum range of allowable uses. Where costs are prohibitive maximize potential industrial uses/development.
- **Protect and enhance the Strongs and Mill Creek riparian areas and provide beneficial and integrated open space areas.**
 - Designate streamside management area buffers and practices adequate to protect and enhance the Strongs and Mill Creek riparian corridors.
 - Accommodate appropriate passive recreation improvements within the Strongs and Mill Creek setbacks that integrate with the John Campbell Memorial Greenway / Strongs Creek Trail.
 - Ensure Low Impact Development (LID) areas are coordinated with stormwater requirements to address stormwater runoff from new

development and integration with constructed wetland improvements within and adjacent to streamside management area buffers.

- o Consider, and where appropriate, allow new development within the Strongs and Mill Creek 100-year floodplain that is outside riparian buffers and the floodway consistent with City of Fortuna flood hazard reduction regulations.



CHAPTER 3: LAND USE, OPEN SPACE & DESIGN

This chapter describes the location, influences, and land use characteristics for the MDSP area. Land use characteristics include the type of development and uses permitted within the area. The land use designations and development program correspond to and implement the development concepts for the MDSP area including the subareas described in this chapter.

AREAS OF THE MILL DISTRICT

The 104-acre Mill District Specific Plan area is characterized by existing residential uses in the northeast and mostly underutilized or vacant former industrial lands elsewhere. The area is divided into six subareas: 1) Pond Street Area, 2) Existing Residential Area, 3) Creek, Riparian and Trails Area, 4) Central Area, 5) Strongs Creek Area, and 6) Mill Creek Area. Each area has distinct characteristics which are described below.

Pond Street Area. The Pond Street Area is approximately 6.0 acres and located in the north west corner of the MDSP area. It is bounded by the 12th street U.S. 101 interchange in the west and the Great Redwood Trail right of way on the east. The dimensions and developable area of the Pond Street Area will change with the construction of the 12th Street/Newburg Road roundabout which will convert the northern portion of the site to the southeast quarter of the roundabout. Development that benefits from proximity to U.S. 101 and the interchange is anticipated in this area. At this time, it appears that that once the roundabout is developed, access to the Pond Street Area site will likely be across the Great Redwood Trail right of way from the new through road within the Central Area.

Existing Residential Area. The Existing Residential Area is approximately 20.0 acres and comprises the northeast quadrant of the MDSP area. It is bounded by 15th Street and the former mill site fence line on the west, Newburg Road in the north, commercial properties along the west side of Fortuna Boulevard on the east, and 3rd Avenue in the south. The Existing Residential Area is almost entirely built out with single- and multi-family residential units and contains two large, underdeveloped properties that are planned for future residential development.

Creek Riparian and Trails Area. The Creek Riparian and Trails Area is approximately 12.0-acres and includes the Strongs and Mill Creek stream and riparian buffer area and the Great Redwood Trail corridor through the MDSP area. The proposed Strongs Creek and Mill Creek buffers are protective of the riparian areas and would accommodate the John Campbell Memorial Greenway and Strongs Creek Trail and other trail connections to the Great Redwood Trail.



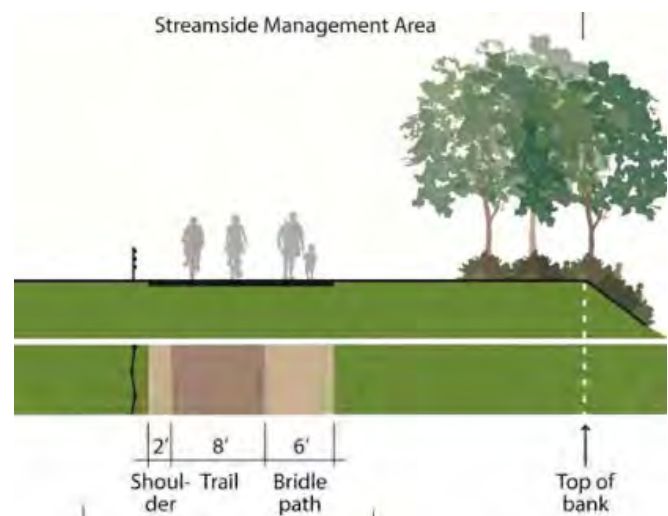
Central Area. The approximately 50.5-acre Central Area is bounded by the Great Redwood Trail Authority right of way in the west, Newburg Road in the north, the Residential Area in the east and the Strongs Creek Area in the south. It contains the existing industrial building and most of the now demolished former mill buildings. The planned larger industrial and distribution-related building are proposed to be within this area. The Central Area will be visible from U.S. 101 and visually buffered by required landscaping along the proposed public street that will connect Newburg Road and South Fortuna Boulevard.

Strongs Creek Area. The approximately 8.5 acre Strongs Creek Area is bounded by the Central Area in the north, the southern boundary is the Strongs Creek riparian buffer, the western boundary is the Great Redwood Trail Authority right of way, and the eastern boundary is undeveloped commercial land along the west side of Fortuna Boulevard. The Strongs Creek Area is anticipated to accommodate a range of industrial and commercial uses.

Mill Creek Area. The approximately 8.4-acre Mill Creek Area is bounded by Strongs and Mill Creek in the north and east, the Great Redwood Trail Authority right of way in the west and Kenmar Road in the south. It is connected to the rest of the MDSP area by the Strongs Creek Trail, Great Redwood Trail Authority right of way and a narrow bridge across Strongs Creek that will be used only for emergency access. The Mill Creek Area has a high degree of visibility from U.S. 101 and will have excellent freeway access from the proposed Kenmar roundabout.

OPEN SPACE

The Fortuna General Plan 2030 has an objective of preserving open space in and around the Strongs and Mill Creek riparian area. The General Plan Natural and Cultural Resources Element contains policies that establish 50-foot minimum buffers to protect streams and their riparian areas. The General Plan Land Use Element Mill District Focus Area policies expand these buffers to 100 feet for Strongs Creek and 75 feet for Mill Creek, described above as the Creek Riparian and Trails Area. The John Campbell Memorial Greenway and Strongs Creek Trail, as it passes through the MDSP area, will be located within this buffer and will be sited in a manner to protect important habitats. The Strongs Creek Trail is also intended to provide multiple connections to the Great Redwood Trail, which is also an important MDSP open space component.



GENERAL PLAN LAND USE

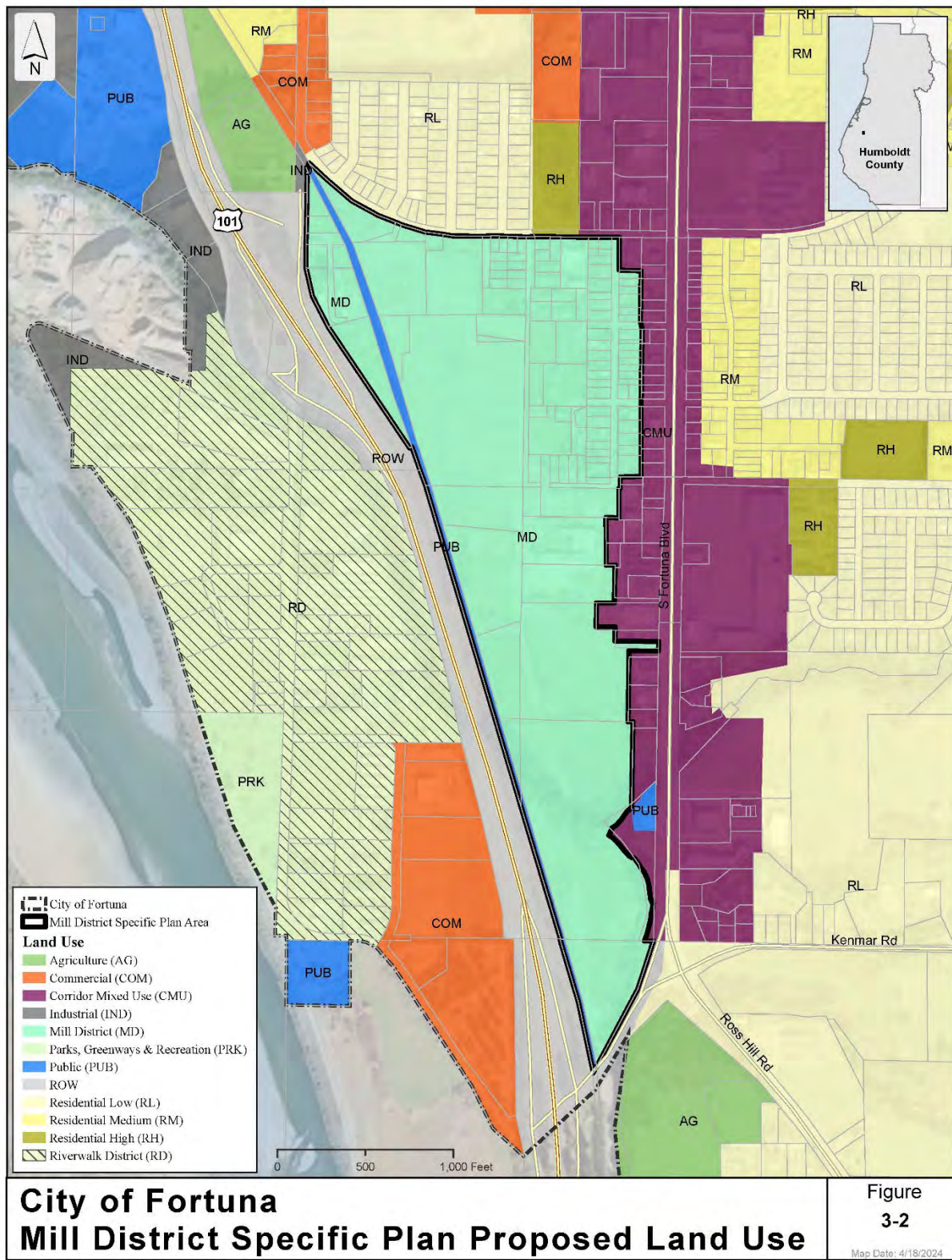
A single General Plan Land Use Designation, Mill District (MD), is applied within the MDSP area. The following is a description of the Mill District (MD) Land Use Designation.

Mill District - Land Use Character: This designation provides for single-use and vertical and horizontal mixed-use development that is well integrated and compatible with the surrounding community. The MDSP utilizes design and landscaping guidelines as criteria to demonstrate the compatibility of proposed non-residential uses with the existing or planned residential areas. Allowable non-residential uses are diverse and accommodate a broad range of development type and intensity including:

- flexible commercial / industrial uses
- small and large manufacturing
- warehousing, transportation and distribution
- medical, office, professional services, and civic uses
- open space, parks, and recreation facilities
- industrial producers, fabricators, and artisans
- commercial, retail, restaurants, entertainment, and lodging
- mixed-uses and live-work spaces
- and other similar and compatible uses

Mill District - Density/Intensity: The Floor Area Ratio (FAR) for mixed-use development shall not exceed 2.0. The FAR for nonresidential uses shall not exceed 0.8. Residential densities shall be in the range of 7.0 to 29.0 units per gross acre.

The Mill District Land Use Designation also allows residential uses. The zones described below are intended to facilitate residential development in the Existing Residential Area as a principally permitted use with objective design standards and allow residential development as a conditional use in all other areas to ensure land use compatibility. Requiring a conditional use permit in all areas outside the Existing Residential Area is in part due to soil contamination from past mill related uses, which are reflected by land use covenants (Covenant and Environmental Restriction on the Property) recorded against eight Assessor's Parcels in the Central and Strongs Creek Areas. The existing land use covenants include soil and groundwater management requirements (Soil and Groundwater Management Plan) due to environmental impacts from historic use as an operating lumber mill. Land uses in these areas are generally limited to industrial uses unless cleanup is planned, conducted, and completed according to the requirements of the North Coast Regional Water Quality Control Board.



LAND USE PROGRAM

Assumptions have been made relating to the distribution of land uses and proposed intensities for future MDSP area development. The assumptions are not meant to be prescriptive, but rather to help envision an overall level of future development within the 104-acre MDSP area. The assumptions also serve to inform infrastructure and service planning and environmental review. Based on the conceptual development plan submitted by the current property owner, the MDSP is anticipated to result in a maximum building area of approximately 980,500 square feet. Of this, 760,000 square feet are anticipated within the Fortuna Mill Commerce Center with the remaining 220,500 square feet occurring within other vacant or underutilized areas governed by the Mill District General Plan Land Use Designation.

MDSP implementation is anticipated to result in approximately 100 new housing units over three vacant or underutilized parcels which each average approximately one acre in area. It should be noted that the MDSP allows a broad range of single-use and mixed-use development, so the ultimate combination and type of development may be different than currently anticipated. In addition, the maximum theoretical MDSP area development potential (if all property were to be developed at its maximum allowable intensity, which is unlikely) is significantly greater than the anticipated buildout described above and that is included in the following table.

Use Type	Existing	Planned or Proposed
Non-Residential		
Hotel		116,000 SF
Retail		94,900 SF
Retail Flex		43,200 SF
Commercial Services	12,000 SF	33,000 SF
Flex Industrial		88,500 SF
Industrial	40,000 SF	223,900 SF
Warehouse		381,000 SF
Residential		
Single Family	58 Units	n/a
Multiple Family	16 Units	100 Units

LAND USE POLICIES

The following goals and policies are intended to guide the development of land uses within the MDSP area.

Goal LU-1. Transform the former mill site into a center for industrial, commercial, and mixed-use development.

Goal LU-2. Strengthen and support the City's economic base and attract new development to Fortuna and the region.

Goal LU-3. Strengthen the community through the installation of needed site improvements to stimulate employment and economic growth and an important link in the John Campbell Memorial Trail system.

Goal LU-4. Implement performance standards and guidelines to assure high quality site and building design, to ensure environmental protection and the timely and orderly development of the Mill District.

Policy LU-1. A broad range of compatible development is permitted in the Mill District including industrial, retail, office, service commercial, recreation, and medium and high-density residential uses, consistent with the Land Use element and Land Use diagram.

Policy LU-2. Mill District design and development shall promote this area as one of Fortuna and the region's key employment centers.

Policy LU-3. Strongs and Mill Creek riparian corridors shall be protected and enhanced as crucial links in the "River to Forest" public walkways system as identified in the General Plan by implementing General Plan Mill District Focus Area Policy LU-14.3, Open Space and Parkland, that increases the minimum setbacks for Strongs and Mill Creeks within the MDSP Area, as measured from the top of bank, to 100-feet and 75-feet, respectively, and allows the placement of trails, utility, and infrastructure within the setback area as described in this Plan and in a manner consistent with General Plan Natural & Cultural Resources Program NCR-14.

Policy LU-4. The Mill District's design and development shall be compatible with adjacent uses. The following factors shall be considered in reviewing proposals for the development new and/or expanding Mill District uses:

- Buildings shall be oriented to the street, residential areas, and transit services, wherever feasible;
- The site plan for individual projects shall include orientation, placement, and landscape features to integrate the new development with surrounding uses and existing physical development or open spaces;
- The site plan shall promote safe, convenient, and barrier-free multi-modal travel within the District, between the District and adjacent uses, and to and from transit stops;
- The site plan promotes public safety;
- The site is well integrated with the rest of the city;
- The site plan promotes convenient access to streets, the bike and trail network, and public transit services;
- Off-street parking areas should be located in the side and rear yards and designed to be compatible with adjacent residential uses.

Policy LU-5. Loading and service areas shall to the greatest extent feasible be screened, landscaped, and located to avoid conflict between pedestrian and vehicular traffic, and sited away from adjacent residential areas.

Policy LU-6. Design elements shall foster a sense of neighborhood identity including street signs, street lights, building materials and style, building signage, landscaping including street and parking lot trees, and public spaces.

Policy LU-7. Public infrastructure upgrades and extensions shall be timed to coincide with site development.

Policy LU-8. Mill District streets shall accommodate the movement of large trucks and include public transit, bicycle, and pedestrian facilities and shall maximize the safety of all street users:

- Safe and convenient access shall be provided for pedestrians between buildings and transit stops, parking areas and other buildings and facilities.
- The Mill District shall be designed to support safe and efficient operation of the adjacent arterial and/or collector roads and promote active transportation, and public transportation usage;
- The Mill District design shall facilitate the use of the great Redwood Trail; and
- The portion of the Strongs Creek “River to Forest” trail within the Mill District shall connect with access points to the Riverwalk area, Strongs Creek Plaza, and the Great Redwood Trail.

Policy LU-9. The City shall require the construction of a street through the Mill District that connects Newburg Road and South Fortuna Boulevard at Redwood Way to facilitate convenient walking, biking, truck, and automobile flow through the MDSP area. Appropriate connections shall be provided to Pond Street, to existing Mill District industrial and commercial development, and to adjacent businesses near the intersection at South Fortuna Boulevard.

Policy LU-10. The City shall encourage development of the Mill District to be implemented in phased steps and that identifies the needs for, timing of, and financing for essential public infrastructure improvements.

Policy LU-11. The City shall encourage the cleanup of soil and or groundwater in areas subject to recorded covenants to allow full use of property within the MDSP area.

Policy LU-12. The City shall require MDSP area construction contractors to report any evidence of potential soil contamination to the City and shall require that any newly discovered contamination be investigated and remediated.

Policy LU-13. Reduced parking standards and/or on-street parking may be permitted to reflect the increased intensity of development and accessibility by transit and other modes of travel. Shared parking is encouraged where it can be demonstrated that uses are complimentary.

Policy LU-14. Public safety and crime prevention measures recommended by the City of Fortuna Police Department should be incorporated into the design of future MDSP Area developments to the maximum extent feasible.

Policy LU-15. New development within the MDSP shall be submitted to the Fortuna Fire Protection District for review of Fire Code requirements, emergency access, signage, water supply and pressure, proposed fuel modification, and other measures to protect against structure and wild fires. Measures recommended by the Fortuna Fire District shall be incorporated into the design of future MDSP area developments unless the City explicitly approved otherwise.

Policy LU-16. New MDSP residential and commercial development and City of Fortuna cumulative industrial development which was used to model air quality emissions shall not exceed those analyzed in the Fortuna General Plan Final EIR, as defined in Table 8.1-4a “Net Increase in Development Under the Proposed General Plan”.

Policy LU-17. In an effort to ensure that mixed uses are compatible and that development standards are applied equitably and consistently during the life of the MDSP, AB 98 California state warehouse design and build standards shall be applicable upon approval of the MDSP.

DESIGN GUIDELINES

All proposed industrial or commercial buildings shall undergo discretionary design review to demonstrate their conformance with the proposed MDSP Design Guidelines. The principal objective of the design guidelines is to assure compatibility with existing neighboring development, to maintain and enhance the aesthetic quality of Fortuna’s major travel corridors, and to improve the overall quality of the urban environment.

Permits for residential and mixed-use buildings shall conform to City-wide objective design standards for mixed-use and multi-family residential development. The MDSP design guidelines are contained in Appendix A and are generally summarized in the following:

Site Layout and Building Design.

- Facades visible from public streets should include architectural features such as reveals, windows and openings, changes in color and texture to add differentiation to the building elevation and reduce its visual mass.
- Noise generating functions should be located as far as possible from adjacent properties.

Buffer and Landscape Design

- Landscaping is required along the street and property lines and between buildings containing different uses to enhance the appearance and provide a development buffer adjacent to residential development with plantings, earth berms, or low walls to achieve compatibility.

Parking Lot and Frontage Design

- Minimize the number of access drives to promote motorized and non-motorized safety while allowing for efficient and flexible access to the site.
- Entry drives should be enhanced with ornamental landscaping, low-level decorative walls, monument-type signs, and decorative.



ZONING

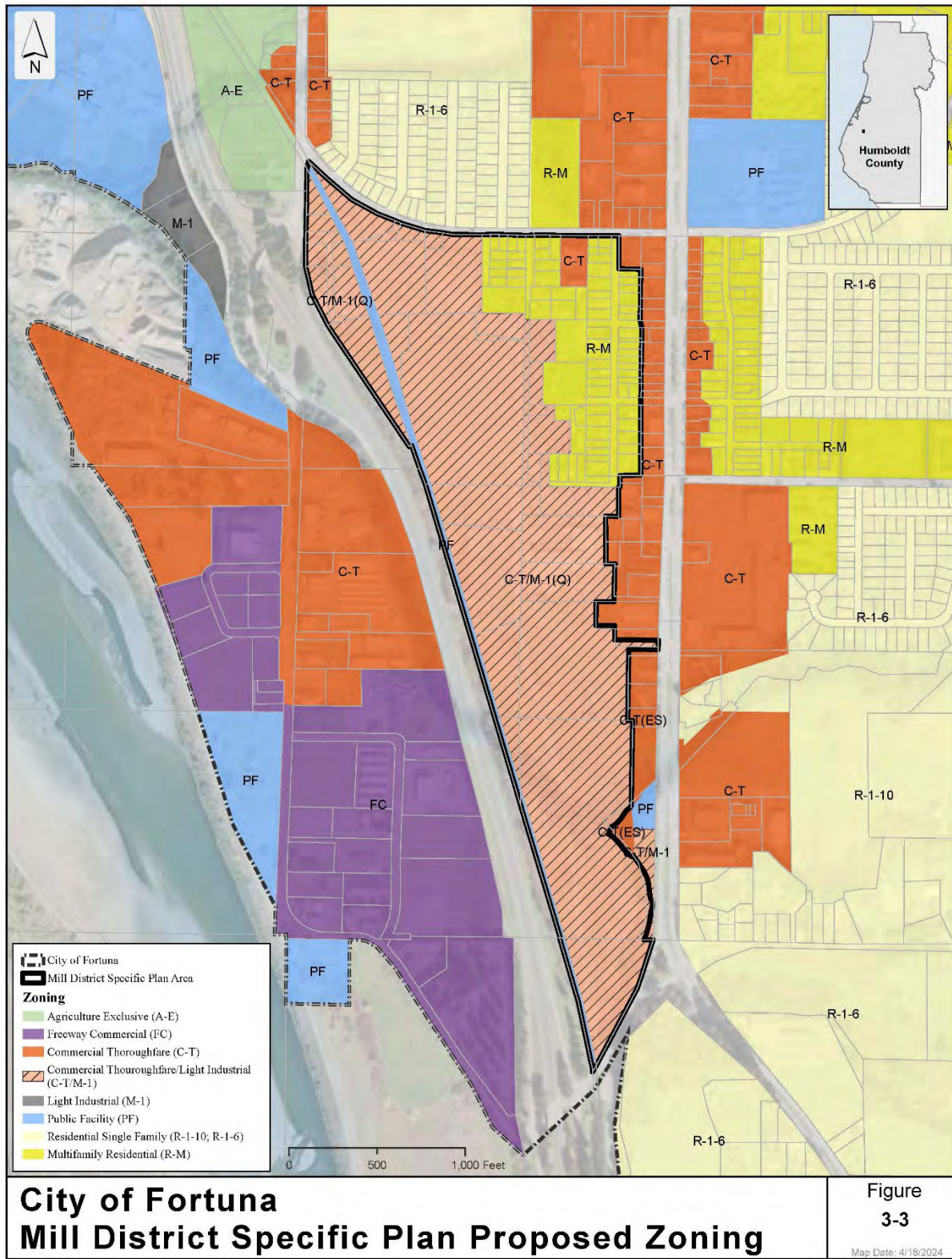
The MDSP relies on several of the Principal Zoning Classifications found in Title 17 of the City of Fortuna Municipal Code. The MDSP will use the following classifications as shown in the zoning map (Figure 3-3):

Multifamily Residential (R-M). The R-M district is intended for areas of the city where medium-high density residential development is appropriate. The R-M district is applied in areas of existing medium-high density areas, areas with existing lower density development that could accommodate higher densities, and undeveloped areas where higher density and large-scale development projects are appropriate. Maximum building height varies based on building setbacks but is generally the lesser of 40 feet or three stories.

Commercial Thoroughfare (C-T). The C-T district establishes areas where retail, wholesale, highway, and heavy commercial uses, along with amusement, transient, residential, warehousing and distribution, maintenance, repair, and servicing activities. C-T districts are to be established in zones of two acres or larger and shall be located only in the immediate vicinity of arterial streets, freeways, or the service/frontage drives thereof. There is a maximum building height of 48 feet.

Light Industrial (M-1). The M-1 district establishes areas where light manufacturing, wholesaling, storage, and transfer functions can serve the community's need for industrial activities that are compatible with nearby commercial and residential uses. The M-1 zone is consistent with the industrial land use designation of the Fortuna General Plan.

The MDSP strives to provide flexibility in the location and use of industrial and commercial buildings to create a vibrant industrial, commercial, and mixed-use center. To facilitate this flexibility, C-T and M-1 zones are applied together to some MDSP areas (outside of the Existing Residential Area). to allow the development of a diverse uses in a coordinated manner.



MDSP Q Zone. Fortuna Zoning Code Section 17.04.090 allows the application of a Qualified combining zone (Q-zone) to any principal zone where modification of principally and conditionally permitted uses supports General Plan implementation so long as the qualified uses are specified in the ordinance applying the Q-zone.

A Q-zone will be applied to most MDSP areas where the C-T/M-1 zones are applied together and will almost exclusively govern the principally and conditionally permitted uses as well as related development and performance standards and regulations including but not limited to building design, height, setbacks, residential density, Floor Area Ratio (FAR) parking, and landscaping. The MDSP Q-zone allows a broad range of principally and conditionally permitted uses under the categories of Retail Sales, Retail Services, Professional Services, Industrial, Lodging, Residential, Open Space and Parks, and Civic Uses.

MDSP areas that are exclusively zoned R-M or C-T, will not receive the Q-zone overlay and the standards and regulations of each applicable zoning district will apply.

The MDSP Q-zone is summarized in the following and contained in Appendix A.

NONCONFORMING LAND USES

The MDSP allows the continuation of existing non-conforming uses in their current MDSP area locations. The nonconforming use regulations set forth in Title 17 of the Zoning Code shall apply to nonconforming uses and to the use of nonconforming buildings, structures, and lots. The MDSP does not require the relocation of existing nonconforming uses; however, new uses that are incompatible or inconsistent with the MDSP will not be permitted.

PERFORMANCE STANDARDS

Land Use

- P-1: All new MDSP area development shall comply with applicable MDSP policies and performance standards including the Zoning Regulations, Q Zones, design guidelines, and the Financing Plan.

Noise and Screening

- P-2: Parcels adjacent to existing or proposed residential areas shall provide attenuation measures such as structural features, construction materials, landscaping and increased setbacks to reduce heat, trespassing, vibration, glare, dust, air quality impacts, or other annoyances and to reduce noise levels for proposed residential uses to at or below the City's 60 dB Ldn exterior and 45 LDN interior noise standards. (Fortuna General Plan Goals LU-4, LU-5, LU-6, LU-7; Policies LU-4.4, LU-4.6, LU-5.1, LU-5.2, LU-6.3, LU-7.1; and Programs LU-5, LU-6, and LU-7; and Fortuna Municipal Code Section 17.05.110).
- P-3: Screening of off-street parking spaces that abut a residential use shall be required along all interior property lines pursuant to and consistent with Fortuna Municipal Code Landscaping and screening requirements.

Biological Resources

- P-4: Each MDSP area development shall incorporate and implement all of the applicable policies, standards, and mitigations included in relevant City of Fortuna plan(s) to avoid, eliminate, or reduce impacts upon riparian areas, wetlands, and special status species to a less than significant level and all development located near Strongs or Mill Creeks shall adhere to General Plan Mill District Focus Area Policy LU-14.3, Open Space and Parkland, and Natural & Cultural Resources Program NCR-14, where minimum setbacks and allowable uses are as modified by MDSP Policy LU-3.
- P-5: Each MDSP development project shall obtain all necessary U.S. Army Corps of Engineers permits pursuant to Section 404 of the Clean Water Act, and all necessary Streambed Alteration Agreements from the California Department of Fish and Wildlife pursuant to Section 1601-1603 of the California Fish and Game Code.
- P-6: No tree shall be removed during nesting season (January 15 through August 31) unless a qualified biologist has surveyed the tree and found no evidence of nesting activity. The biologist may establish an avoidance buffer around occupied nests if there is a significant potential for take of the species or potential for inadvertent destruction of the nest. The buffer shall be determined by the qualified biologist based on the biology of the species present and surrounding habitat (typically a starting point of 300 feet for most birds and 500 feet for raptors but may be reduced as approved by the biologist). No construction or ground-disturbing activities shall be conducted within the buffer until the biologist has determined that the nest is no longer being used for breeding or rearing and has informed the construction supervisor that activities may resume.

Cultural Resources

- P-7: Archaeological monitoring shall be required for any subsurface ground disturbance occurring within undisturbed soils which may be sensitive for cultural resources outlined in A Cultural Resources Investigation of the Fortuna Mill Commerce Center Final Report, Appendix D - previous Geotechnical Investigations and Cultural Sensitivity Map, which include (1) SHN Geotechnical Boring Location and ARSC sensitivity overlay Map; (2) SHN Test Pit Logs (2005), sensitive soils: Pages 25, and 27-29 of Document; (3) Geotechnical Test Pit Location with APE Aerial Overlay and Archaeological Monitoring Area Map; and (4) Archaeological Monitoring Area and APE Aerial Overlay Map, 1:3,000 Scale.

Ground-disturbing activities shall be immediately halted upon the discovery of potentially significant historic or archaeological materials such as (but not limited to) concentrations of historic artifacts (e.g., bottles, ceramics) or prehistoric artifacts (chipped chert or obsidian, arrow points, groundstone mortars and pestles), culturally altered ash-stained midden soils associated with pre-contact Native American habitation sites, concentrations of fire altered rock and/or burned or charred organic materials, and historic structure remains such as stone-lined building foundations, wells or privy pits. Contact the City of Fortuna, a professional archaeologist and representatives from the Bear River Band of Rohnerville

Rancheria and the Wiyot Tribe. The professional historic resource consultant, Tribes and City officials will coordinate, provide an assessment of the find and determine the significance and recommend next steps. If human remains are encountered, all applicable requirements of the California Health and Safety Code and Public Resources Code shall be followed

Ground-disturbing project activities may continue in areas at least 100 feet from the site of discovery or any nearby area reasonably suspected to overlie adjacent human remains..

Hazardous Substances

- P-8: A Covenant and Environmental Restriction is recorded for the each of the following APNs 200-363-060, 202-021-020, 202-011-046, 201-331-016, 201-331-013, 201-331-010, 201-331-012, and 201-331-017, in their entirety, and references soil and groundwater management requirements (Soil and Groundwater Management Plan, or SGMP) due to known environmental impacts caused by historic lumber mill operations and numerous Underground Storage Tank releases.
- P-9: Any soil excavation activities shall be performed pursuant to an appropriate and fully implemented Health and Safety Plan and in accordance with a SGMP to protect human and environmental health. As per the covenant recorded for the site, the property “shall be used in such a manner as to avoid potential harm to persons or property that might result from any hazardous materials that might remain deposited on portions of the Burdened Property.”
- P-10: As per Article III – Development, Use and Conveyance of the Burdened Property, which details the restriction on development and allowable use, the use restrictions are as follows:
- o Development and use shall be restricted to industrial and commercial.
 - o No residence for human habitation shall be permitted.
 - o No hospitals shall be permitted.
 - o No public or private schools for persons under 21 years of age shall be permitted.
 - o No care or community centers for children or senior citizens shall be permitted.
 - o No owner / operator shall conduct excavation without a permit. Excavation involving any contaminated soils shall be managed by the owner / operator in accordance with all applicable laws and orders existing for the property.
 - o Well construction, drilling or boring for the purpose of extracting water for any use shall not be permitted unless expressly stated otherwise in writing from the Board.
 - o Any excavation conducted at the Burdened Property shall require a Health and Safety Plan (HASP) in accordance with the SGMP.

Air Quality

- P-11: Levels of new residential, commercial, and industrial development within the MDSP, as measured in residential units or commercial or industrial square feet, shall not be in excess of the following thresholds unless an amendment to the MDSP is approved that includes a comprehensive air quality modelling analysis that is conducted using the most current version of the California Emissions Estimator Model (CalEEMod), or the model recommended by the state of California for use in CEQA air quality analysis, to estimate air pollutant

emissions from the assumed buildout of the MDSP Area construction and operation (SEIR Project Description Table 8: MDSP Area Assumed Buildout) plus the non-MDSP Area land use development and growth described in the previous FEIR Net Increase in Development Under the Proposed General Plan” Table 8.1-4a, and all feasible mitigation measures identified as part of the analysis are implemented; or the Fortuna General Plan is comprehensively updated including a CEQA analysis of air quality impacts and all feasible goals, policies, and programs are adopted to reduce air quality emissions. The following are MDSP new residential, commercial, and industrial development thresholds:

- o New residential development within the MDSP Area in excess of 300 dwelling units;
 - o New commercial development within the MDSP Area in excess of 300,000 square feet; and,
 - o New industrial development in the MDSP Area and the City of Fortuna in excess of a cumulative citywide total of 400,000 square feet, including all new industrial development in the City of Fortuna since October 2010.
- P-12: The provisions of Government Code Title 7, Division 1, Chapter 2.8, Warehouse Design and Build Standards, are immediately applicable to applicable new development in the Mill District Specific Plan Area upon approval of the MDSP and prior to January 1, 2026, unless repealed by the Legislature.
- P-13: The City shall refer to the NCUAQMD applications for development types within the MDSPA where there is the potential for new equipment or processes that may release air pollutants. such as:
- o Stationary internal combustion engines with a rating of at least 50 brake-horsepower (bhp);
 - o Mixing, blending, or processing of any organic solvents, adhesives, paints, fertilizers, or coatings;
 - o Facilities that create dust, smoke, or incinerate any materials;
 - o Facilities that refine any liquids or solids or reclaim any metals;
 - o Facilities that paint, plate, or coat anything;
 - o Facilities that have any combustion equipment (e.g., boilers, ovens, furnaces, etc.);
 - o Facilities that handle or store any solvents or motor fuels;
 - o Facilities that use or store any acids;
 - o Facilities that have any chemical processes or any solvents dispensed or used for cleanup; or
 - o Soil remediation.

- P-14: The City shall implement an enhanced evaluation of incompatible land uses to reduce the potential exposure of sensitive receptors to substantial air pollutants for land use developments that would locate sources of air pollutants or sensitive receptors in closer proximity than the distances based on recommendations in the California Air Resources Board's Land Use Handbook :
- o 1,000 feet of a distribution center (more than 100 heavy-duty trucks per day, more than 40 trucks with operating transport refrigeration units per day, or where transport refrigeration unit operations exceed 300 hours per week, where heavy-duty trucks are defined in Government Code 65098(c));
 - o 300 feet of any dry-cleaning operation;
 - o 500 feet for dry cleaning operations with two or more machines;
 - o Within the same building for dry cleaning operations that use perc dry cleaning operations;
 - o 300 feet of a large gas dispensing facilities (throughput of 3.6 million gallons per year or greater); or
 - o 50 feet of typical gas dispensing facilities.
- P-15: For projects that would result in sensitive receptors being closer than the screening distances above, the project applicants shall submit a Health Risk Assessment to the Community Development Department prior to project approval. The Health Risk Assessment shall be prepared pursuant to the latest Office of Environmental Health and Hazard Assessment policies and guidance and use the following quantitative performance measures:
- o Result in an excess cancer risk level of less than 10 in a million;
 - o Result in a non-cancer hazard index less than 1.0 (acute or chronic); and
 - o Result in an incremental increase of less than 0.3 µg/m³ annual average PM_{2.5}.

If the Health Risk Assessment demonstrates that the development project would meet all performance measures above, no other action is required. If the Health Risk Assessment shows the development project would not meet all necessary performance measures, the applicant shall identify, quantify, and implement project design features, incorporate best available control technologies (BACT) or other measures to reduce the impact to the satisfaction of the City. The applicant shall provide quantification to the City to demonstrate that the project achieves the performance measures.

CHAPTER 4: CIRCULATION; INFRASTRUCTURE & COMMUNITY SERVICES

This chapter defines the infrastructure, utilities, and services that support current and future businesses, employees, residents, and visitors. It addresses major infrastructure necessary to serve existing and proposed land uses and planned development including water, sewer, storm drainage and dry utilities. This chapter also discusses other public services and community amenities including public safety and services for employees and residents.

STREET NETWORK

The MDSP area is generally located between Highway 101 and South Fortuna Boulevard between Newburg Road to the north and Kenmar Road to the south. The existing roadway network within and around the MDSP area includes a mix of local roads, collectors, and arterials. Arterials emphasize high mobility for through traffic, while local roads emphasize property access, and collector streets attempt to achieve a balance between mobility and access. Roadways within the project area are described below.

- US Highway 101 is a four-lane freeway at the Kenmar Road and 12th Street interchanges with two mixed-flow lanes in both the northbound and southbound directions. There are northbound and southbound exits at Kenmar Road and 12th Street that provide direct access to the southern and northern portions of the MDSP area, respectively.
- South Fortuna Boulevard is an arterial roadway that provides two travel lanes in each direction (north-south) at the eastern edge of the MDSP area.
- Kenmar Road is a collector roadway that provides one travel lane in each direction (east-west) and bounds the MDSP area on the south side.
- Newburg Road is an east-west collector roadway that provides one travel lane in each direction at the northern edge of the MDSP area.
- Local Streets:
 - An unnamed future street extending from Newburg Road to Kenmar Road.
 - South 15th and 16th Streets are 40-foot wide north/south running dead end roads that extend south from Newburg Road and provide access to residential units in the northeastern section of the MDSP area.
 - Spring Street is a 40-foot wide north/south running road that extends from Newburg Road



and travels south to connect with 1st, 2nd, and 3rd Avenues. It primarily provides access to residential units in the northeastern section the MDSP area with minimal commercial access.

- o 1st, 2nd, and 3rd Avenues are 40-foot wide east/west running roads that extend west from South Fortuna Boulevard, intersect with Spring Street, and then dead end to the west. They provide access to residential units and some commercial areas in the northeastern portion of the MDSP Area.
- o Pond Street is a private road that provides access from 12th Street to several properties in the northwest corner of the MDSP.

TRANSPORTATION CONCEPT

A transportation analysis was prepared to assess the performance of the City transportation system under existing conditions and under future conditions including traffic associated with the expected development of the MDSP. The transportation analysis examines whether operations will degrade below City standards and what improvements will be required to accommodate the proposed development. The analysis considered the City's plans to replace the existing US 101 interchanges at 12th Street and Kenmar Road with roundabouts. The MDSP area is situated directly adjacent to these planned roundabouts, will occupy land within the edges of the MDSP area, and the plans for these facilities were required to be modified for the MDSP.

The Great Redwood Trail (GRT) right of way extends through the City of Fortuna on the western edge of the MDSP area along the former Northwestern Pacific Railroad alignment and the Great Redwood Trail Agency is working closely with local agencies on a comprehensive Master Plan for its construction. The Master Plan includes a conceptual map for the Fortuna Great Redwood Trail segment with suggested placement of different trailhead types and opportunities for community connections. The MDSP area includes Great Redwood Trail connections from planned development and the John Campbell Memorial Greenway and Strongs Creek Trail. The Strongs Creek Trail is a multi-use trail that passes through the southern portion of the MDSP area on its path from Redwood Way to the Riverwalk area. The Strongs Creek Trail will provide a substantial recreational amenity to the City and provide active transportation opportunities for employees, residents and visitors within the MDSP area.

The City seeks to enhance transit service to the MDSP area by providing bus stops along the new MDSP through street connecting Newburg Road and South Fortuna Boulevard. The transit stops are proposed to be centrally located within the MDSP area and to provide direct connections to the Great Redwood Trail.



Planned development within the MDSP area, including the FMCC development concept, will require the following on- and off-site circulation and mobility improvements:

Street Access

- New Through Road. Install new public roadway, or developer owned roadway open to public use and subject to an irrevocable offer of dedication, extending from a point along Newburg Road generally across from Sunnybrook Drive to South Fortuna Boulevard across from Redwood Village Shopping Center south access road. The cross section shall contain two vehicle lanes and a left turn lane within 78-foot right of way containing Class II bike lanes, gutters, curbs, sidewalks, streetlights, and public utility easements. Landscaping on both sides of street to be installed and maintained by owner outside the right of way. The New Through Street shall also include the following associated improvements, to be approved by the City Engineer:
 - Pond Street Access across the Great Redwood Trail to the New Through Street, subject to reimbursement by owners of those properties (current APNs 200-381-001 through -009)
 - Provide access from the New Through Street and all necessary easements and geometries to current APNs 202-011-046 through -048 and 202-011-050 to support truck traffic and development consistent with this MDSP with multiple access points.
 - Provide access from the New Through Street to parking lot serving current APNs 202-021-013 and 202-021-019.
 - Maintain fire, police, utility, and emergency access across the Strongs Creek bridge between the “lower valley industrial park area” in the Strongs Creek Area and the Kenmar Road freeway commercial area, and to the western portion of 3rd Avenue.
- New Through Road / Newburg Road Intersection Improvements. Install intersection improvements as specified in the traffic analysis currently underway or as approved by the City Engineer.
- New Through Road / South Fortuna Boulevard Intersection Improvements. Install traffic signal and associated intersection improvements as specified in the traffic analysis currently underway or as approved by the City Engineer.
- Newburg Road Frontage Improvements. Install frontage improvements on the south side of Newburg Road along property boundary for approximately 1,175 feet (actual distance may be decreased by the future installation of the 12th Street roundabout) from 12th Street to 15th Street, including pavement, as necessary, Class II bike path from 15th Street to South Fortuna Boulevard, gutter, curb, sidewalk, streetlights, public utility easements, or as approved by the City Engineer.
- Kenmar Road Intersection Improvements. Install intersection improvements as specified in the traffic analysis currently underway or as approved by the City Engineer.
- Kenmar Road and South Fortuna Boulevard Frontage Improvements. Install frontage improvements on the north side of Kenmar Road and South Fortuna Boulevard along property boundary for approximately 750 feet (actual distance may be decreased by the future installation of the Kenmar Road roundabout) from the property boundary with the Great Redwood Trail to the southeast corner of the property along South Fortuna Boulevard, including pavement, as necessary, Class II bike path, gutter, curb, sidewalk, streetlights, public utility easements, or as approved by the City Engineer. Construction of the John Campbell Memorial

Trail through the MDSP may be incorporated as the required pedestrian and bicycle improvements.

- Off-Site - Newburg Road/South Fortuna Boulevard Intersection Improvements. Contribute a proportionate share of costs to conduct and implement optimization of signal timing plan and install improvements as specified in the traffic analysis currently underway or as approved by the City Engineer.
- Off-Site - Kenmar Road/Ross Hill Road Intersection. Contribute a proportionate share of costs to construct intersection improvements as specified in the traffic analysis currently underway or as approved by the City Engineer.
- Off-Site - U.S. 101 – Newburg Road and Kenmar Road Interchanges. Contribute a proportionate share of costs to construct roundabouts at Kenmar Road and US 101 north and south bound ramps and roundabout at 12th Street/Newburg Road/Riverwalk Drive/Pond Street/U.S. 101 north bound ramp.

Transit Access

- Transit Services. Implement transit-related improvements on the west and/or east sides of the new through road to provide on-site transit services at location(s) that provide convenient connections to the Great Redwood Trail, marked crossings of the New Through Road and walking or biking access points to Fortuna Mill Commerce Center development. Transit-related improvements shall be sited and constructed to the standards of the Humboldt Transit Authority or as approved by the City Engineer.

Bicycle and Pedestrian Access

- Strong's Creek Trail. Construct the John Campbell Memorial Greenway and Strong's Creek Trail, a Class I Bikeway (Multi-Use Path) as defined in the John Campbell Memorial Greenway and Strong's Creek Trail Final Master Plan (2014, or refinements thereof), which is planned to cross through southern portions of the MDSP area along Strong's and Mill Creek. Trail improvements include:
 - Dedication of trail right of way of approximately 50 feet;
 - Installation of a footbridge across Mill Creek; and
 - Trail(s) meeting Class I Bikeway standards extending along the south and north side of Strong's Creek (using the existing bridge to cross Strong's Creek) to the Great Redwood Trail and on the west side of Mill Creek to the Kenmar Road roundabout.
- Great Redwood Trail. Coordinate closely with the Great Redwood Trail Authority in the local planning, including site planning, environmental review, and funding planning, for the construction of the Great Redwood Trail, a Class I Bikeway (Multi-Use Path) as defined in the Great Redwood Trail Master Plan (2024, or amendments thereto), which is planned to extend across the western portion of the MDSP along the former Northwestern Pacific Railroad alignment. Trail Improvements include:
 - Trail(s) meeting Class I Bikeway standards, Great Redwood Trail Master Plan trail design guidance, and Great Redwood Trail Agency encroachment permit requirements extending along the Western boundary of the MDSP area to the Kenmar Road roundabout on the southern end and to the Newburg Rd./12th St. Roundabout on the northern end;

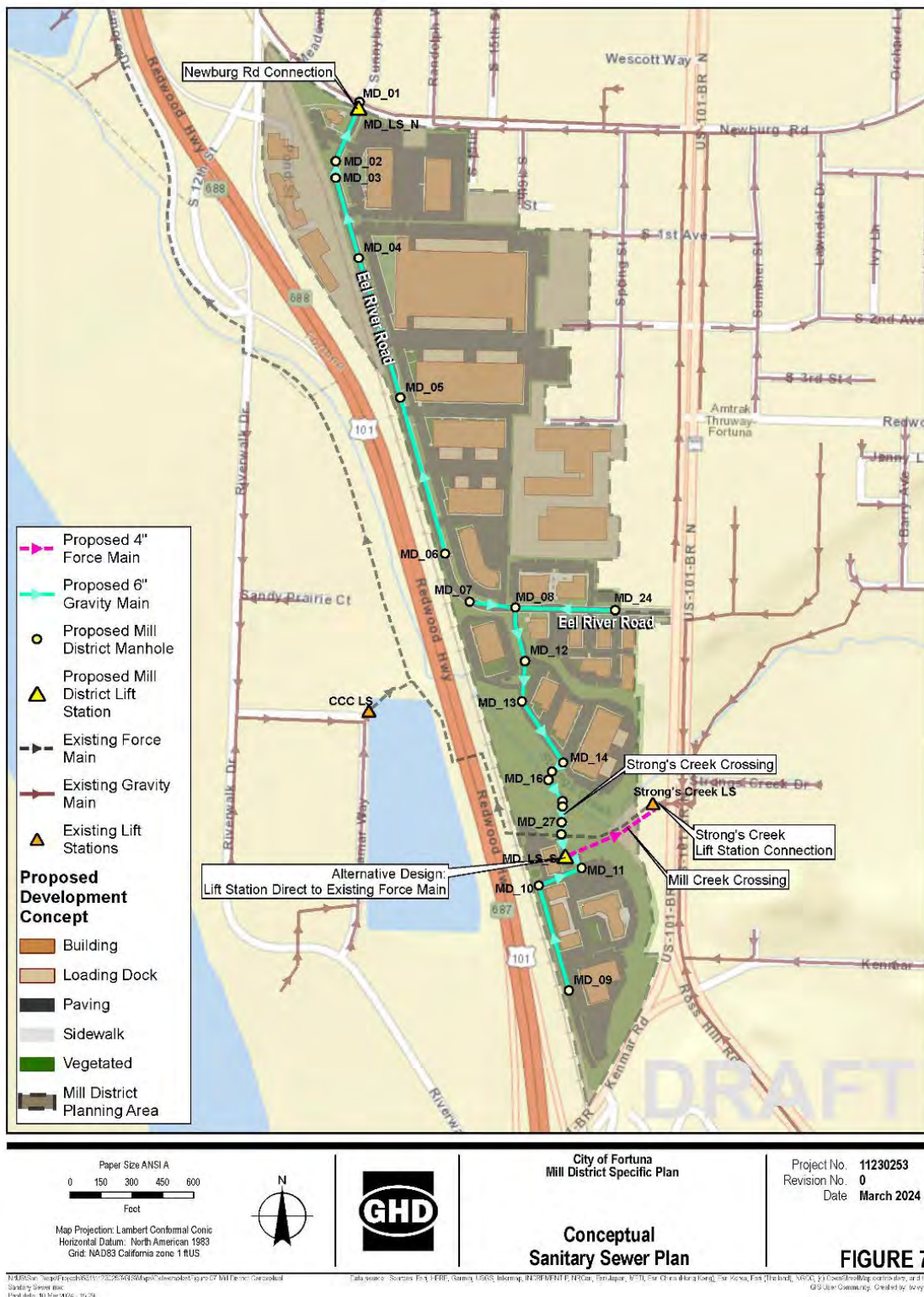
- Install connections meeting Class I Bikeway standards between the Great Redwood Trail and Eel River Drive at locations specified by the City Engineer, including the installation of crosswalks with median pedestrian refuge area (if required). Install accessible crosswalks and sidewalk ramps to provide access from the Great Redwood Trail to the Fortuna Mill Commerce Center.

CITY UTILITY IMPROVEMENTS

Water Supply and Distribution

The existing City of Fortuna water system, including source capacity, treatment, storage, and transmission, located outside the MDSP area, is adequate to support the projected buildout of anticipated development. The existing water system infrastructure within the FMCC and other parts of the MDSP area is aging, undersized, and located in a manner that conflicts with development plans, and as such would require substantial improvements to support the proposed development scenario and maintain connections to existing City service areas. Improvements would include the installation of water mains, valves, services, meters, back-flow preventers, and hydrants. Most water distribution facilities would be located within public and private roadways, private roadways with public utility easements, or areas adjacent to the travel way with public utility easements. New facilities would be designed to accommodate the FMCC (to the maximum possible extents given the surrounding City distribution system) and other planned development within the MDSP area. The size of buildings identified in the proposed development scenario may require site-specific improvements to provide needed fire flow (in addition to the City main distribution infrastructure), potentially including privately owned and maintained on-site water storage tanks and pumps.





Wastewater Collection and Treatment

The City wastewater treatment and disposal facilities located at the Tom Cooke Memorial Wastewater Treatment plant are adequate to support the buildout of the MDSP Area, however, the wastewater facilities that would convey wastewater from the MDSP area to the Fortuna Wastewater Treatment Plant are not adequately sized to accommodate the MDSP area at full buildout. The project site includes several potential alternatives for upgrades to the backbone collection system, including but not limited to an alignment along Newburg Road and 12th Street to the Loni Drive interceptor, as well as alignment along Sunnybrook Lane or Meadowbrook Drive to a larger facility located on the south side of Rohner Creek that intersects 12th Street to the Loni Drive interceptor. Each alternative would involve the replacement of existing gravity flow wastewater facilities within their existing alignment with larger facilities sized to accommodate existing development, the MDSP area, and other new development consistent with the General Plan within the sewer basin. Which alternative is selected will likely be based on feasibility, lifecycle cost, and maintenance responsibility. Other design alternatives could also be considered to provide sewer services to the site.

The existing wastewater system infrastructure within the FMCC and other parts of the MDSP Area would require substantial improvement or replacement to support the proposed development scenario. Improvements would include the installation of wastewater mains, lift stations, and service connections. Most facilities would be located within public rights of way, and private roadways with public utility easements, or areas adjacent to the travel way with public utility easements. New facilities would be designed to accommodate the FMCC and other planned development within the MDSP Area.

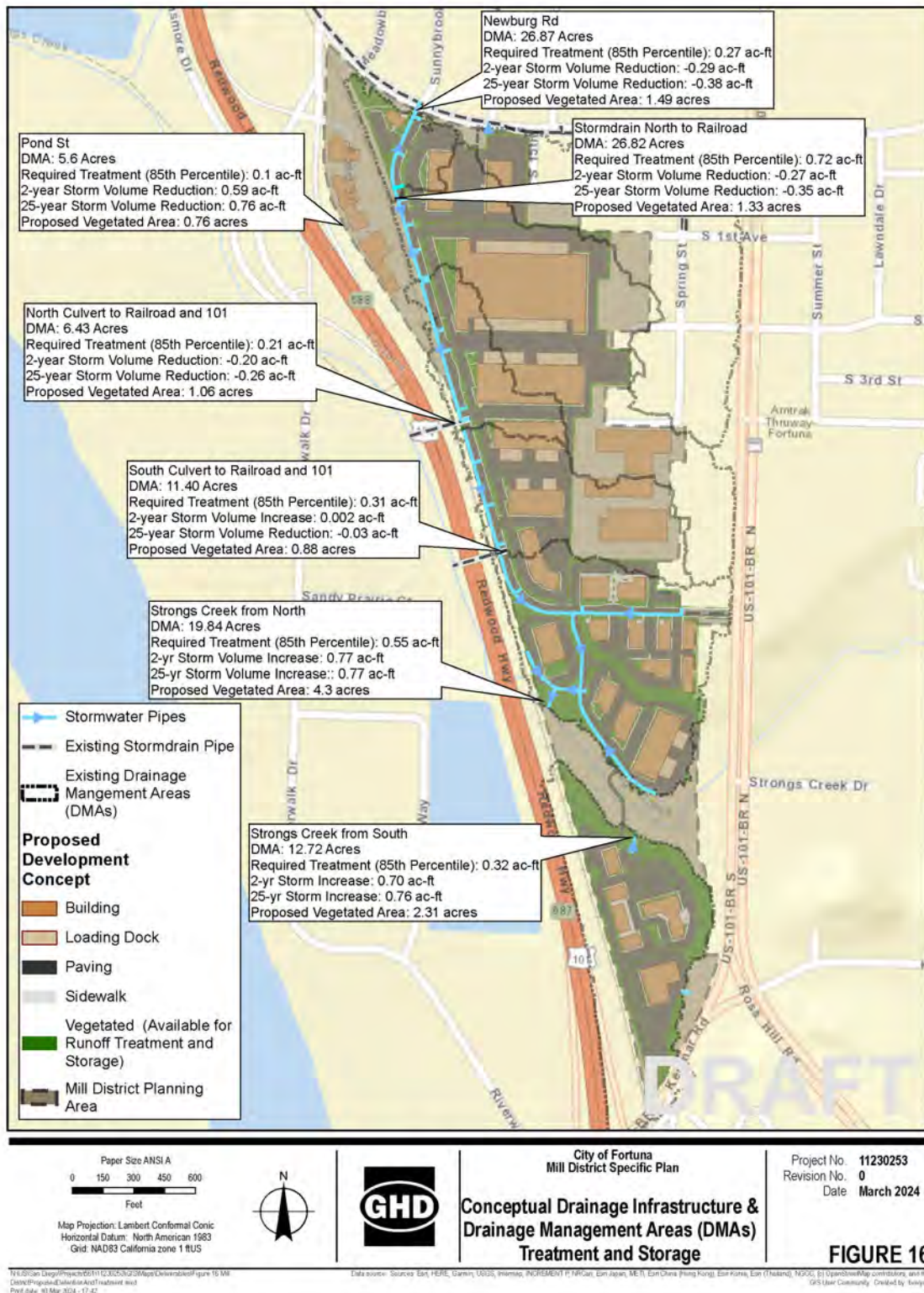
Storm Drainage

The FMCC and other planned development within the MDSP Area would be required to design and construct facilities that accommodate stormwater flows according to City of Fortuna standards as well as regional Low Impact Development standards for municipal separate storm sewer systems (MS4s).

The topography of the Mill District area and past excavation and fill, generate the need for the former mill site property to accept stormwater flows from some adjacent property. In order for planned residential development to occur in the existing residential area in the north east of the MDSP Area, storm drainage improvements would need to be designed and constructed to accommodate stormwater flows directed west through the former mill site. If it is found that the infrastructure needs to be increased in size to accommodate the development of adjacent parcels, a buyback agreement could be developed for the FMCC developer to recuperate costs.

Low-lying areas not adjacent to existing drainage infrastructure would need to establish new stormwater outfalls to the adjacent creeks. All new outfalls would need to be appropriately designed and permitted through the various resource agencies.

In areas where proposed development will discharge stormwater to existing facilities, it will be the responsibility of the developer to improve offsite infrastructure as necessary to accommodate increased stormwater flows. Conversely, development could provide additional onsite storage or other peak flow mitigation measures to eliminate capacity impacts on downstream receiving facilities.



OTHER SERVICES AND UTILITIES

Fire Protection

The Fortuna Fire Protection District (District) provides fire protection to the City of Fortuna including the MDSP area. The District's headquarters fire station is located within 1,000 of the existing residential area and approximately 2,000 feet from proposed new entrances from Newburg Road and South Fortuna Boulevard. The District will be responsible for ensuring adequate fire protection and that on-site suppression systems meet Fire Code requirements. In addition, the analysis of the water distribution system serving the MDSP area indicates that the fire flows required for the largest proposed industrial buildings may be inadequate. The District may require installation of private on-site systems, including storage tanks and pumps to ensure fire safety.

- Fire Hydrants. Fire hydrants shall be installed every 500 feet within residential areas, and 300 feet within commercial areas, at locations approved by the Fortuna Fire Protection District and City of Fortuna Improvement Standards.

INFRASTRUCTURE AND SERVICES PERFORMANCE STANDARDS

Circulation

- P-17: Construct applicable elements of, or contribute proportionate share costs, the MDSP Circulation Plan relating to street access, transit access, and bicycle and pedestrian access specified herein.
- P-18: A new street, currently unnamed shall be a public street, Minor Collector Classification. Dedicate rights of way to the City of Fortuna consistent with the requirements of the City Engineer. This street shall be renamed according to City requirements to avoid potential future public safety problems or public confusion because it is "sound alike" name with an existing public street.
- P-19: New development shall provide the public and private circulation improvements that are listed in the MDSP and as specified by the City Engineer.

Water System

- P-20: Construct applicable elements of, or contribute proportionate share costs, the MDSP water supply and distribution system specified herein.
- P-21: Water Mains. Water mains, as sized by the developer's engineer, and approved by the City Engineer, shall be extended within the MDSP AREA in accordance with the City of Fortuna Improvement Standards, Section V-3, page 15.
- P-22: Fire Hydrants. Fire hydrants shall be installed every 500 feet within residential areas, and 300 feet within commercial areas, at locations approved by the Fortuna Fire Protection District and City of Fortuna Improvement Standards, Section V-3, page 15. A letter of approval from the Fortuna Fire Protection District, including a schematic diagram of approved fire hydrant locations, shall be provided prior to approval of the improvement plans. Provide easements to the Fortuna Fire Protection District for any on-site fire hydrant.

- P-23: Fire Flow. If additional fire flow is required for specific development(s) within the MDSP AREA the applicant shall site and design on-site water storage tanks and pumps, so that adequate pressure and flows can be provided; or provide other means, acceptable to the Fortuna Fire Protection District and the City Engineer, to supply adequate water pressure and fire flows to the project.
- P-24: Water System Appurtenances. Water valves shall be installed in accordance with City of Fortuna Improvement Standards, Article V – Water Systems. All dead-end mains shall be provided with a standard blow off or other acceptable means of flushing in accordance with the City of Fortuna Improvement Standards, Article V – Water Systems. Backflow prevention shall be provided at all landscape irrigation and fire service connections.

Wastewater System

- P-25: Sewer Interceptor. Contribute a proportionate share of cost towards the construction of the Loni Drive Interceptor and trunk facilities located between the MDSP Area and that facility that are necessary to convey MDSP Area wastewater to the Tom Cooke Memorial Wastewater Treatment plant. No entitlement (tentative maps, conditional use permits, building permits or other entitlements) shall be granted for development which results in a cumulative wastewater flow exceeding the capacity of the Loni Drive sewer interceptor, until the Public Works Director determines that improvements to that facility have been constructed and are available, adequate, and reliable to serve buildout of the Mill District Specific Plan and the surrounding region.
- P-26: Construct applicable elements of, or contribute proportionate share costs towards, the MDSP Area wastewater collection and treatment system specified herein.
- P-27: Sewer Collection System. Sewer mains, as sized by the developer's engineer, and approved by the City Engineer, shall be extended within the project in accordance with the City of Fortuna Improvement Standards, Article VI – Sanitary Sewers.
- P-28: Sewer Main Sizing. The minimum size of sewer mains shall be 8", except for final runs within cul-de-sacs, or other areas where there is no possibility of future extension of the sewer main. Sewer manholes shall be installed at a maximum spacing of 300 feet. Sewer cleanouts to grade may be installed at the end of final runs within cul-de-sacs, other areas where there is no possibility of future extension of the sewer main, or at the end of a sewer main that will likely be extended in the future. Sewer cleanouts to grade can be installed no further than 150 feet from a manhole.

Storm Drainage

- P-29: Construct applicable elements of, or contribute proportionate share of costs toward, the MDSP storm drainage system specified herein.
- P-30: Drainage Master Plan Preparation. Prior to the approval of tentative maps, the issuance of building permits for new development or the approval of improvement plans, a drainage

master plan for the Mill District Specific Plan area shall be prepared. The master plan shall identify the approximate size and location of new drainage facilities and upgrades to existing drainage facilities necessary to serve proposed Specific Plan development. Areas not affected by the implementation of the drainage master plan can proceed on a case-by-case basis as determined by the City Engineer. Drainage facilities could include, but would not be limited to:

- o The expansion or modification of existing storm drain facilities;
- o Establishment of sub regional or regional detention basins; and/or
- o The preservation of natural drainage areas.

P-31: Drainage Master Plan Consistency. Individual development proposals within the Specific Plan area shall be required to implement all drainage improvements identified by the detailed drainage master plan as being necessary to accommodate the increased runoff of the development proposal and to provide an adequate level of flood protection to the development proposal, to the satisfaction of the City Engineer. Individual development proposals within the Specific Plan area may modify the proposed facilities shown in the master plan so long as the intent of the master plan and the City's design standards are upheld, and subject to the approval of the City Engineer.

P-32: Flood Plain Requirements. Any development proposed in the regulatory flood zones shall be consistent with the requirements and provisions of General Plan Health and Safety Element Policy HS-7.6, Regulating Land Uses in the 100-Year Floodplain, allows development in in the 100-year floodplain, and City of Fortuna Municipal Code Title 15, Division 2, Floodplain Management Regulations. Any development in the floodplain shall be reviewed and approved by the City's Floodplain Administrator.

P-33: Low Impact Development Standards. New development shall comply with the requirements of the Humboldt County Low Impact Development Stormwater Manual.

CHAPTER 5: INFRASTRUCTURE FINANCING

This section focuses on preliminary funding options or next steps that would be required to finance the offsite infrastructure improvements that have been identified or referenced through the MDSP process. The discussion focuses on the offsite improvements specifically, as any infrastructure required for onsite development would be the responsibility of the applicant as part of a development proposal.

DESCRIPTION OF OFFSITE PUBLIC IMPROVEMENTS

The following are the off-site public improvements that have been identified in Chapter 4: Circulation; Infrastructure & Community Services of this plan as necessary for buildout of the MDSP Area. Given that the MDSP does not consider development phasing, the timing of construction for specific improvements is not known and it is not discussed in detail in this section. Each of these improvements are discussed in further detail in Chapter 4.

- **Loni Drive Sewer Interceptor** – Sewer main capacity improvements in between Loni Drive and the Mill Site.
- **Newburg Road and Kenmar Road Highway Interchanges Improvements** – Reconfigure existing interchanges as roundabouts to improve traffic operations and safety and provide for multi-modal access.
- **Newburg Road and South Fortuna Boulevard Intersection Improvements** – Provide improvements required to update traffic signal timing to improve operational performance.
- **Kenmar Road and Ross Hill Road Intersection Improvements** – Unidentified improvements to improve traffic operations.

PRELIMINARY FINANCING PLAN

This Preliminary Financing Plan establishes an initial framework to identify financing needs for the public facilities required to serve the MDSP area. The purpose of the Financing Plan is to:

- Establish the policy framework for financing the required infrastructure improvements.
- Specify the infrastructure improvements to be constructed, reconstructed, or acquired in the development of the MDSP area and the associated costs (when known).
- Identify the preliminary maximum justifiable MDSP Area proportional share cost burden for off-site public improvements necessary for the build-out development of the MDSP area.
- Identify funding sources to pay for the infrastructure improvements.
- Describe fee programs to pay for the infrastructure improvements.

Financing Plan elements must work together to provide the optimal balance of fees and private/public financing so as not to burden undeveloped land while also assuring that necessary facilities are constructed when needed. The goals of the Financing Plan are to:

- Fully fund all facility and infrastructure improvements when the improvements are needed to serve the project.

- Use existing fee programs to the extent possible and identify new fee programs that may be required.
- Make maximum use of "pay-as-you-go" mechanisms.
- Make appropriate use of grant funding or other appropriate state or federal programs to support infrastructure development, private (developer) financing, existing fee programs, new fee programs, and reimbursement agreements to fund improvements when needed.

The initial step to identify funding requirements for offsite infrastructure projects is to identify the improvement costs and the proportional share of impact specific to the development associated with the MDSP area. The offsite improvements, planning level costs (where available), and proportional share calculations are summarized in the table below.

Summary of Offsite Improvements, Costs, and Development Proportional Share (cost estimates shown in 2024 dollars)

Offsite Improvement	Estimate of Total Cost	Proportional Share	
		Non-MDSP Area Proportional Share	MDSP Area Proportional Share
Sewer Capacity Increase Project for Loni Drive Interceptor	\$2,037,000	83%	17%
Transportation Infrastructure			
Kenmar Road & US 101 Interchange Improvements (Roundabouts)	\$22,000,000	65%	35%
12 th Street, Newburg Road, and Dinsmore Drive Interchanges with US 101 (Roundabouts)	\$25,000,000	88%	12%
South Fortuna Boulevard and Newburg Road Intersection (Signal Timing Improvements)	TBD	84%	16%
South Fortuna Boulevard, Kenmar Road, and Ross Hill Road Intersection Improvements (Project Unknown)	TBD	68%	32%

The proportional share as presented in the table above is separated into two categories. The first is the Non-MDSP Area share, which includes the proportion of the impact that is a result of current capacity issues, or future impact generation associated with development/growth in Fortuna outside of the MDSP area. The second is the MDSP Area share, which includes the proportion of impact specific to the development/growth specifically within this area. Proportional development share calculations were performed as part of the technical memorandums developed for the transportation and utilities Chapter, and further information can be found in Appendix D, Utility and Infrastructure Conceptual

Design Technical Memorandum, and Appendix E, Fortuna Mill District Specific Traffic Impact Analysis Technical Memorandum.

It should be noted that the proportional share methodology was based on the impact assumptions used in the analysis (ie. traffic trip generation numbers, sewer flow increases), and that project-specific impacts (and therefore their proportional share) may differ from the analysis summarized above. Future work may be required to appropriately assess the impacts of any specific project. Additionally, these impacts and their resulting proportional share calculations are the result of impact modelling, and in some cases result in a development impact share that may be beyond the reasonable cost-share capacity that any project or development could finance. In these cases, the City would need to assess these circumstances and determine how much cost share is reasonable to require of any project, which would be a component of any future work to establish a uniform development fee or development agreement (discussed in further detail below).

As shown in the table above, project definitions and costs have been developed for the City's interchange improvement and sewer projects as the City is actively working towards making these improvements. For the two other intersections that would require upgrades, further work would need to be undertaken to understand the specific improvements necessary and their associated costs.

As shown in the table above, the offsite improvement projects required for the build out of the MDSP area have significant costs. Given these costs, and the fact that the cost burden for these projects is a function of existing capacity issues and development across the City, a funding strategy that leverages several funding sources will be required. The following is a list of potential funding sources that could be considered to finance the offsite improvements.

- **Development impact fees:** As discussed above, development within the MDSP area will result in impacts to various public infrastructure across the City. As such, development impact fees could be charged by the City where there is an “essential nexus” and “rough proportionality” between the impact and the fee to fund the identified offsite improvements. The City could elect to establish and adopt these fees based on a study that evaluates specific classes of projects and identifies the anticipated impact to city infrastructure relative thereto (i.e. average daily vehicle trips or sewer flow generation). Conversely, the City could take an Ad-Hoc approach and assess development fees through a negotiated development agreement. In any case, fees would be directly related to the impacts of the development and roughly proportional to the impacts of the project, and uniformly and equitably applied to all projects.
- **Enhanced Infrastructure Financing Districts (EIFD):** An EIFD is a special financing district, a governmental entity comprised of both public and private partners distinct from the entity which establishes it. EIFDs can aid communities in funding a wide and diverse variety of public capital improvement projects and other projects of communitywide significance set forth in state law, by capturing and leveraging property tax increment (PTI) generated within the EIFD area. The EIFD does not impose a new tax. Added improvements gained through EIFD funding supports future development and results in increased property values. This generates increased property tax revenues from the “base year” which can then be leveraged for additional improvements.

Affected taxing entities are not required to contribute their PTI for the EIFD. Participation in the EIFD is voluntary. Each tax sharing entity which elects to join the EIFD has the option to allocate up to 100% of its portion of tax increment to the district. Under the EIFD law, school districts are precluded from participation.

Due to the significant costs of the public infrastructure surrounding the Mill Site, the City of Fortuna is actively working through the lengthy process to assess the feasibility of an EIFD, and other necessary procedural steps to establish an EIFD.

- **Local/Regional Funding:** Local or regional transportation funding is currently being used to advance the interchange improvement projects at Kenmar and 12th Street, and a combination of these funding sources could continue to be used to further advance all of these improvements. Potential funding sources include the State Transportation Improvement Program (STIP), or current/future tax measures. For the sewer capacity improvements, these could be locally funded by City sewer capital reserve funds, which are funded in part by established capital connection fees for new sewer-generating developments.
- **State/Federal Transportation Grant Programs:** Given the cost-magnitude of some of these projects, the City has regularly developed and submitted grant applications through various State/Federal transportation funding program. Programs that the City has applied to include the Reconnecting Community's Program, the Active Transportation Program, and various Federal Highways programs. Obtaining grant funding through one of these programs will likely be key in the successful delivery of the larger infrastructure project.

FINANCING FOR ONSITE IMPROVEMENTS

As noted above, the focus of this section is to highlight options for financing the offsite infrastructure improvements that have been identified as critical for the build out of the MDSP area. For any improvements deemed necessary onsite (i.e. roads, drainage, water, sewer, etc.), any development proposal would need to fund and deliver the improvements required to serve the proposed project. In some cases, it may be necessary for a developer or a development proposal to provide infrastructure at the time of a project that may enable future developments.

A developer who funds the construction of public improvements may be eligible for credit or reimbursement in this scenario. The eligibility criteria within the credit and reimbursement agreement may include, but not be limited to, the following: (i) a developer pays or contributes more than is required to serve their project or mitigate actual impacts from the MDSP; (ii) a developer is required to advance the funding for or otherwise construct public improvements earlier than is required to serve the MDSP; or, (iii) to mitigate actual impacts from the MDSP. Specific terms of credit/reimbursement agreements will be subject to future negotiations between the developer and the City. To the extent credits exceed the amount of applicable fees the developer would pay, the developer may enter into a credit/reimbursement agreement with the City, which would describe the terms of reimbursement to the developer and the ability of the developer to assign the credits to other MDSP area projects.

Another mechanism that may be required to fund infrastructure operation, maintenance, and capital replacement are assessment benefit districts. These districts are typically established for specific onsite improvements that require specific infrastructure for the sole convenience/use by the development. Most common examples of assessment benefit districts for infrastructure include those for sanitary sewer lift stations, drainage and flood control infrastructure, and potable water booster stations. These improvements and their respective assessments would be identified as part of individual development proposals as the onsite infrastructure associated with the MDSP is developed and designed in detail. Assessment benefit districts would be subject to the California Proposition 218 process.

The Great Redwood Trail is an important transportation-related public improvement and will provide a critical regional transportation corridor serving many important purposes, including reducing vehicle miles traveled. The City of Fortuna will consult closely with the Great Redwood Trail Authority and is assuming a significant level of responsibility in the planning and environmental review for the GRT as it passes through the MDSP area and the City of Fortuna. The City will also seek funding to support the construction of the GRT, similar to City planning efforts relating to the interchanges. The City will partner with the Great Redwood Trail Authority to build the GRT as a “Community Gateway” within the Mill District, the largest GRT trailhead type, to bring GRT users closer to amenities and promote economic vitality for local businesses.

INFRASTRUCTURE FINANCING PERFORMANCE STANDARDS

The following performance standards are proposed as part of the MDSP for future advancement of infrastructure funding:

- P-34: All development within the MDSP area, new and existing, regardless of private or public ownership, shall be subject to the payment of applicable fees, assessments, special taxes, and any other charges in accordance with any subsequent infrastructure financing plan or impact fee adopted by the City Council for the MDSP, including any authorized adjustments thereto as provided within such infrastructure financing plan, and any other fees adopted by the City in accordance with the requirements of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7 of the Government Code, or pursuant to any other enabling law. Such infrastructure financing plan may include but is not limited to roadway, transit, water supply, sanitary sewer, drainage, fire protection, landscape and lighting facilities, and utilities.
- P-35: No subsequent entitlements including but not limited to rezones, tentative subdivision maps, use permits and variances; or building permits shall be approved for the MDSP area unless one of the following has occurred:
- A MDSP area infrastructure financing plan has been adopted by the City Council and the resulting financing mechanism has been implemented; or
 - Prior to issuance of any building permit, an agreement, in a form acceptable to the City of Fortuna, shall be executed which obligates the owner, lessor or lessee to:
 - Contribute a cash amount, determined by the City Manager, to the Financing Plan to finance the cost of infrastructure improvements, apportioned to the individual project; and

- Contribute to the Financing Plan annually a cash amount determined by the City Manager for maintenance, apportioned to the individual project, in the MDSP area.
- No entitlement (tentative maps, conditional use permits, building permits or other entitlements) shall be granted for development which results in a cumulative wastewater flow exceeding the capacity of the Loni Drive sewer interceptor, until the Public Works Director determines that improvements to that facility have been constructed and are available, adequate, and reliable to serve buildout of the Mill District Specific Plan and the surrounding region.

CHAPTER 6: IMPLEMENTATION AND RELATIONSHIP TO OTHER DOCUMENTS

Property owners seeking to undertake development projects will need to consult, in addition to the MDSP, the following documents:

- City of Fortuna General Plan, 2030
- Title 17 of the City Code, Zoning Regulations
- MDSP Design Guidelines; and
- MDSP Finance Plan.

The following is a summary of the actions and supporting documents that have been approved or will be approved at the time of the MDSP's adoption.

CITY OF FORTUNA GENERAL PLAN, 2030

State law requires each city and county to prepare and adopt a comprehensive and long-range general plan for its physical development (California Government Code Section 65300). A comprehensive general plan provides a jurisdiction with a consistent framework for land use decision-making. The general plan is sometimes called the “constitution” for land use development to emphasize its importance to land use decisions. The general plan and its maps, diagrams, and development policies form the basis for the city’s zoning, subdivision, and public works actions. Under California law, no specific plan, area plan, community plan, zoning, subdivision map, nor public works project may be approved unless the City finds that it is consistent with the adopted general plan.

The City’s General Plan sets forth the policy for land use and development throughout Fortuna. MDSP zoning, development standards, design guidelines, and goals and policies must be consistent with the General Plan. As noted in the land use chapter of this document, the City’s General Plan establishes the MDSP area as a key opportunity area and employment center.

The MDSP has been prepared in accordance with goals, policies and diagrams of the City of Fortuna General Plan. The General Plan contains the Mill District (MD) Land Use Designation which is applied only within the MDSP area. In addition, Goal LU-14, Focus Area: Mill District, contains a number of policies that were crafted by the City only for, and applicable to the MDSP area. These Mill District-specific policies have been refined through the MDSP planning process. The MDSP has been drafted to be consistent with these and other General Plan policies such as those relating to land use, community design, circulation, natural resources, and economic development. A policy by policy analysis of General Plan consistency was conducted as part of the MDSP approval process.

CITY OF FORTUNA ZONING REGULATIONS

The City of Fortuna Zoning Regulations, Title 17 of the City of Fortuna Municipal Code, govern development and land uses within the City. Certain Zoning Districts that are enumerated in the Zoning

Regulations are applied within the MDSP area, including Commercial Thoroughfare (C-T); Light industrial (M-1); and Multifamily Residential (R-M). A Q-zone has been applied to portions of the MDSP where Light Industrial (M-1) / Commercial Thoroughfare (C-T) or Freeway Commercial (FC) zoning has been applied separately or together. The Q-zone almost exclusively governs the principally and conditionally permitted uses as well as related development and performance standards and regulations including but not limited to building design, height, setbacks, residential density, Floor Area Ratio (FAR) parking, and landscaping. The R-M Zone, and other Zoning Code and MDSP regulations will apply to areas intended primarily for residential uses.

OTHER PLANS

The following plans, studies, and codes will continue to guide the design and development of each respective study area. The relevant plans, studies, and codes are listed and summarized in further detail as follows.

- City Fortuna Drainage Master Plan, 2005
- John Campbell Memorial Greenway and Strongs Creek Trail Final Master Plan, 2014
- U.S. 101 12th Street and Kenmar Road Interchange Roundabout Project Planning
- Master Plan for the Great Redwood Trail

City of Fortuna Drainage Master Plan, 2005

Storm drainage is an important issue in the MDSP area, given portions of the area are within the 100-year flood plain and flood way. The City prepared a drainage analysis and Floodplain Encroachment Analysis for the Fortuna Mill Commerce Center conceptual plan, consistent with the City Fortuna Drainage Master Plan, 2005, to ensure that there would be no significant drainage impacts.

John Campbell Memorial Greenway and Strongs Creek Trail Final Master Plan, 2014

The City adopted the John Campbell Memorial Greenway and Strongs Creek Trail Final Master Plan in 2014. This plan defines a linear park along the bank of Strongs Creek including a paved pedestrian and bicycle route through the City between Highway 101 and Rohnerville Road. The Strongs Creek Trail passes through the MDSP area is an important component of the MDSP planning process. Its construction is intended to occur as part of the MDSP implementation.

U.S. 101 12th Street and Kenmar Road Interchange Roundabout Project Planning

The City of Fortuna has received funding through the Humboldt County Association of Governments to plan and design the U.S. 101 12th Street and Kenmar Road Interchanges. These interchanges are identified as improvements in the Fortuna General Plan 2030 Transportation & Circulation Element and are included as mitigations in the General Plan Program EIR. The City prepared a Mitigated Negative Declaration for the Kenmar Road Interchange (State Clearing House No. 2022120278) and prepared a Notice of Completion on December 12, 2022. The City is in the process of preparing preliminary designs and will conduct an environmental review for the 12th Street Interchange. The MDSP and Fortuna Mill Commerce Center conceptual designs have been prepared in a manner consistent with the needs and designs of these projects and City staff is consulting closely with Caltrans regarding potential project-related encroachments near these interchanges.

Master Plan for the Great Redwood Trail

The Great Redwood Trail Agency (GRTA) proposes to adopt a Master Plan for a 231-mile, multi-use trail from the Mendocino County/Sonoma County line north to Humboldt County on former North Coast Railroad Authority (NCRA) right-of-way and adjacent public lands that will be a roadmap for planning, constructing, and managing the future Great Redwood Trail. The master plan will serve as a guiding document to address issues including but not limited to trail user experience, trail design, operations and maintenance, habitat restoration, project priorities, funding, and management of the trail. The master plan covers Mendocino, Trinity, and Humboldt counties. The GRTA prepared a program environmental impact report that was completed on April 1, 2024 (SCH # 2024050030). The MDSP and Fortuna Mill Commerce Center conceptual designs have been prepared in a manner consistent with the designs of the GRT, and City staff is consulting closely with GRTA regarding trail connections, trailheads, and community gateway improvements associated with the GRT.

Appendix A:

MDSP Design Guidelines

MILL DISTRICT SPECIFIC PLAN DESIGN GUIDELINES

Preamble

- I. All permits for industrial or commercial buildings shall undergo discretionary design review by the City of Fortuna to demonstrate their conformance with the Mill District Specific Plan Design Guidelines.
- II. The provisions of California Government Code Title 7, Division 1, Chapter 2.8, Warehouse Design and Build Standards, are immediately applicable to applicable new development (e.g., warehouse, logistics, and distribution related uses as defined in Chapter 2.8) in the Mill District Specific Plan Area upon approval of the Mill District Specific Plan and prior to January 1, 2026, unless repealed by the Legislature. Where there is a conflict between the Warehouse Design and Build Standards and the Mill District Specific Plan Design Guidelines, the most restrictive provisions shall apply.
- III. The permit authority for Mill District Specific Plan Design Review shall be the Planning Commission, unless otherwise delegated in the Mill District Specific Plan to the Zoning Administrator, or another review body.
- IV. Permits for residential and mixed-use buildings shall conform to City-wide objective design standards for mixed-use and multi-family residential development.

SITE LAYOUT STANDARDS

Setbacks, Access, & Circulation

- 1a. The number of site access points should be limited and located as far as possible from street intersections to minimize points of potential conflict, especially between pedestrians, automobiles, and trucks. Control site access with appropriate maneuvering areas for trucks separated from general vehicle and pedestrian circulation.
- 1b. Site access and internal vehicle circulation should promote safety, efficiency, and convenience and minimize conflict between large trucks and other vehicles. Appropriate maneuvering and stacking areas for trucks at industrial sites should be a primary consideration in the overall design of the circulation system.
- 1c. Provide a minimum 20-foot landscaped area along the frontage and a minimum six-foot-wide landscape buffer along side streets and property lines. These requirements may require expansion where the development is adjacent to residential uses or to achieve compatibility with Residential Development Program LU-5 or noise standards. Landscape areas may include vegetation, mounding, and low walls. Storage yards, loading areas, parking, or similar uses are not considered landscape areas.
- 1d. All designated walkways shall provide safe, comfortable, convenient, and well-defined access between parking areas, public sidewalks, and the primary public access to the building. Pedestrian circulation should be delineated and separate from vehicle circulation. Landscaping, walkways, and decorative paving should be utilized to delineate pedestrian circulation to the greatest extent feasible.

- 1e. Provide attractive and inviting pedestrian scale features, spaces, and amenities wherever feasible. Configure entrances and parking lots to be functional and inviting with walkways, conveniently tied to logical destinations. Consider bus stops and drop-off /pick-up points as integral parts of the configuration.
- 1f. In areas where high pedestrian traffic is anticipated, anchor walkways with special design features such as arcades, porticos, pedestrian light fixtures, bollards, decorative paving, planters, water features, public art, and other architectural elements that define circulation corridors and outdoor spaces wherever possible. Examples of outdoor spaces are plazas, patios, courtyards, and window shopping areas.
- 1g. Provide continuous internal pedestrian walkways from the public sidewalk or right-of-way to the customer entrances of all buildings on the site and between customer entrances on the site. Provide direct connections between customer entrances and transit stops and street crossings. Locate walkways to promote walking between stores rather than driving.
- 1h. Provide a pedestrian path of travel from transit stops to adjacent building entries.
- 1i. Parking lot trees shall be provided in all parking lots except where said plantings would interfere with necessary large truck or other heavy equipment maneuvering. Trees shall be planted at a ratio of one tree per eight parking spaces. Trees shall be planted in a tree well measuring at least four feet by four feet, provided with a means of irrigation, if necessary, and maintained in healthy condition.

Building Form & Massing

- 2a. The architectural design of a structure will consider many variables such as sustainability, aesthetics, functionality, comfort, future-proofing, and integration with existing development. The following guidelines help buildings achieve the appropriate level of design detail on all facades, avoid blank/uninteresting facades, and provide for the proper screening of equipment and refuse areas.
- 2b. Soften the mass and scale of large, box-like buildings through the use of varying building materials, paint colors or schemes, building heights and geometries, roofline, wall articulation, subtraction, fenestration, introduction of Juliet balconies or greenwalls, or other architectural treatments.
- 2c. Front and entry facades of large buildings should include architectural features such as arcades, reveals, windows and openings, and changes in color, texture, and material to add differentiation to the building elevation and reduce its visual mass.
- 2d. Site programming, design, and layout should ensure that spaces are functional, sustainable, and aesthetically pleasing. Site elements should be arranged to emphasize the more aesthetically pleasing components of the site (e.g., landscaping, well-designed buildings, and other architectural features) and understate less attractive elements (e.g., loading bays, parking, service facilities, outside storage, equipment areas, and refuse enclosures).

- 2e. Incorporate loading docks, truck parking, outdoor storage, utility meters, backflow devices, HVAC equipment, trash collection, trash compaction, and other service functions and noise generating functions into the overall site design, building, and landscaping so that the visual and acoustic impacts of these functions are minimized and where possible, out of view from adjacent properties and public streets. Furthermore, using different or inferior screening materials than the principal materials of the building and landscape are prohibited. Noise generating uses and activities should be located as far as possible from adjacent properties, especially residential uses. Sound attenuation walls are acceptable where necessary to mitigate/reduce noise.
- 2f. Each phase of a phased development should attain visual completeness. Temporary barriers/walls should be painted and trimmed to integrate with the permanent construction.

Elevations and Building Material & Facade Elements

- 3a. Building materials may include one or more of the following types: metal, stone, concrete, brick, concrete masonry block, wood, and other materials acceptable for commercial and industrial buildings. Residential and mixed uses may also include horizontal siding, board and batten style, vertical wood siding, and wood shingles. Combining these materials is encouraged.
 - 3.a.1. If metal buildings are used, at least one of the following design approaches should be employed: low-pitch roofs should be hidden behind a parapet, roof pitch should be increased to a minimum of 3:12, and overhangs should be increased commensurate with the scale of the building (+/- 3-4' overhangs), and/or include features such as offsets in the wall planes, recessed entry areas, metal canopies, several colors, accent color bands, high clerestory windows, multiple siding profiles.
- 3b. A comprehensive building material and color scheme and sign and landscape plan should be developed for multi-building sites. Material and color variations should be complementary and compatible among buildings.
- 3c. Primary building entries should be readily identifiable and well-defined through illumination, fenestration, projections, recesses, columns, roof structures, or other design elements. Use building entries to protect patrons from the elements and create a "sense of entry" or focal point.
- 3d. Large expanses of smooth material (e.g., concrete) should be avoided by combining features such as window designs, window trim, trellis features, wall articulation, arcades, wall light, changes in materials, colors, or other features.
- 3e. The design and location of loading areas and dock facilities should minimize the interaction between trucks and visitors' automobiles.
- 3f. Fencing, sound walls, trash and recycling enclosures, service areas, fuel tanks, generators, fire check safety valves, and similar accessory site elements shall be located out of public view when possible and compatible with the architecture and landscaping of main buildings.
- 3g. Screen all rooftop equipment. If the roof structure does not provide this screening, include an equipment screen in the design. The screen should be architecturally compatible with the building.

- 3h. The City encourages new development along major corridors. Exterior elevations that are highly visible from U.S. 101, Newburg Road, Fortuna Boulevard, and Kenmar Road shall avoid long void surfaces. This can be accomplished through varying setbacks, breaking buildings into segments, pitched roof elements, columns, indentations, and patios, and incorporating landscaping into architectural design.

On-Site Circulation & Parking

- 4a. Control site access with appropriate maneuvering areas for trucks separated from general vehicle circulation. The design and location of loading areas and dock facilities should minimize the interaction between trucks and visitors' automobiles. They shall consider noise levels for existing and planned adjacent residential areas.
- 4b. Primary entry drives for automobiles, especially visitors, should be enhanced with ornamental landscaping, low-level decorative walls, monument-type signs, and decorative paving to emphasize site access locations.
- 4c. The design and location of loading facilities shall accommodate maneuvering large trucks and trailers into and out of loading position at docks, stalls, and driveways.
- 4d. Convenient public access and short-term visitor parking should be provided near the main entrances.
- 4e. Where feasible, Employee parking and service areas should be located at the rear or sides of buildings.
- 4f. Visitor parking spaces should be located to produce the shortest travel route from a building.

Screening, Fences, and Walls

- 5a. Walls shall only be required to mitigate excessive outdoor noise or nuisance or for security purposes. Normal commercial or industrial activities such as vehicular parking and trucking are not considered excessive or nuisance in nature, where and when such activities are consistent with the policies and programs of Health and Safety Element Goal HS-4, Noise, relating to limiting excessive noise, noise source isolation, and stationary source noise measures described in HS-9.
- 5b. Where applicable, and when consistent with Site Access 1c, the street fronting wall and/or fencing materials shall be from the following list of materials:
- Native stone
 - Concrete masonry with cement plaster finish
 - Cement plaster over framing
 - Wrought iron or other architectural metal
 - Wood
- 5c. Chain link or open wire fencing materials proposed for interior business park use shall only be installed where screened by landscaping.

Plant Selection Guide and Landscape Manual

- 6a. Landscape design should follow an overall concept and link various site components.
- 6b. When industrial/warehouse uses are located adjacent to less intense uses (e.g., residential or retail commercial), additional landscaping should be provided to mitigate potential adverse impacts (see Site Access 1c On Site Circulation & Parking 4a, and Fences and Walls 5a)
- 6c. The front public portions of buildings should be separated from parking areas by landscaping and pedestrian walkways.
- 6d. More intense landscaping and unique landscape features should be provided at major focal points, such as entryways and pedestrian gathering areas.

Perimeter & Parking Lot Landscaping

- 7a. Parcels adjacent to existing or proposed residential areas shall provide buffers as a means to reduce trespassing, glare, or other annoyances through methods such as landscaping and setbacks and to reduce noise levels for proposed residential uses within the City's 60 dB Ldn exterior noise standards. A screening device shall be required along all interior property lines from all off-street parking spaces abutting a residential use:
 - Not less than six feet in height, as measured from the top of the existing adjacent street, curb, or, where no curb exists, as measured from the average cross-section elevation of the street.
 - The height shall be between two and one-half and three and one-half feet on the side property line for 20 feet as measured from the street right-of-way.
 - The screening shall consist of a wall or grill constructed of solid fencing material or dense landscaping.
- 7b. Storage yards and service areas are screened from public view by plantings along or in combination with walls or fences.
- 7c. Landscape buffers shall adequately separate parking areas next to trucking or other non-auto parking areas.
- 7d. Parking lots shall include tree plantings (at least one for every eight spaces) to reduce visual impacts and solar radiation. Tree(s) shall be at least five-gallon sized, planted in tree wells measuring at least four feet by four feet, provided with a means of irrigation if necessary, and maintained in a healthy living condition.
- 7e. Large parking areas (usually over 100 spaces) should be divided into smaller multiple lots and provided with canopy trees throughout the parking area to reduce the visual impacts of large parking areas.

General Design Criteria

- 8a. The design and location of outdoor lighting fixtures should preclude direct glare onto adjoining property and streets. Illumination devices should be installed, directed, and shielded to confine light rays within the property. Exterior lighting should be designed to use the lowest intensity lamp/wattage for security and safety purposes and be shielded and directed downward so there is no direct illumination of adjacent properties.
- 8b. Outdoor lighting should be designed to foster security. Site and building entries should have enhanced illumination to increase visibility and safety. Continuous all-night lighting shall be prohibited except intended exclusively for security purposes.
- 8c. Select different luminaries with a coordinated appearance to light pedestrian pathways, building and site entrances, and other relevant site features.
- 8d. Lighting appropriately scaled to its purpose shall be used, and over-lighting shall be avoided.
- 8e. Lighting should be directed downward to avoid light overspill, ensure compatibility with adjacent uses, streets, and open spaces, and reduce light emissions into the nighttime sky.
- 8f. Provide pedestrian-scaled lighting, such as bollards or lower-scale pole fixtures along pedestrian routes.

Signs

- 9a. 17.05.180 Signs standards are applicable, and Section 17.05.180 (E), Exceptions, shall be broadly interpreted to achieve the objectives and policies of the MDSP until MDSP-specific sign standards are adopted.

Appendix B:

Draft Mill District "Q" Qualifying Zone

(a) Land Use Permit Requirements

Use Types	Permit Type	
	Pond Street, Central, Strong's Creek, and Mill Creek Area	Creek Riparian and Trails Area
Retail Sales		
General retail sales and services	P	NA
Building Materials Stores and Yards	UP	NA
Shopping center	UP	NA
Automobile, Truck, RV, and Agricultural Vehicle and Equipment Sales	P	NA
Retail Services		
Restaurant	P	NA
Restaurant, Drive Thru	UP	NA
Micro-brewery, winery, distillery	P	NA
Food truck	P	NA
General automotive services	P	NA
Food production (coffee roasting, bakery, butcher)	P	NA
Veterinary facilities	P	NA
Automobile, Truck, RV, and Agricultural Vehicles and Equipment Service	UP	NA
Professional Services		
Office	P	NA
Financial services	P	NA
Medical, dental and related services	P	NA
Industrial		
Artisan's workshop or handicraft manufacture	P	NA
Contractors' shops and yards	P	NA
Manufacturing, small scale	UP	NA
Manufacturing, minor Light	UP	NA
Manufacturing, Heavy	UP	NA
Petroleum Product Storage and Distribution	UP	NA
Research/Light Industrial	UP	NA
Wholesaling and distribution	UP	NA
Storage, Yards	UP	NA
Storage, Internal Warehouse	UP	NA
Storage, personal storage facility	UP	NA

	Permit Type	
	Pond Street, Central, Strong's Creek, and Mill Creek Area	Creek Riparian and Trails Area
Use Types		
Lodging		
Hotels and inns	UP	NA
Motel	UP	NA
Recreational Vehicle Park	NA	NA
Residential		
Multiple dwelling units (up to five)	P	NA
Mixed-use with residential on upper floors or located behind commercial buildings	P	NA
Work/live format (i.e., residence above or behind a studio or shop space)	P	NA
Guest House (not associated with primary use)	NA	NA
Child care facilities	Note 1	NA
Community care facilities	Note 1	NA
Family Day Care	Note 1 or UP if not State regulated	NA
Senior Housing Complex	UP	NA
Manufactured home parks	NA	NA
Emergency Shelters	NA	NA
Caretakers Residence	P	NA
Home Occupations	P	NA
Bed and Breakfast as accessory use	P	NA
Open Space Use Types		
Wetland Restoration	UP	UP
Fish and wildlife management	UP	UP
Watershed Management	UP	UP
Nature study	P	P
Trails	UP	UP
Park Use Types		
Public Recreation	UP	UP
Farmers/Seasonal Market	UP	NA
Multi-Use Plaza Areas	UP	NA
Amphitheaters	UP	NA
Neighborhood or Regional Park	UP	UP
Civic Use Types		
Offices, Government	P	NA

Use Types	Permit Type	
	Pond Street, Central, Strongs Creek, and Mill Creek Area	Creek Riparian and Trails Area
Civic buildings	P	NA
Community Assembly	UP	NA
Public art galleries	P	NA
Incidental public service purposes	P	UP
Essential Services	UP	NA
Transit Centers	UP	NA
Community Scale Renewable Energy Generation and Distribution Facilities	UP	NA

Notes: P = Permitted, UP = Use Permit, NA = Not Allowed.

All Permitted uses also require staff-level Zoning Clearance Review to ensure consistency with the MDSP and require additional entitlements approved by the appropriate review authority, such as Design Review.

1. Consistent with State Requirements

(b) Development Standards

Standard	Pond Street, Central, Strongs Creek, and Mill Creek Area	Creek Riparian and Trails Area
Minimum Lot Size	5,000	None
Minimum Lot Width	60	None
Maximum Lot Coverage	None except 60% for industrial uses	None
Floor Area Ratio	Nonresidential floor area ratio shall not exceed 0.8, except that the floor area ratio for mixed use shall not exceed 2.0	Not applicable
Maximum Building Height for industrial uses <200 feet of the boundary of any R district	Within 200 feet of the boundary of any R district, no building or structure shall exceed the maximum height permitted in such adjoining R district	Not applicable
Maximum Building Height > 200 feet from the boundary of any R district	48	Not applicable
Setbacks		
Front	None	None
Side	None, except when abutting an R district, then not less than 15 ft.	None

Standard	Pond Street, Central, Strongs Creek, and Mill Creek Area	Creek Riparian and Trails Area
Rear	10 feet except when abutting an R district, then at least 20 feet. Exceptions may be granted through a use permit.	None

(c) Other Standards

Other Standard	Pond Street, Central, Strongs Creek and Mill Creek Area	Creek Riparian and Trails Area
Building, buffer, and landscape design guidelines of the Mill District Specific Plan	See: Mill District Specific Plan	See: Mill District Specific Plan
Driveways	Each lot shall be allowed a maximum of two driveways unless more are permitted under design review	Not applicable
Signs	See: Mill District Specific Plan	See: Mill District Specific Plan
Indoor/outdoor activities	See: Mill District Specific Plan	Only outdoor activities related to allowed uses
Off-street Parking	17.05.140 Off-street parking and loading standards are applicable, and Section 17.05.140(N), Modification of Requirements, shall be broadly interpreted to achieve the objectives and policies of the MDSP until MDSP-specific off-street parking standards are adopted.	Not applicable

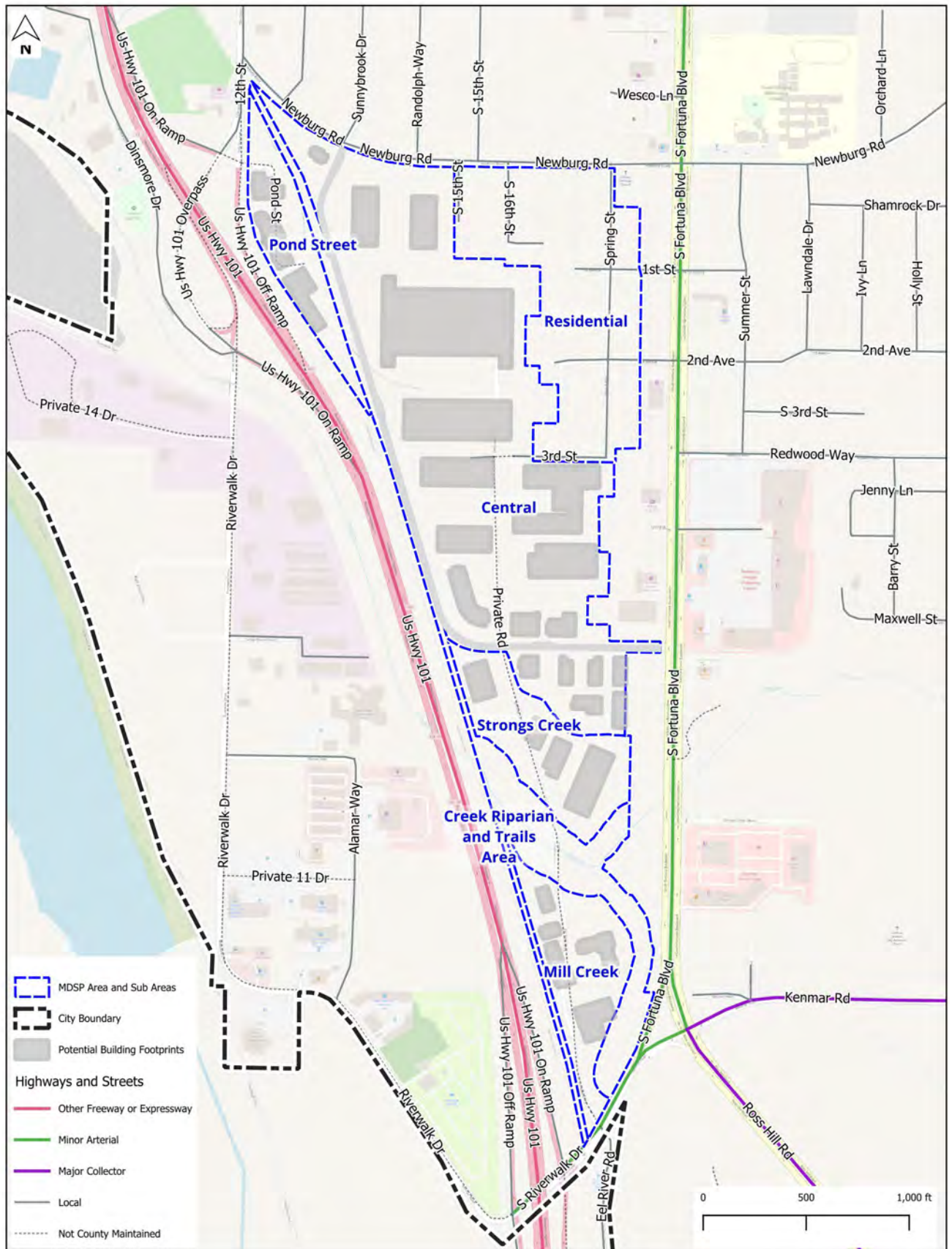
SECTION 5. PROPERTY DESCRIPTION:

Exhibit A of this ordinance identifies the areas to be rezoned.

SECTION 6. EFFECTIVE DATE:

This ordinance shall take effect and be in full force thirty (30) days from adoption. A summary shall be published at least five (5) days before the date of adoption and again fifteen days after the passage of this ordinance. It shall be published at least once with the names of the City Council Members voting for and against the ordinance in a newspaper of general circulation published in the County of Humboldt, State of California.

Q-Zone Exhibit "A" MDSP Areas Subject to MDSP Q-Qualified Zone



Appendix C:

Utility and Infrastructure Technical Memo

Technical Memorandum



August 28, 2024

8/28/2024

To	Brendan Byrd PE (City of Fortuna)	Contact No.	707.267.2275
Copy to	Vanessa Blodgett (PlanWest Partners)	Email	Brett.vivyan@ghd.com
From	Brett Vivyan PE	Project No.	11230253
Project Name	PWP Fortuna Mill District Specific		
Subject	Utility and Infrastructure Conceptual Design		

Introduction

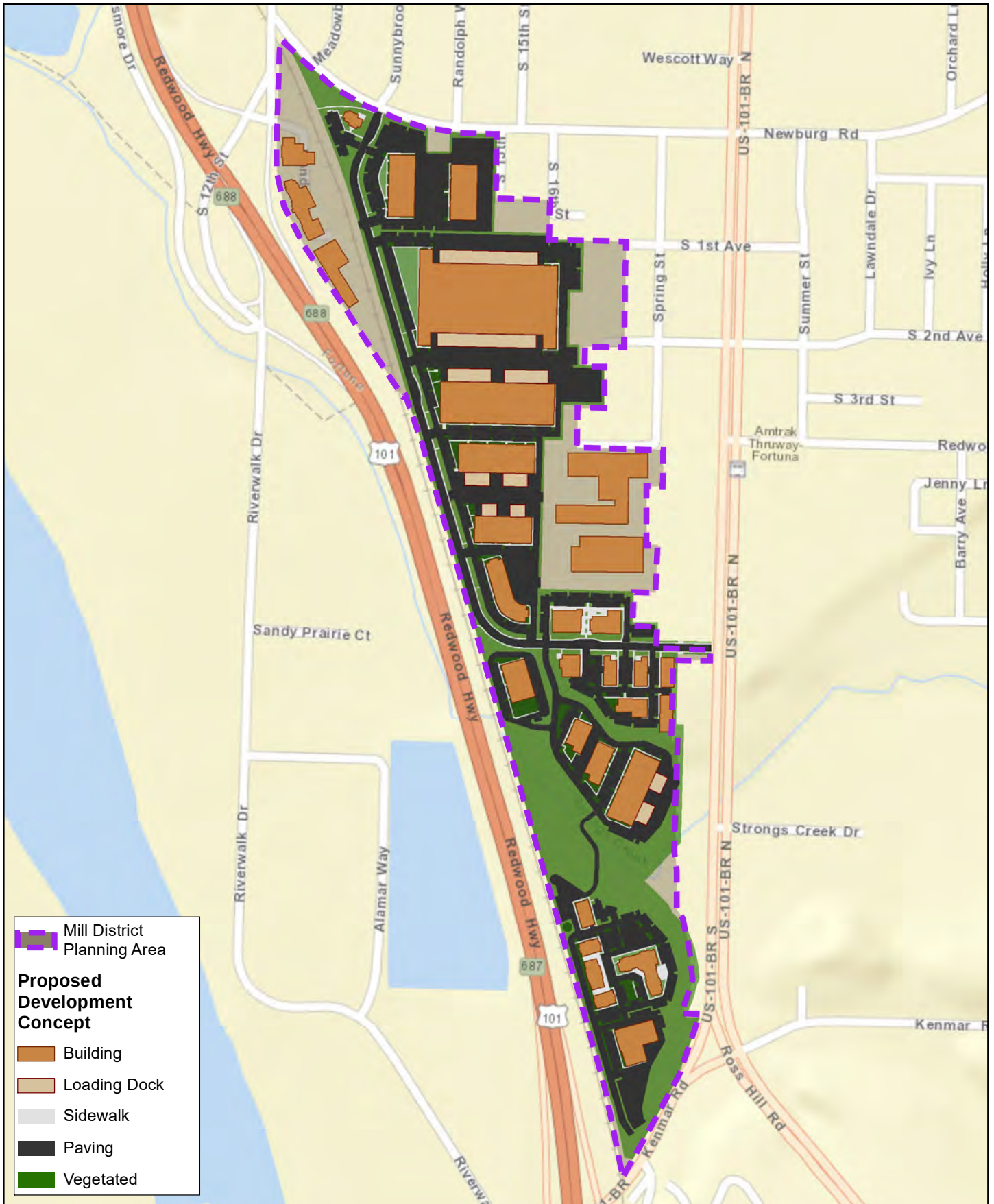
The City of Fortuna (City) is evaluating the redevelopment of the Mill District and has developed a conceptual layout of site development primarily consisting of light industrial and commercial uses (Figure 1).

Redevelopment of the site will require utility infrastructure consisting of new, replacement and or relocation of potable water, sewer, stormwater, electrical, gas, and communications facilities meeting City, County, State and Federal standards. The follow technical memorandum provides an analysis and conceptual layout of feasible facilities to support the evaluation of the redevelopment of the Mill District for the City's Mill District Specific Plan.

Purpose of this Memorandum

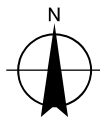
The purpose of this Memorandum is to provide analyses of conceptual utility and infrastructure layouts for the purpose of evaluating redevelopment of the Mill District for the Mill District Specific Plan. Conceptual design of infrastructure includes water, sewer and drainage.

This Technical Memorandum is provided as an interim output under our agreement with Planwest Partners, Inc.. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.



Paper Size ANSI A
0 150 300 450 600
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD83 California zone 1 ftUS



City of Fortuna
Mill District Specific Plan

Conceptual
Site Layout

Project No. 11230253
Revision No. 0
Date August 2024

FIGURE 1

Water Infrastructure

Overview

Conceptual water distribution design includes an evaluation of the existing distribution systems' ability to meet projected use of the Mill District and achieve minimum design requirements, as identified in the City of Fortuna Standard Details (City of Fortuna, 2018).

Water Supply Systems Design Standards

Relevant City sewer design standards included in the development of the conceptual water system layout are as follows:

1. Distribution System and Layout
 - 1.1. The Distribution System shall be:
 - 1.1.1. Within the road right-of-way of city streets except where easements are necessary to provide a circulating system, and
 - 1.1.2. In grid form, wherever possible.
 - 1.2. The distribution system shall be equipped with a sufficient number of valves so that no single valve shutdown will result in removing from service:
 - 1.2.1. A transmission main, or
 - 1.2.2. A length of pipe greater than five hundred (500') feet, or
 - 1.2.3. More than two fire hydrants.
 - 1.3. All mainline tees shall have three gate valves, one on each branch.
2. Water main pipeline sizing:
 - 2.1. Minimum diameter – six (6) inches
 - 2.2. Distribution system sizing shall be that which provides for:
 - 2.2.1. Full fire requirements of the American Insurance Association (not less than 1,500 gallons per minute for a five-hour duration), and
 - 2.2.2. The domestic requirements for peak summer flows
3. Fire hydrants:
 - 3.1. Hydrants required at all street intersections (located to minimize risk of damage by traffic)
 - 3.2. Hydrant spacing (measured along street frontage):
 - 3.2.1. Residential areas - five hundred (500') feet
 - 3.2.2. Commercial areas - three hundred (300') feet
 - 3.3. Number of hydrants on a main between intersecting lines:
 - 3.3.1. 6-inch main: no more than one
 - 3.3.2. 8-inch main: no more than two

Assumptions

The performance of this analysis makes the following assumptions:

- The EPANET Model was provided by the City and is assumed to be accurate and calibrated. No additional verification of the City model was performed
- It was assumed that fire suppression would be for only one fire at a time.
- The fire demands were provided by the developer and it is assumed that these values are appropriate for the proposed development.

- In the case of a fire, all City groundwater pump stations would produce at the maximum production rate.
- In the case of a fire, all reservoirs would have sufficient water stored to meet the fire suppression water demand volume.
- Proposed water demand for domestic, commercial, and industrial uses at the site will be significantly less than fire suppression demands.
- Proposed water demand for domestic, commercial, and industrial uses will be determined at later stages of design and water supply volume capacity will be determined at that time. This analysis only focuses on the analysis of the City's water supply system to meet proposed fire suppression demands.

Water Demand

Municipal Water Demand

Municipal water demand includes domestic, public, commercial, and industrial uses. The municipal water demands for the proposed project consist of commercial, industrial and residential users. An analysis of water demands was performed by Humboldt County for the Eel River Basin Groundwater Sustainability Plan (GHD Inc., 2022), which Fortuna resides within. Demands were estimated for public lands, schools, community buildings, motels, restaurants, heavy industry, wood products, miscellaneous commercial, and light industrial parcels. Water use for the parcel is based upon land use zoning, parcel improvements, and parcel size. With commercial and industrial parcels identified, a demand rate based on the equivalent number of dwelling units is applied to each unique parcel. The equivalent dwelling unit values are determined based on the building square footage. The County planning department provided water consumption per day per square foot of building for various types of zoning, as summarized in Table 1. Residential water use from the City's Urban Water Management Plan were used to estimate usage per equivalent dwelling unit (EDU) (City of Fortuna, 2020). The data was provided as Excel files that were exported from the County parcels database.

The proposed project has six building types: hotel, retail, retail flex, commercial services, flex industrial, industrial, residential and Warehouse. The proposed water demands for each building type were estimated multiplying the sum of each building type area by the appropriate building type water demands, from Table 1. Residential use was estimated using EDUs. The results are presented in Table 2. The proposed project water demand was estimated at 64,900 gal/day.

With the City's well field production rate of 1200 gpm, the proposed project water demand could be met within 30 minutes of additional pumping. This is attainable with the City's current water production infrastructure and operation.

Table 1. Municipal Water Demands by Building Type

Description	Assumed Building Category	Water Use (gallons per thousand sq ft per day)
Comm – Motel, Rest, Serv Stn	Lodging	189
Commercial Golf Course	Other	48.9
Commercial Mini-Warehouse	Warehouse and Storage	9.3
Commercial Office	Office	40
Commercial Retail, 2000 and above	Mercantile	34.3
Commercial Retail, to 1999 square feet	Mercantile	34.3
Commercial Warehouse	Warehouse and Storage	9.3
Commercial, Garage	Warehouse and Storage	9.3

Description	Assumed Building Category	Water Use (gallons per thousand sq ft per day)
Commercial, Misc	Other	48.9
Common Area, Commercial	Other	48.9
Full-Service Restaurant	Fast Food or Small Restaurant	68
Heavy Industrial, Wood Product	Other	48.9
Industrial – Light	Other	48.9
Misc Light Industrial	Other	48.9
Public Land, Schools, Non-Taxable Entities	Other	48.9
Public Utilities	Other	48.9
Residential	Single and Multi-Family Equivalent Dwelling Unit (EDU)	181 (gallons per day/EDU)

Table 2. Proposed Project Water Demand

Building Type	Building Area (ft ²)	Water Use (gal/thousand ft ² /day)	Water Demand (gal/day)
Hotel	116,000	189	21,924
Retail	94,900	34.3	3,255
Retail Flex	43,200	34.3	1,482
Commercial Services	33,000	40	1,320
Flex Industrial	88,500	48.9	4,328
Industrial	223,900	48.9	10,949
Residential	100 EDUs	181 (gal/EDU/day)	18,100
Warehouse	381,000	9.3	3,543
Proposed Project Total Water Demand			64,900

The City's 2020 Urban Water Management Plan and General Plan 2030 projections estimated and analyzed water use for the Mill District with a greater number of residential dwellings and less commercial and industrial area. Based on the 2020 residential water use of 181 gal/day and estimated commercial water use of 40 gal/thousand ft²/day, the estimated daily water use of the conceptual Mill District layout is less than that of the previously analyzed water demand, shown in Table 3.

Table 3. Estimated Urban Water Management Plan Water Use

Building Type	Quantity	Water Use	Water Demand (gal/day)
Residential Dwelling Units	300 dwelling units	181 gal/day*	54,300
Commercial Services	282,500 ft ²	40 (gal/thousand ft ² /day)	11,300
Estimated Urban Water Management Plan Total Water Demand			65,600

* (City of Fortuna, 2020)

Fire Suppression Demand

Fire suppression water demand is the amount of water required to fight a fire in a building. Fire suppression demand is typically measured in gallons per minute (GPM) and is determined based on a variety of factors

such as the size of the building, the type of building materials, the occupancy level, and the potential hazards. For the analysis of the proposed project the fire suppression water demand was determined by dividing the project site into sub-areas that would be served by a unique portion of the pipe network. The demand for each sub-area was determined based on the largest building in the sub-area. The fire suppression demand for each building is presented in Table 4. The total volume of fire suppression water may be calculated by multiplying the fire flow rate by the required firefighting duration, which is typically one or two hours. Both volumes are presented in Table 4.

Table 4. Fire Suppression Demand.

Sub-Area	Building Type V-B (ft ²)	Fire Flow (gpm)	1 Hour Volume (gal)	2 Hour Volume (gal)
A	33,600	5,000	300,000	600,000
B	212,400	8,000	480,000	960,000
C	39,900	5,500	330,000	660,000
D	29,600	4,750	285,000	570,000

EPANET Modeling

A model of the City's water system was developed using EPANET as a tool for understanding the movement of drinking water within the distribution system. EPANET is a software application, developed by the U.S. EPA Center for Environmental Solutions and Emergency Response, used to model water distribution systems. For this analysis, EPANET Version 2.2, Build 2.2.0. The model may be used to design and size new water infrastructure, retrofit existing aging infrastructure, optimize operations of tanks and pumps, reduce energy usage, investigate water quality problems, and prepare for emergencies. In this analysis, the City's original model is referred to as the Existing model.

The model simulates potable water pumped from wells, storage in water tanks and flow through the distribution system. The model simulates flow through the water distribution system via pipes, referred to as links. The pipes (links) are joined at specific points, referred to as junctions. Valves, air release valves, check valves, pressure reduction valves, reducers, couplers, and pumps are a special type of junctions that have specific flow or head loss features. The water demands throughout the system are assigned at junctions. The model simulates the flow throughout the system and calculates the flow and velocity through each of the pipes (links) and calculates the pressure at each junction. An excerpt of the City's EPANET model showing the proposed project site is presented in Figure 2.

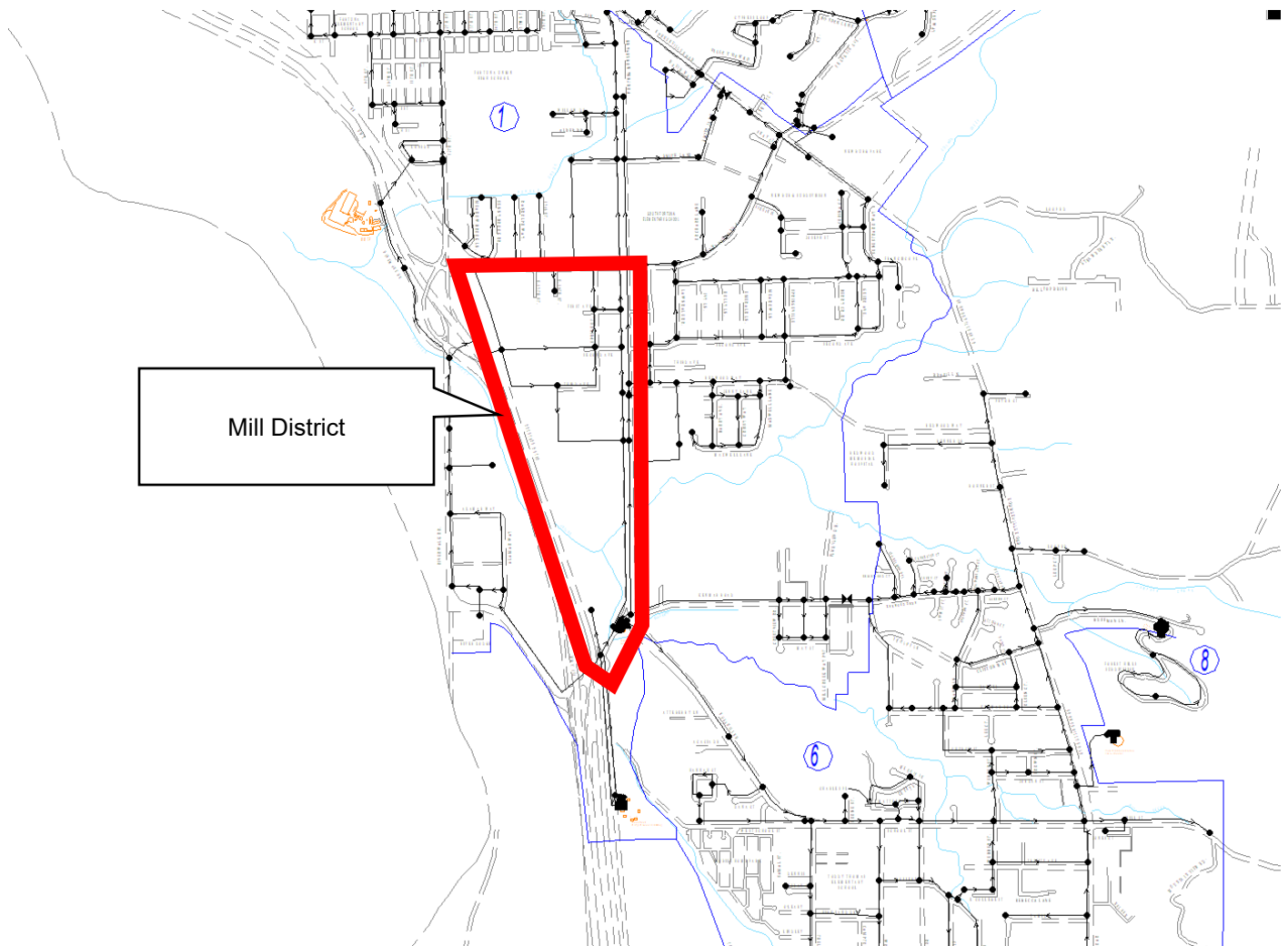


Figure 2 City of Fortuna Existing Condition EPANET Model.

The City's Existing model was assumed to be calibrated and validated. The Existing model was used as the basis for the Base Condition model and Proposed Condition model.

Base Condition

The Base Condition model was developed by first running the Existing model. Flow and water pressure values were calculated for all pipes and junctions. The Existing model was then modified to include the proposed new pipes (links). The new pipe locations are shown in Figure 3, highlighted in yellow. All pipes are 12-inch C-900 PVC pipe. The new pipes were located such that a minimum pipe size of 12-inch would serve each proposed building and would connect to the existing pipe network where a 12-inch pipe existed. This requires installing new pipes and upsizing several existing pipes. No new load or water demands were assigned to the new Junctions for the Base Condition model simulation. The Base Condition model was run to verify that there were no significant changes in pressure or flow between the Existing model and the Base Condition model. The Base Condition model consisted of the following components:

- Number of Junctions: 382
- Number of Reservoirs: 1
- Number of Tanks: 13
- Number of Pipes: 479
- Number of Pumps: 21

- Number of Valves: 7
- Number of Pressure Zones: 8
- Flow Units: GPM
- Headloss Formula: Hazen-Willimas

The Base Condition model was run with existing water demand loads applied to establish base line pressures and flows throughout the water distribution system. California Code of Regulations requires that public water distribution system should be operated in a manner to assure that the minimum operating pressure in the water main at the user service line connection throughout the distribution system is not less than 20 pounds per square inch (psi) at all times (Cal. Code Regs. tit. 22 § 64602). The City typically maintains system water pressure of not less than 30 psi. For this analysis a pressure lower than 30 psi was selected as a low-pressure warning level and pressure lower than 20 psi would result in a failure of the system to meet that demand. The results of the simulation indicated that there were 18 locations that had pressure below 30 psi and 14 locations below 20 psi (Figure 4). Eight of these locations were tanks or reservoirs where pressures are expected to be low. The remaining low-pressure Junctions are summarized in Table 5 and are associated with the suction side of pump stations or reservoirs. There was one exception, Junction J-386, which was located at the top of a hill in the Forest Hills Subdivision.

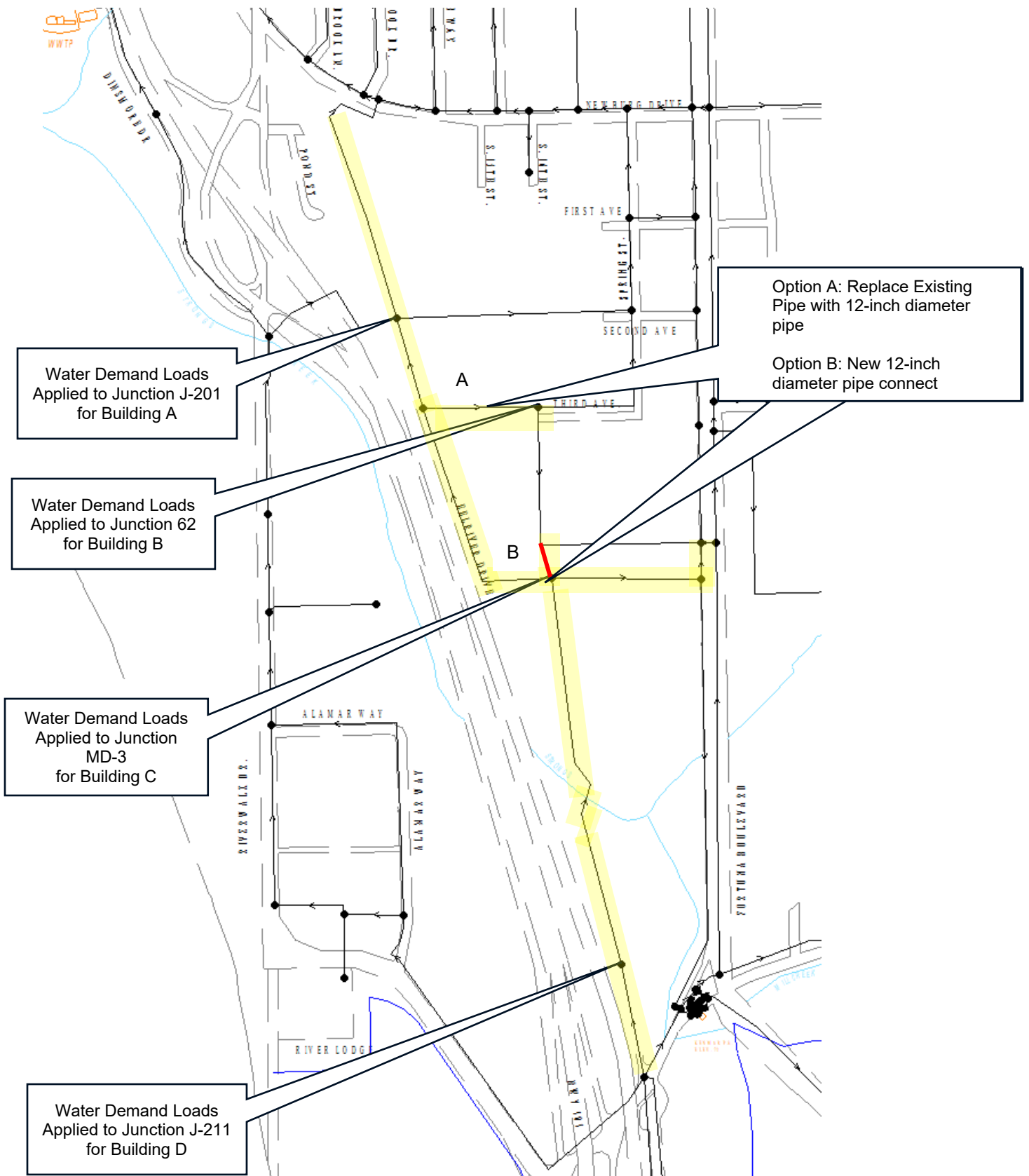


Figure 3 Base Condition EPANET Model with Proposed New Pipes

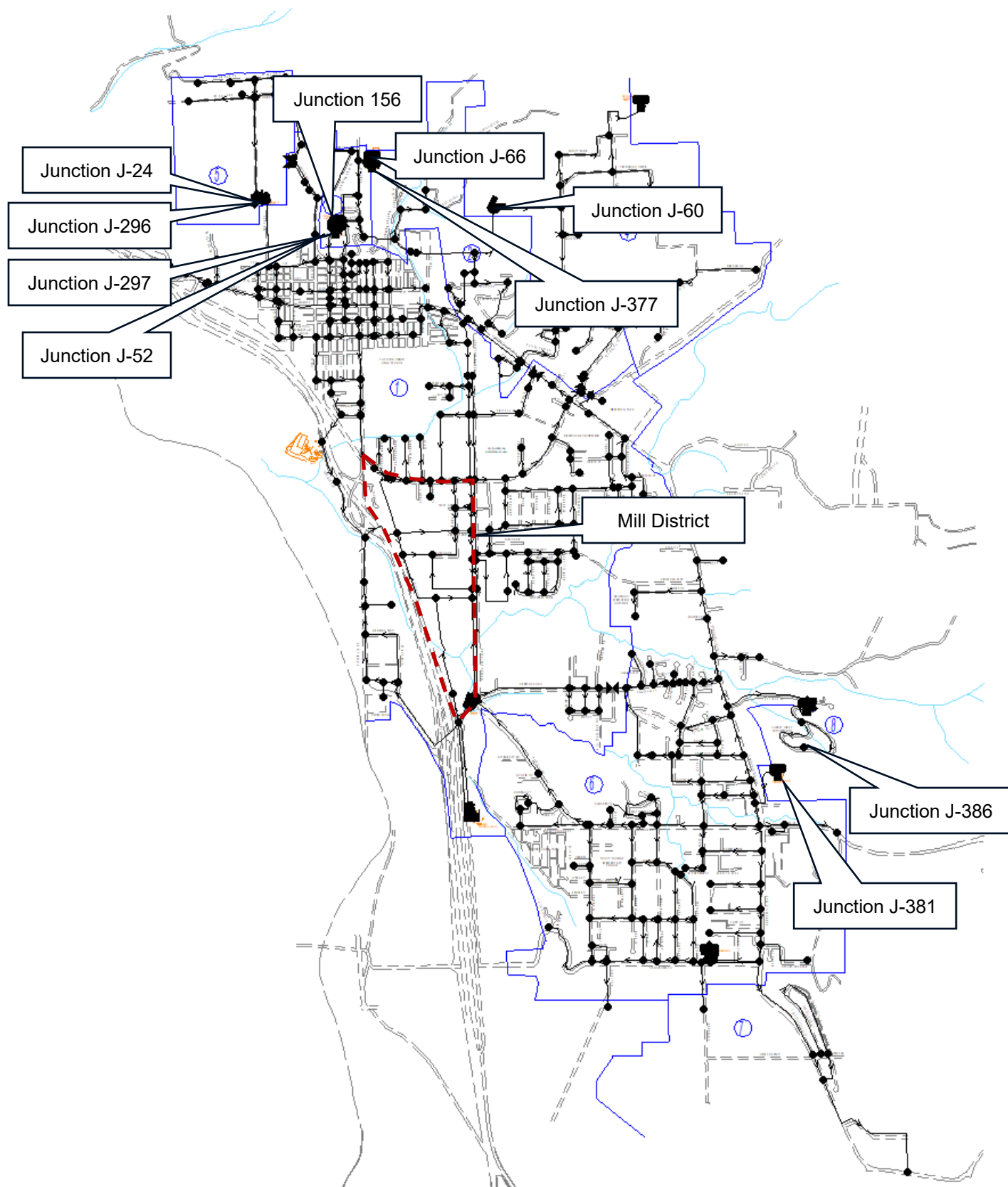


Figure 4 Exiting EPANET Model Low Pressure Nodes

Table 5. Base Condition Low Pressure Junctions

Junction Node ID	GPM	ft	psi	Comment
Junc J-24	0	246.53	28.83	In Zone 5 Home Ave suction side of Pump Station
Junc J-52	2.29	246.55	15.84	In Zone 3 Stewart St Stewart Reservoir
Junc J-60	0	284.21	15.26	In Zone 4 suction side of Underhill Pump Station
Junc 156	3.46	294.04	25.58	In Zone 3 Stewart St suction side of Stewart Pump Station
Junc J-66	0	296.94	5.61	In Zone 3 Vancil St suction side of Pump Station/Hydro Pneumatic Tank
Junc J-296	0	246.53	27.53	In Zone 5 Home Ave suction side of Pump Station
Junc J-297	0	246.56	9.77	In Zone 3 Stewart St suction side of Stewart Pump Station
Junc J-377	0	296.94	4.31	In Zone 3 Vancil St suction side of Pump Station/Hydro Pneumatic Tank
Junc J-381	0	366.17	12.21	In Zone 8 Compton Heights Reservoir
Junc J-386	0.69	415.05	26.02	In Zone 8 Top of Forest Hills Subdivision

Proposed Conditions

The City's water delivery system was evaluated for the ability to meet the proposed projects fire suppression water demand by applying the fire suppression demand loads at locations where the Proposed Condition model would serve water to the proposed buildings. The proposed project fire suppression demands were summarized in Table 4 and were applied to the Proposed Condition model at the locations shown in Figure 4. The results of the simulation were then evaluated to determine if the supplied fire suppression demand reduced pressure in the system below a specified pressure. The Junctions listed in Table 5 were exceptions to these evaluations, however, any further lowering of pressure in these locations would also indicate a failure of the water system to meet the requested fire suppression demand. If a proposed fire suppression demand resulted in failure of the system to meet the requested fire suppression demand, the demand was lowered by 500 gpm and the results were re-evaluated. This process was repeated until an acceptable water supply rate was achieved.

Building A Proposed Condition Analysis

The proposed fire suppression demand for Building A was 5000 gpm and applied to J-201. The results of this simulation indicated that the City's water supply system was not able to meet this demand and maintain the specified minimum pressures throughout the system. The fire suppression demand was lowered by 500 gpm and re-simulated until minimum pressures throughout the system were achieved. A fire suppression demand of 4000 gpm resulted in acceptable residual pressure in the water supply system. Model results are provided in Appendix A.

Building B Proposed Condition Analysis

The proposed fire suppression demand for Building B was 8000 gpm and applied to Junction 62. The results of this simulation indicated that the City's water supply system was not able to meet this demand and maintain the specified minimum pressures throughout the system. The fire suppression demand was lowered by 500 gpm and re-simulated until minimum pressures throughout the system were achieved. A fire suppression demand of 4000 gpm resulted in acceptable residual pressure in the water supply system. Model results are provided in Appendix A.

Building C Proposed Condition Analysis

The proposed fire suppression demand for Building C was 5500 gpm and applied to Junction MD2. The results of this simulation indicated that the City's water supply system was not able to meet this demand and maintain the specified minimum pressures throughout the system. The fire suppression demand was lowered by 500 gpm and re-simulated until minimum pressures throughout the system were achieved. A fire suppression demand of 5000 gpm resulted in acceptable residual pressure in the water supply system. Model results are provided in Appendix A.

Building D Proposed Condition Analysis

The proposed fire suppression demand for Building D was 4750 gpm and applied to Junction J-211. The results of this simulation indicated that the City's water supply system was not able to meet this demand and maintain the specified minimum pressures throughout the system. The fire suppression demand was lowered by 250 gpm and re-simulated until minimum pressures throughout the system were achieved. A fire suppression demand of 4000 gpm resulted in acceptable residual pressure in the water supply system. Model results are provided in Appendix A.

Conceptual Design

The conceptual system layout is shown in Figure 5 and summarized in Table 6. The City of Fortuna's water supply system was evaluated to determine if it could meet the domestic water demands and fire suppression demands for the Concept Site Plan and conceptual water.

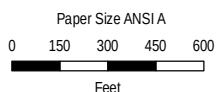
Table 6 Conceptual sewer layout components, quantities, and cost.

Component	Description	Units	Quantity	Unit Cost	Cost
12" Diameter Pipe	C900	Feet	6,500	\$300	\$1,950,000
Valve Cluster	Spacing of 500 feet	Each	15	\$12,000	\$180,000
Fire Hydrant	Spacing of 300 feet in Commercial Areas	Each	22	\$7,500	\$165,000
Total					\$2,295,000

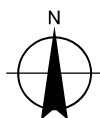
The domestic water demand was estimated at 30,064 gal/day. With the City's well field production rate of 1200 gpm, the proposed project water demand could be met within 30 minutes of additional pumping. This is attainable with the City's current water production infrastructure and operation.

The proposed project fire suppression water demand and the City's water supply system was evaluated at four specific locations for Buildings A, B, C, and D. The proposed project included installing new 12-inch water lines that connected to the existing system. The proposed new pipes were aligned to create a service loop, that would provide redundancy in supply. Each new pipe section included a connection to an existing 12-inch water line. In some cases, this required the replacement and upsizing of existing pipes to ensure that there was a 12-inch water main connecting to the new pipes.

The analysis was performed using the City's existing EPANET water model, which was modified to include the proposed project pipe system modifications and connections. The analysis found that the City's water system was insufficient to meet the specified fire suppression demands. However, the analysis also provided the maximum fire suppression flow that could be supplied for each building. Fire suppression appurtenances, such as sprinklers, storage tanks, or booster pumps, would need to be included in further development plans in order to meet code requirements. It should be noted that minor modifications to the proposed pipe alignment should have minimal influence on the analysis result as long as the proposed water pipelines are a minimum of 12-inch and connect to an existing 12-inch water supply line. A summary of the findings is presented in Table 7.



Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD83 California zone 1 RUS



City of Fortuna
Mill District Specific Plan

Conceptual
Water System Layout

Project No. 11230253
Revision No. 0
Date August 2024

FIGURE 5

Table 7. Fire Suppression Water Supply Analysis Summary

Location	Proposed Fire Suppression Demand (gpm)	Maximum System Supply (gpm)	System Deficiency (gpm)
Building A	5000	4000	1000
Building B	8000	4000	4000
Building C	5500	5000	500
Building D	4750	4000	750

Offsite Improvements

No offsite improvements are recommended as a part of the Mill District development for water system infrastructure.

Sewer Infrastructure

Overview

Conceptual sanitary sewer design is limited by existing site constraints and proposed flow contributions of the proposed development. Constraints include existing capacity of the system, sewer connection elevations, and site topography Figure 6. Two sewer sheds exist on the boundary of the Mill District. The sewer shed along the northern boundary in Newburg Road (Drainage Area C) provides gravity flow to the wastewater treatment plant to the north and west. Areas of this portion of the system have been identified as under capacity and have experienced sanitary sewer overflows in the past and have been identified in the City's Sewer Master Plan for increased capacity. The sewer sheds to the east and south (Drainage Areas D and E) flow to the Strongs Creek Lift Station where flows are conveyed through a force main to wastewater treatment plant. The Strongs Creek Lift Station and contributing sewer sheds are not currently limited in capacity. The boundary between the sewer sheds, near the proposed Eel River Road and South Fortuna Boulevard intersection, exhibits the highest sewer invert elevations and topography. Given the existing capacity deficiencies of the gravity system to the north and available capacity contributing to the Strongs Creek Lift Station, conveyance to the lift station is preferred.

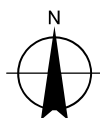
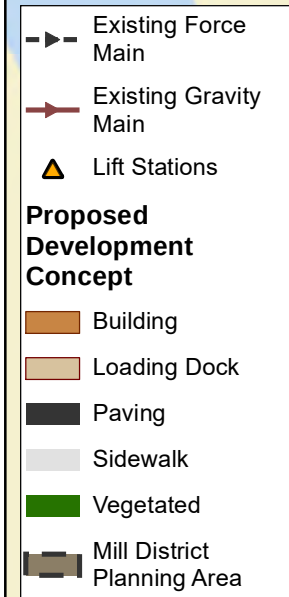
Sewer Design Standards

Relevant City sewer design standards included in the development of the conceptual sewer system layout are as follows (City of Fortuna, 2018):

1. The Sanitary Sewer System shall be designed and constructed in conformance with the criteria established by the American Society of Civil Engineers in the "Manual of Engineering Practices No. 60, Gravity Sanitary Sewer Design and Construction"
2. The Sanitary Sewer System shall be within the road right-of-way of city streets except where easements are necessary to provide a gravity flow system.
3. Sanitary Sewer Mains:
 - 3.1. Minimum diameter – six (6) inches
4. Sanitary Sewer Manholes
 - 4.1. Non more than 300' apart on a common main, and at additional locations such as changes in grade, pipe size, or alignment as required by the City Engineer.

A minimum slope of 0.5% was assumed for the conceptual design of gravity pipes to meet minimum velocity of 2 ft/sec during Average Dry Weather Flow (ADWF).

A minimum cover of two (2) feet was assumed based on minimum cover of existing sewer infrastructure within roadways.



Existing Sanitary Sewer and Elevations

FIGURE 6

Conceptual Design

Feasibility was evaluated based on connections to existing infrastructure, minimum slope for gravity flow pipes, and resulting bury depth. The following sewer collection configurations were evaluated and deemed not viable:

- A gravity system that drains from the northern area, near Newburg Road, south along the proposed Eel River Road and east to a connection point in South Fortuna Boulevard
 - o Connection point elevation is above that of the Newburg Road area and does not allow for gravity flow
- A gravity system that drains from the Newburg Road area to south of Strongs Creek
 - o Ground elevations increase between Newburg Road and the proposed east-west alignment of Eel River Road and would result in the gravity sewer to be over 25-ft deep
- A gravity system that drains from the high elevation area at the proposed east-west alignment of Eel River Road to a connection Newburg Road
 - o A 0.5% slope from the connection point elevation south results

A feasible, conceptual sewer system layout was developed to meet the minimum design standards and was evaluated using the model developed for the Fortuna Sewer Master Plan. Modeled flows were developed based on land use and estimated occupancy of the conceptual site plan. The resulting conceptual design is presented in Figure 7 and consists of a gravity system serving the northern area of the Mill District and flowing to a lift station at Newburg Road, and a gravity system for the remainder of the Mill District flowing to a lift station south of Strongs Creek and pumped directly to the existing Strongs Creek Lift Station. Model results are presented in Figure 8 through Figure 11. The conceptual system components are listed in Table 8.

Table 8 Conceptual Sewer Layout Components, Quantities and Cost.

Component	Description*	Units	Quantity	Unit Cost	Cost
6" Diameter Gravity Pipe	Minimum slope 0.5% Bury depth 5-13 feet	feet	5,200	\$150	\$780,000
48" Diameter Manhole	Gravity system only	each	31	\$12,000	\$372,000
4" Diameter Force Main		feet	540	\$250	\$135,000
6" Diameter	Creek Crossing	each	2	\$25,000	\$50,000
Lift Station (North Mill District)	ADWF = 33 gpm PDWF = 69 gpm PWWF = 125 gpm Working Volume of Wetwell = 8,500 gallons Volume between the pumps on and off levels Pump on levels should be below the gravity inlet Estimated as approximately 2 hours of PDWF	each	1	\$350,000	\$350,000
Lift Station (South Mill District)	ADWF = 38 gpm PDWF = 67 gpm PWWF = 76 gpm Working Volume of Wetwell = 8,000 gallons Volume between the pumps on and off levels Pump on levels should be below the gravity inlet Estimated as approximately 2 hours of PDWF Two pumps, each rated at 42 gpm at 11-ft TDH	each	1	\$350,000	\$350,000
Total					\$2,037,000

* ADWF – Average Dry Weather Flow

PDWF – Peak Dry Weather Flow

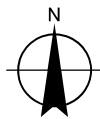
PWWF – Peak Wet Weather Flow

TDH – Total Dynamic Head



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Map Projection: Lambert Conformal Conic
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Conceptual
Sanitary Sewer Plan

Project No. 11230253
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FIGURE 7

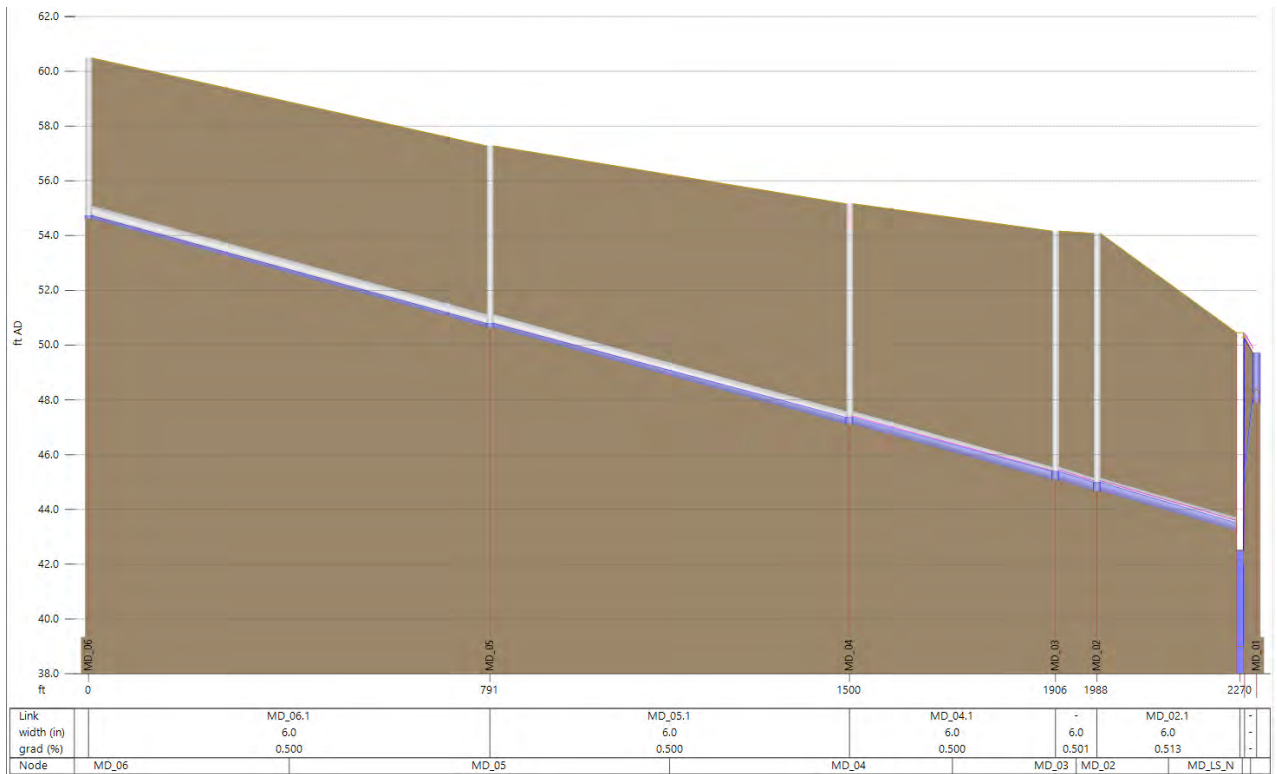


Figure 8 Profile of MH MD_06 to Newburg connection during PWWF

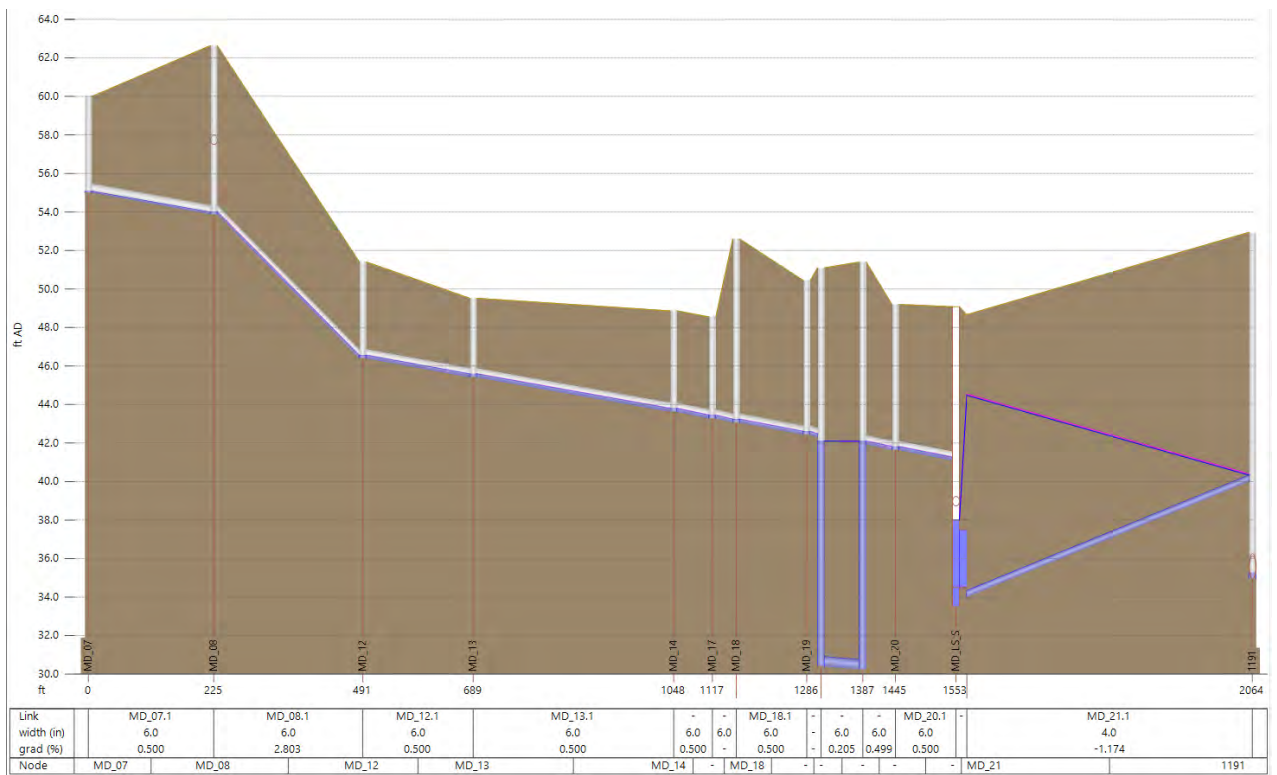


Figure 9 Profile of MH MD_07 to Strongs Creek connection during PWWF

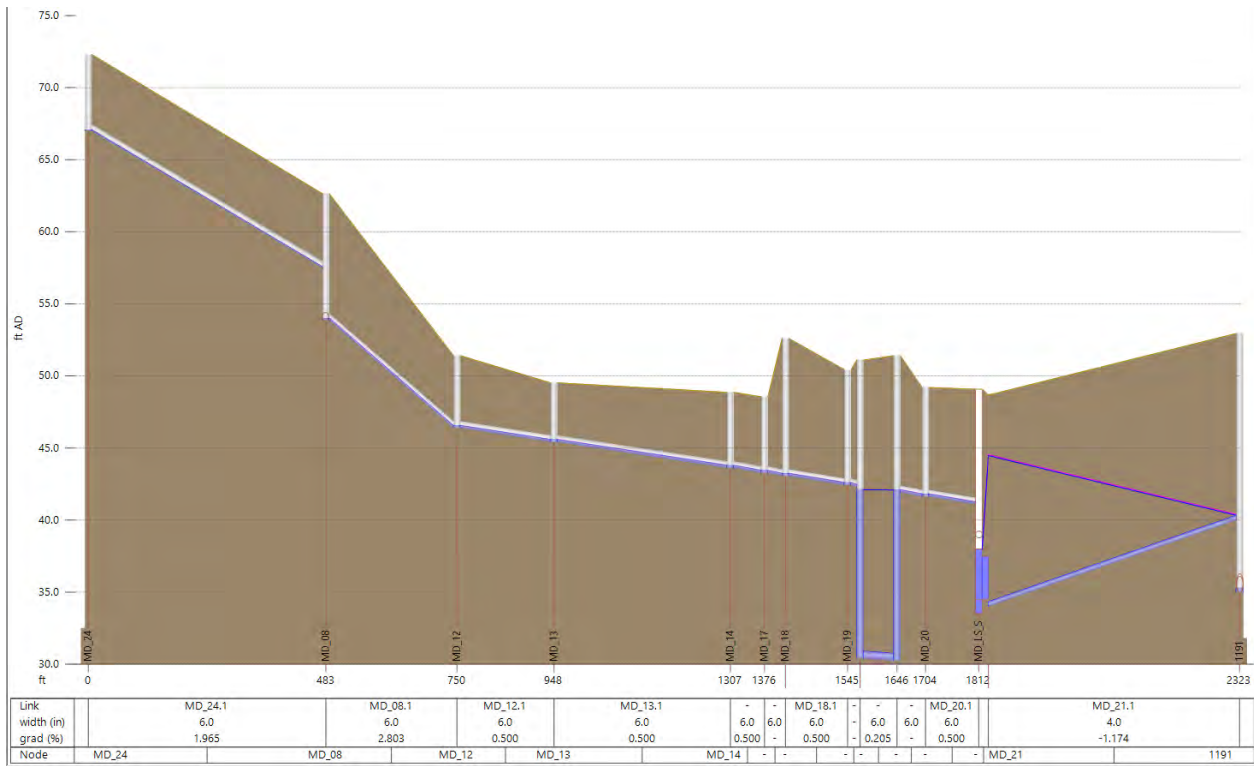


Figure 10 Profile of MH MD_24 to Strongs Creek during PWWF

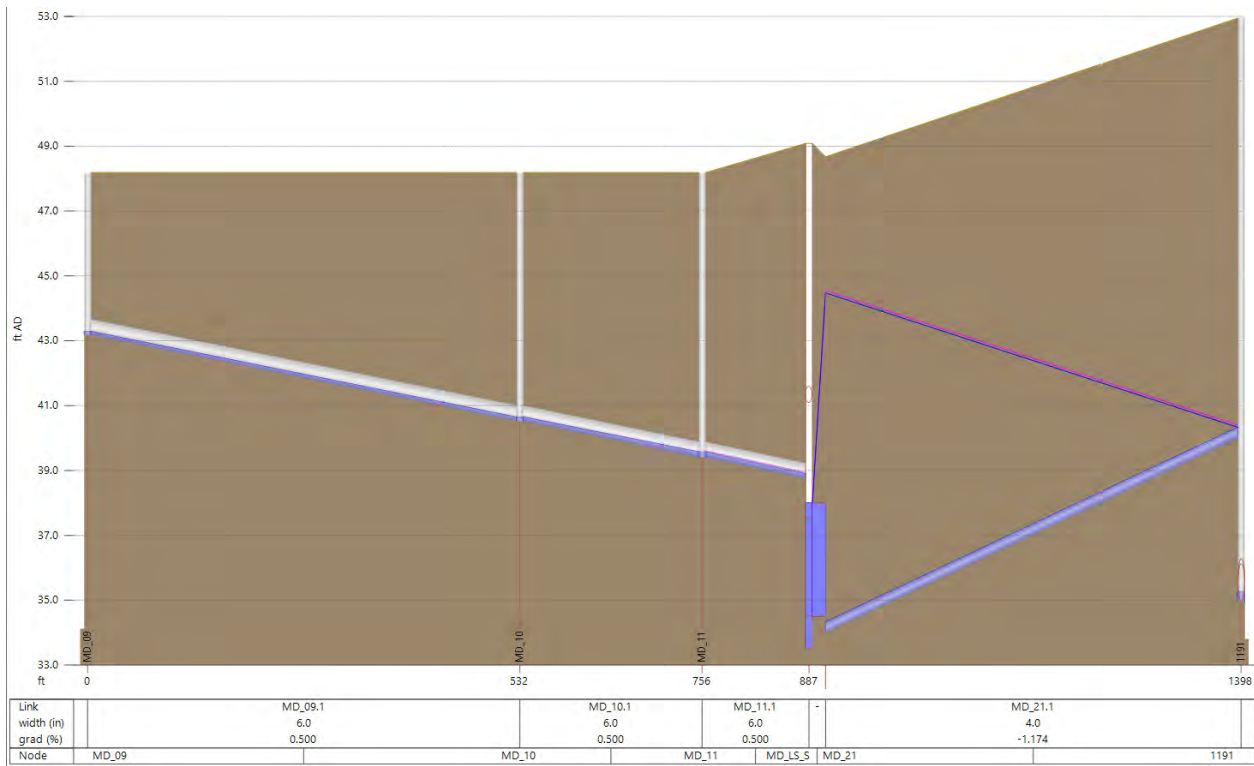


Figure 11 Profile of MH MD_09 to Strongs Creek connection during PWWF

Offsite Improvements

The current Draft Sewer Master Plan (SMP) evaluated needed future improvements to existing lines that will serve the Mill District (GHD, 2023). Preliminary model runs tested the load points of the Mill District development and loading it to the closest manholes/connection sewers imparts greater stress on the system than if most if not all of it was routed south toward the Strong's Creek pump station, as much of this future development would naturally go to the Newburg Road system if this closest-load- point-logic was followed. These simulation runs show that the increase in flow does not stress the incoming lines to the Strong's Creek pump station and the pumps keep up with additional flow. Therefore, for the purposes of establishing a baseline Near-Term and Future loading strategy, the majority of the Mill District development loads will go south towards Strong's Creek pump station, with only the current parcels directly touching Newburg Rd draining north, and all subsequent hydraulic capacity results figures will reflect this loading strategy.

The Draft SMP recommends that the City should prioritize rehabilitation efforts and upsizing infrastructure along Newburg Road. Recommendations to increase the capacity of the downstream line include digging and replacing approximately 824 feet of existing 6-inch diameter pipe, 444 feet of 15-inch diameter pipe, 52 feet of 21-inch diameter pipe, 361 feet of 24-inch pipe, five manholes and associated lateral reconnections, inspections and testing (See Attachment 1).

The Average Dry Weather Flow of the most upstream, existing line along Newburg Road, that requires increased capacity is 501.4 gpm. Using the estimated, future contribution to this system of 33 to 70 gpm, a proportional cost share, based on this flow range and the contributing Mill District flow to Newburg Road of 6.2 to 17% is recommended, based on the proposed flows contributing 33 to 70 gpm of the total 534.4 to 604.4 gpm. Estimated costs of improvements are shown in Attachment 1.

Drainage Infrastructure

Overview

The conceptual site plan proposes to redevelop approximately 70 acres the Mill District that are largely comprised of areas exhibiting previous development characteristics, such as asphalt and concrete paving, compacted aggregate base, and gravel fill. The following analysis utilizes the conceptual site plan and existing conditions to develop a conceptual stormwater infrastructure layout.

Stormwater Design Standards

Relevant City stormwater design standards included in the development of the conceptual stormwater system layout are as follows (City of Fortuna, 2018):

1. The City of Fortuna requires that all development comply with the requirements of the City's MS4 National Pollutant Discharge Elimination System (NPDES) permit as outlined in the Humboldt County Low Impact Development (LID) Stormwater Manual.
2. In Low Impact Development "Regulated Projects", when the MS4 permit requires a bioretention facility be installed, then the following additional conditions are required:
 - 2.1. The post-project runoff rate(s) shall not exceed the pre-project runoff rate(s) for the 25-year 24-hour storm event.
 - 2.2. Stormwater drainage reports shall:
 - 2.2.1. Include maps/drawings that use contour intervals of 5 feet or less.
 - 2.2.2. Identify drainage management areas, basins, drainage structures, and lid site design measures, correlated to calculations.
3. Drainage facilities:
 - 3.1. Shall be located in the public right-of-way where feasible, or in perpetual unobstructed easements of appropriate width.
 - 3.2. Shall ensure the acceptance and disposal of runoff without damage to streets or to adjacent properties.
4. Additional subdivision requirements:
 - 4.1. A stormwater drainage system, including but not limited to storm sewers, drainage channels, and drainage pumps, as may be necessary for adequate drainage of storm waters, surface waters, and/or springs, shall be installed in each subdivision
 - 4.2. The drainage system shall be designed to accommodate potential runoff from its entire upstream drainage area, whether inside or outside of the proposed subdivision.
 - 4.3. If any portion of land within boundaries shown on a final map is subject to special flood hazards by storm waters, the design shall be in accordance with the requirements of the City of Fortuna Municipal Code (15.58).

Relevant Design Criteria and requirements from the Humboldt County Low Impact Development (LID) Stormwater Manual are as follows (Humboldt County, 2021):

1. Regulated Projects Include: Projects other than Single-Family Homes that create or replace greater than or equal to 5,000 square feet of impervious surface are considered to be Regulated Projects.
2. Hydromodification Project are:
 - 2.1. Specific Regulated Projects, projects that create and/or replace greater than or equal to 1 acre of impervious surface and create a net increase in impervious surface.
 - 2.1.1. The required performance standard for hydromodification control consists of maintaining post-project runoff at or below pre-project flow rates for the 2-year, 24-hour storm event. Additionally, if

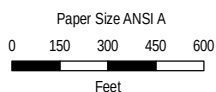
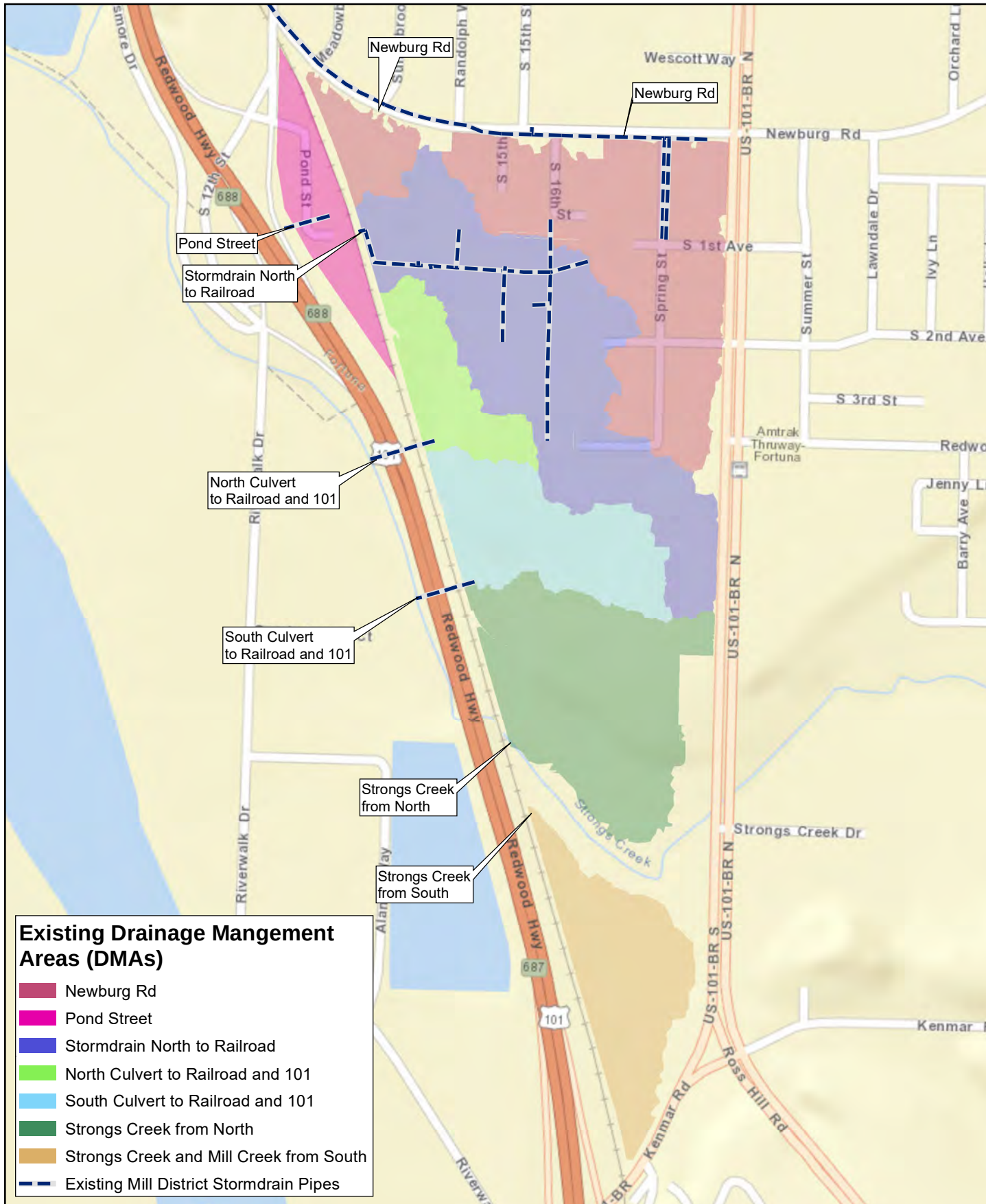
a hydromodification site contains greater than 50% fines (No. 4 sieve) then a soil percolation test is required to determine if percolation is greater than or less than one inch per hour.

- 2.1.1.1. Hydromodification Requirements: Compliance with this standard can be met through the use of self-retaining areas (as referenced in Section 6.1.1 Types of Drainage Management Areas). However, soil infiltration rates on-site must be taken into account using American Society for Testing and Materials (ASTM) D 6913 Standard Test Methods for Particle Size Distribution (Gradation) of Soils Using Sieve Analysis and ASTM D 7928 Standard Test Methods for Particle Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis ASTM D 422 standard test method for particle size analysis of soils the hydromodification design storm requirement. Sites with infiltration rates less than 1.0 inch per hour do not meet the hydromodification requirements using the self-retaining ratio method; alternatives to the self-retaining area will need to be discussed with the jurisdictional permitting authority. According to Web Soil Survey: Sieve any soil passing sieve size 4 is determined to be fine. For this area ~95% should be passing sieve size 4 (according to Web Soil Survey) so, percolation test required.

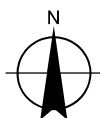
Methodology

This drainage infrastructure analysis was completed using topographic survey data gathered by Kolstad Land Surveyors collected between October, 2021 through March, 2022 and supplemented with the City of Fortuna's 2012 photogrammetry. Land cover was assigned based on survey data notes, existing land use and the conceptual site plan.

GHD utilized ArcMap and the SCS curve method to estimate runoff depth and volume based on land use classifications for the project area under existing and proposed conditions. In ArcMap, a digital elevation model and existing stormdrain infrastructure locations were used to delineate and identify six drainage management areas (DMAs) within the Mill District, based on existing discharge locations (Figure 12). Existing land use characterization was determined for each DMA and subsequently used to determine the rainfall runoff curve number in the SCS runoff method (Figure 13, Table 9). Existing land cover and area by DMA are presented in Table 10. Rainfall runoff curve numbers for proposed conditions were assigned based on the conceptual site plan (Figure 14, Table 11). DMAs for existing and proposed conditions were assumed to remain the same, and drainage infrastructure located to maintain current runoff areas. Rainfall depth for use in the SCS curve method, based on design standards are shown in Table 12. Rainfall intensities shown in Table 12 are used in the Rational Method to calculate runoff flows for the 25-year storm event for use in pipe sizing.



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Horizontal Datum: North American 1983
Grid: NAD83 California zone 1 ftUS

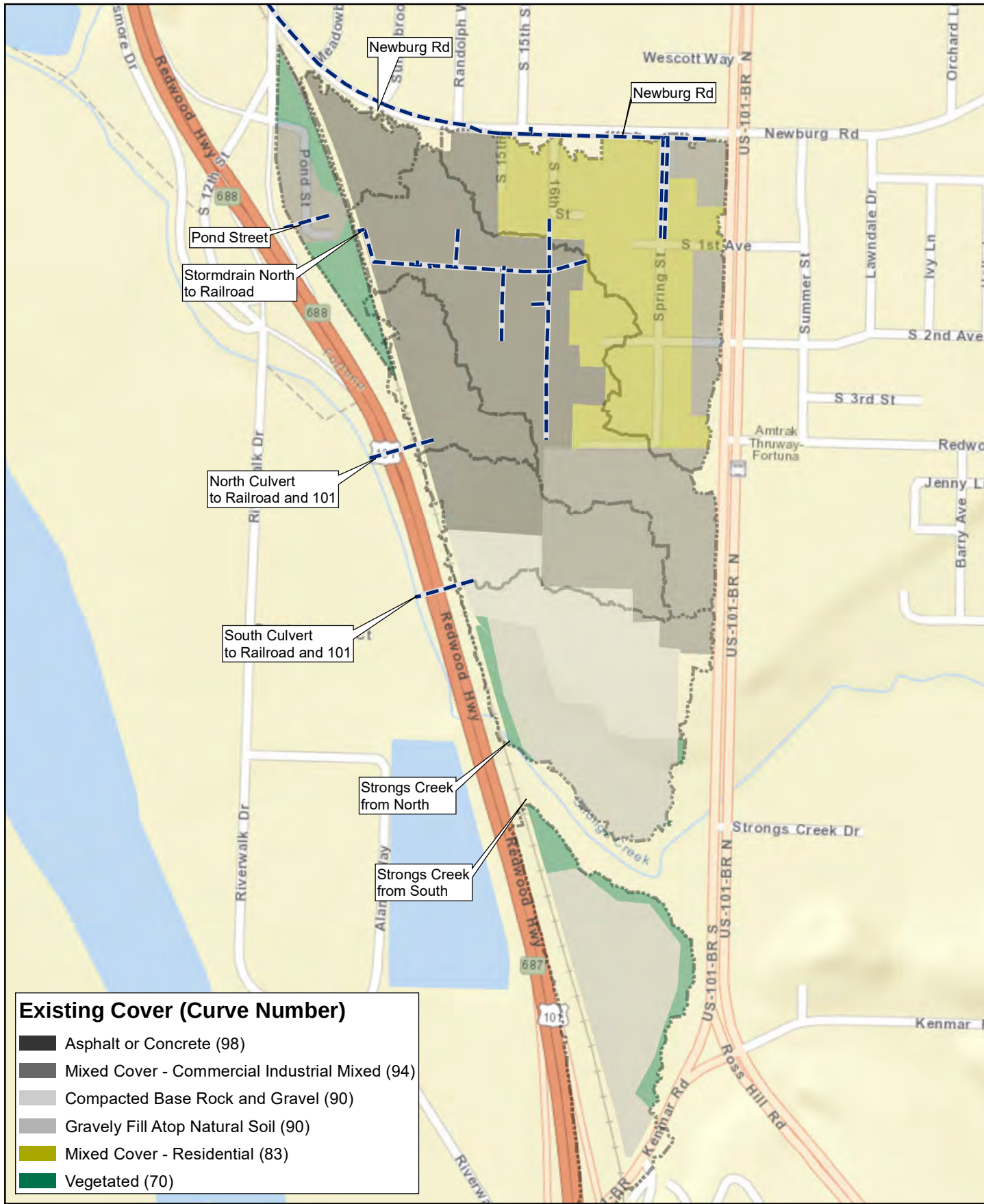


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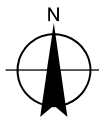
Existing Drainage Management Areas (DMAs)

FIGURE 12



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Map Projection: Lambert Conformal Conic
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Grid: NAD83 California zone 1 ftUS



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Existing Cover and Curve Number
Drainage Management Areas (DMAs)

FIGURE 13

Table 9 SCS Runoff Method Curve Numbers

Row Labels	Hydrologic Soil Group	Curve Number
New Building, Loading Dock, Paving, Sidewalk	C	98
Asphalt or Concrete		98
Mixed Cover - Commercial Industrial		94
Compacted Base Rock and Gravel		90
Gravelly Fill		85
Mixed Cover - Residential		83
Vegetated		70

Table 10 Existing Land Cover by Drainage Management Area.

Drainage Management Area and Existing Land Cover	Acres
Newburg Rd	26.9
Asphalt or Concrete	5.6
Mixed Cover - Commercial Industrial	4.1
Mixed Cover - Residential	17.2
Pond St	5.6
Vegetated	2.5
Mixed Cover - Commercial Industrial	3.1
Stormdrain North to Railroad	26.8
Asphalt or Concrete	16.8
Mixed Cover - Commercial Industrial	6.8
Mixed Cover - Residential	3.2
North Culvert to Railroad and 101	6.4
Asphalt or Concrete	6.4
South Culvert to Railroad and 101	11.4
Asphalt or Concrete	3.9
Mixed Cover - Commercial Industrial	5.0
Compacted Base Rock or Gravel	2.5
Strong's Creek from North	19.8
Vegetated	1.1
Mixed Cover - Commercial Industrial	1.6
Compacted Base Rock or Gravel	8.8
Gravelly Fill	8.3
Strong's Creek and Mill Creek from South	12.7
Vegetated	2.4
Gravelly Fill	10.3
Total	104.1



Table 11 Proposed Land Cover by Drainage Management Area.

Drainage Management Area and Proposed Land Cover	Acres
Newburg Road	26.9
New Building, Loading Dock, Paving, Sidewalk	4.1
Existing Mixed Cover - Commercial Industrial	4.1
Existing Mixed Cover - Residential	17.2
New Vegetated Area	1.5
Pond St	5.6
Mixed Cover - Commercial Industrial	5.6
Stormdrain North to Railroad	26.8
New Building, Loading Dock, Paving, Sidewalk	15.5
Mixed Cover - Commercial Industrial	6.8
Mixed Cover - Residential	3.2
New Vegetated Area	1.3
North Culvert to Railroad and 101	6.4
New Building, Loading Dock, Paving, Sidewalk	5.3
New Vegetated Area	1.1
South Culvert to Railroad and 101	11.4
New Building, Loading Dock, Paving, Sidewalk	5.5
Mixed Cover - Commercial Industrial	5.0
New Vegetated Area	0.9
Strong's Creek from North	19.8
New Building, Loading Dock, Paving, Sidewalk	15.5
Existing and New Vegetated	4.3
Strong's Creek and Mill Creek from South	12.7
New Building, Loading Dock, Paving, Sidewalk	10.4
Existing and New Vegetated	2.3
Total	104.1

Table 12 Rainfall Events for Evaluation

Frequency	Depth (in)	Intensity (in/hr)
85th percentile (Water Quality Event, Humboldt County LID Manual)	0.65	
2 yr (Humboldt County LID Manual, Hydromodification Projects)	3.53	0.147
25 yr (City of Fortuna Drainage Design)	5.85	0.244

Drainage Infrastructure Analysis

As discussed previously, much of the Mill District is comprised of areas exhibiting previous development characteristics, such as asphalt and concrete paving, compacted aggregate base, and gravel fill. Existing mixed cover uses include residential and commercial industrial along the eastern edge of the Mill District. Undisturbed vegetated areas are limited to the corridor along Strongs Creek and along the western edge of the Mill District. Proposed development is largely focused on existing disturbed areas. Increased runoff associated with the proposed site plan is limited to the replacement of gravelly fill areas and limited undisturbed vegetated areas with impervious development such as buildings, loading docks, sidewalks and paving. The conceptual site plan results in an increase in vegetated areas within all DMAs except the DMA south of Strongs Creek (Strongs Creek and Mill Creek from South). The existing conditions runoff for the 2-year and 25-year for each DMA is presented in Table 13. The proposed conditions runoff for the 85th percentile, 2-year and 25-year for each DMA is presented in Table 14. Based on the requirements set forth in the Humboldt County LID Manual for hydromodification projects and City of Fortuna design standards, the conceptual site plan is to treat the 85th percentile runoff and result in no increased discharge for the 2-year and 25-year. The required treatment and changes to the 2-year and 25-year are presented in Table 15.

Table 13 Existing Conditions Runoff

DMA	Acres	2-year Acre-ft	25-year Acre-ft
Newburg Rd	26.87	5.21	10.03
Pond St	5.6	0.95	1.86
Stormdrain North to Railroad	26.82	6.74	11.83
North Culvert to Railroad and 101	6.43	1.77	3.01
South Culvert to Railroad and 101	11.40	2.78	4.95
Strongs Creek from North	19.84	3.71	7.26
Strongs Creek and Mill Creek from South	12.72	1.96	4.11
Total	104.08	22.17	41.20

Table 14 Proposed Conditions Runoff

Acres	Acres	2-year Acre-ft	25-year Acre-ft	85th Acre-ft
Newburg Rd	26.87	4.92	9.65	0.27
Pond St	5.6	1.54	2.62	0.10
Stormdrain North to Railroad	26.82	6.47	11.48	0.72
North Culvert to Railroad and 101	6.43	1.57	2.75	0.21
South Culvert to Railroad and 101	11.40	2.78	4.92	0.31
Strongs Creek from North	19.84	4.48	8.04	0.55
Strongs Creek and Mill Creek from South	12.72	2.66	4.87	0.32
Total	104.08	22.88	41.72	2.38

Table 15 *Changes to the 2-year and 25-year Runoff as a Result of Proposed Conditions and Required 85th Percentile Storm Event Treatment*

DMA	Required Detention				Conceptual Design Vegetated Area (Acres)
	Drainage Area (Acres)	2-year Acre-ft	25-year Acre-ft	85th Acre-ft	
Newburg Rd	26.87	-0.29	-0.38	0.27	1.49
Pond St	5.60	0.59	0.76	0.10	0.76
Stormdrain North to Railroad	26.82	-0.27	-0.35	0.72	1.33
North Culvert to Railroad and 101	6.43	-0.20	-0.26	0.21	1.06
South Culvert to Railroad and 101	11.40	0.002	-0.03	0.31	0.88
Strong's Creek from North	19.84	0.77	0.77	0.55	4.30
Strong's Creek and Mill Creek from South	12.72	0.70	0.76	0.32	2.31

The Strong's Creek from North and Strong's Creek, Mill Creek from South, and South Culvert to Railroad and 101 DMAs result in increased runoff for the 2-year and or 25 year rainfall event. The remaining DMAs result in a decrease in runoff. The 85th percentile runoff is to be treated in all DMAs due to the hydromodification requirements.

Conceptual Design

Potential Stormwater LID Placements

Common LID facilities include rain gardens or bioswales to capture and infiltrate stormwater runoff prior to discharge to the stormwater system. Rain gardens and bioswales typically consist of three design layers: pervious backfill, bioretention soil media, and ponding. The pervious backfill and bioretention soil media achieve infiltration rates that meet County LID requirements and ponding depth allows for the temporary storage of runoff. An underdrain may be implemented if infiltration rates of the native soil result in ponding in excess of 72 hours to reduce potential issues with vector control. Typical section and void space, layer thickness and total runoff storage for bioswales are presented in Figure 15 and Table 16. Treatment and storage requirements and recommendations of bioswales are presented in Table 17.

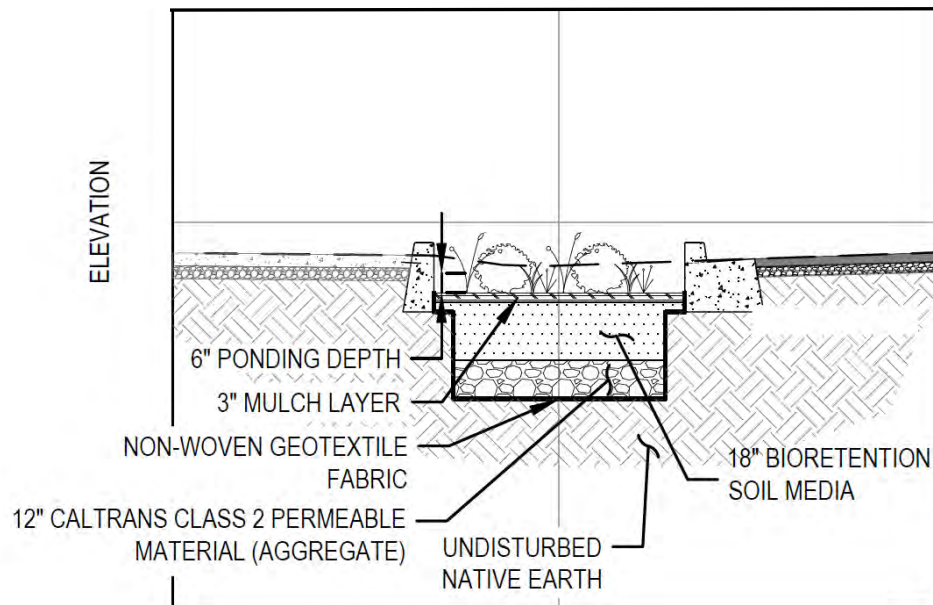


Figure 15 Typical Bioswale Cross Section

Table 16 Typical Bioswale Runoff Storage

Rain Garden Layer	Void Space	Layer Thickness (ft)	Storage/ft ² (ft ³)
Ponding	100%	0.5	0.50
Bioretention Soil Media	30%	1.5	0.45
Pervious Backfill	40%	1.0	0.40
Total		3	1.35

Table 17 Design Treatment and Storage Requirements and Recommendations of Bioswales.

DMA	Required Detention			Recommended Minimum Bioswale Area with storage/treatment of 1.35 ft ³ per ft ² (Acres)	Conceptual Design Available Vegetated Area (Acres)
	2-year Acre-ft	25-year Acre-ft	85th Acre-ft		
Newburg Rd			0.27	0.20	1.49
Pond St	0.59	0.76	0.10	0.76	0.76
Stormdrain North to Railroad			0.72	0.53	1.33
North Culvert to Railroad and 101			0.21	0.16	1.06
South Culvert to Railroad and 101	0.002		0.31	0.23	0.88
Strong's Creek from North	0.77	0.77	0.55	0.57	4.30
Strong's Creek and Mill Creek from South	0.70	0.76	0.32	0.76	2.31
Total	2.06	2.29	2.48	3.21	12.13

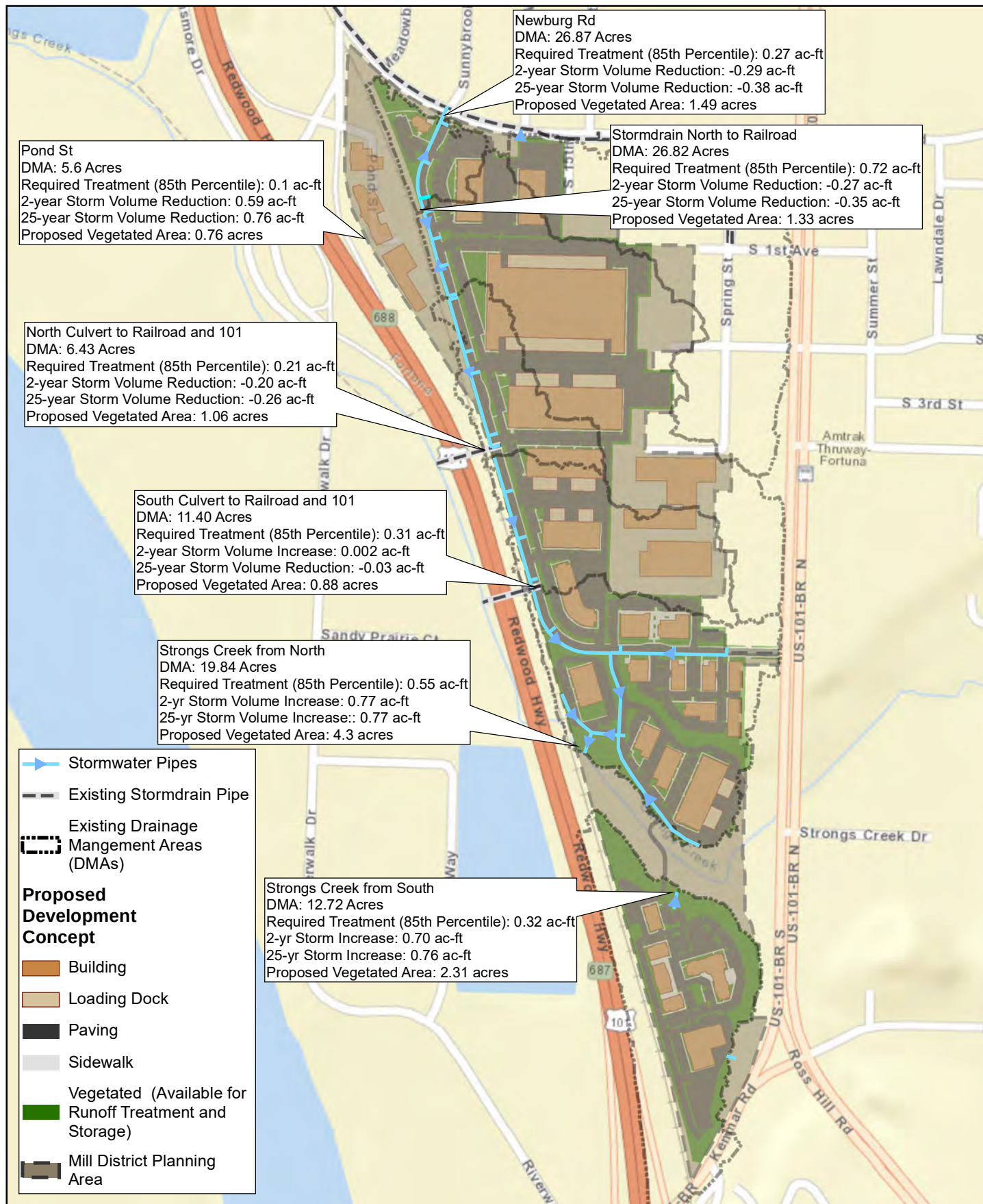
Conceptual Stormwater Pipe Size and Alignments

Discharge from each DMA flows to existing stormwater infrastructure. The Rational Method was used to estimate cumulative discharge from each DMA (Table 18). Assuming a 0.5% minimum slope, roughness coefficient of 0.013 for HDPE or reinforced concrete pipes, the peak flows vary from 1.2 to 5.3 cfs. A minimum

pipe diameter of 18-inches accommodates the resulting flows. A conceptual stormwater pipe layout is shown in Figure 16. Two parcels are anticipated to require a connection to the drainage infrastructure within the Conceptual Site Plan. Drainage from these parcels can be accommodated through the proposed vegetated areas and maintain conveyance within the Newburg Road DMA.

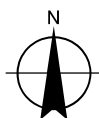
Table 18 *Rational Method Runoff Flows for 25-year Rainfall Event*

Drainage Management Area and Proposed Land Cover	Acres	C	25-year Max Flow (CFS)
Newburg Road	26.9	0.72	4.7
New Building, Loading Dock, Paving, Sidewalk	4.1	0.9	
Existing Mixed Cover - Commercial Industrial	4.1	0.8	
Existing Mixed Cover - Residential	17.2	0.7	
New Vegetated Area	1.5	0.17	
Pond Street	5.6	0.90	1.2
Existing Mixed Cover - Commercial Industrial	5.6	0.9	
Stormdrain North to Railroad	26.8	0.82	5.3
New Building, Loading Dock, Paving, Sidewalk	15.5	0.9	
Mixed Cover - Commercial Industrial	6.8	0.8	
Mixed Cover - Residential	3.2	0.7	
New Vegetated Area	1.3	0.17	
North Culvert to Railroad and 101	6.4	0.77	1.2
New Building, Loading Dock, Paving, Sidewalk	5.3	0.9	
New Vegetated Area	1.1	0.17	
South Culvert to Railroad and 101	11.4	0.80	2.2
New Building, Loading Dock, Paving, Sidewalk	5.5	0.9	
Mixed Cover - Commercial Industrial	5	0.8	
New Vegetated Area	0.9	0.17	
Strong's Creek from North	19.8	0.74	3.6
New Building, Loading Dock, Paving, Sidewalk	15.5	0.9	
Existing and New Vegetated	4.3	0.17	
Strong's Creek and Mill Creek from South	12.7	0.77	2.4
New Building, Loading Dock, Paving, Sidewalk	10.4	0.9	
Existing and New Vegetated	2.3	0.17	



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City of Fortuna
Mill District Specific Plan

Conceptual Drainage Infrastructure & Drainage Management Areas (DMAs) Treatment and Storage

Project No. 11230253
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FIGURE 16

The conceptual system components are quantified in Table 19.

Table 19 Conceptual Drainage Layout Components, Quantities and Cost.

Component	Description*	Units	Quantity	Unit Cost	Cost
18" Diameter HDPE Pipe	Minimum slope 0.5% Bury depth 5-15 feet	Feet	5,700	\$200	\$997,500
Drain Inlets	Gravity system only	Each	25	\$2,500	\$62,500
Manholes	48-inch	Each	20	\$12,000	\$240,000
Bioretention Basins	70,000 SF	SF	70,000	\$30	\$2,100,000
				Total	\$3,400,000

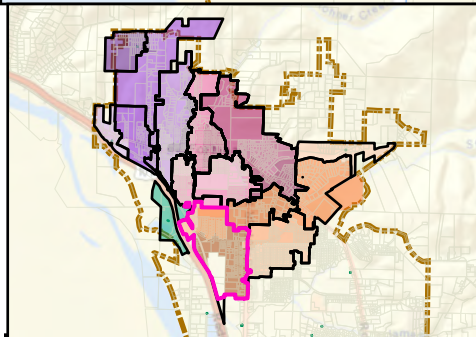
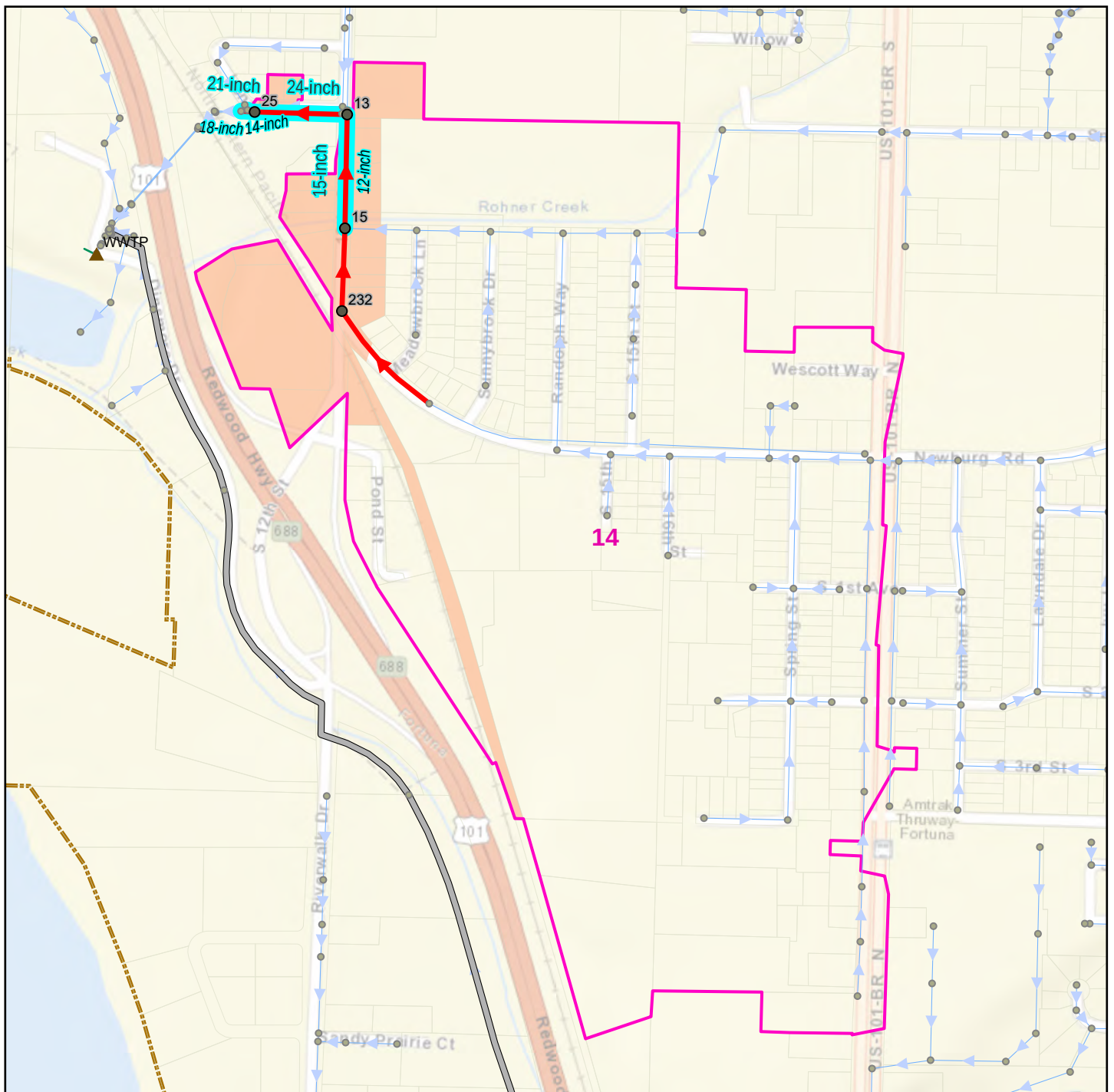
Offsite Improvements

The City's 2005 Storm Drain Master Plan indicated that the 48" reinforced concrete pipe (RCP) storm drain that parallels the railroad tracks near 12th Street is undersized for the estimated 25-year runoff event. This pipe segment is located downstream of the Mill District contributions to the Newburg Road stormdrain system. The City was not experiencing any flooding or drainage problems in this area, therefore it is probably of sufficient size and slope and does not require any improvements. If development methods incorporate onsite stormwater detention in this area to avoid increasing the runoff entering the drainage system, offsite improvements are not needed. Any increase in runoff would require increased capacity improvements to the downstream stormdrain system. The estimated 25-year flow of the 48" RCP storm drain is 110 cfs. Given the existing system does not experience flooding and is likely of sufficient capacity, it is recommended that the cost of upsizing of the storm drain pipes to convey the additional runoff be the responsibility of the party imparting increased flow.

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- Humboldt County. (2021). *Humboldt Low Impact Development Stormwater Manual*. Eureka: County of Humboldt.

Attachment 1: Draft Sewer Master Plan Project Recommendations



Legend

- ▲ Pump Stations
- CIP Project Zone Manholes
- Non CIP Project Manholes
- Forcemain
- - - City Limits

- Parcels
- Mini-Basin Area
- Capacity Upsize Project
- CIP Project Basin
- 14A

CIP Project Pipes (Recommendations)

- Dig and Replace
- CIPP
- CCTV
- Non CIP Project Pipes

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City of Fortuna
 Sewer Master Plan

Project No. 12559529
 Revision No. 0
 Date 21 Dec 2023

Gravity Sewer CIP Project 14A

FIGURE E-24

Table E-46 Project 14A – Full Project Detailed Opinion of Probable Cost

Description	Unit	Unit Cost	Quantity	Total Cost
Pre-Construction Cleaning and CCTV Inspection	LF	\$20	-	-
Bypass Pumping	LS	\$24,300	1	\$24,000
6-inch Dig and Replace	LF	\$270	824	\$222,000
6-inch Cured-in-Place Pipe (CIPP)	LF	\$81	-	-
8-inch Dig and Replace	LF	\$297	-	-
8-inch Cured-in-Place Pipe (CIPP)	LF	\$68	-	-
10-inch Dig and Replace	LF	\$324	-	-
10-inch Cured-in-Place Pipe (CIPP)	LF	\$74	-	-
12-inch Dig and Replace	LF	\$378	-	-
12-inch Cured-in-Place Pipe (CIPP)	LF	\$101	-	-
14-inch Dig and Replace	LF	\$378	-	-
14-inch Cured-in-Place Pipe (CIPP)	LF	\$101	-	-
15-inch Dig and Replace	LF	\$392	444	\$174,000
15-inch Cured-in-Place Pipe (CIPP)	LF	\$108	-	-
16-inch Dig and Replace	LF	\$392	-	-
16-inch Cured-in-Place Pipe (CIPP)	LF	\$108	-	-
18-inch Dig and Replace	LF	\$405	-	-
18-inch Cured-in-Place Pipe (CIPP)	LF	\$115	-	-
21-inch Dig and Replace	LF	\$419	52	\$22,000
21-inch Cured-in-Place Pipe (CIPP)	LF	\$122	-	-
24-inch Dig and Replace	LF	\$432	361	\$156,000
24-inch Cured-in-Place Pipe (CIPP)	LF	\$128	-	-
30-inch Dig and Replace	LF	\$446	-	-
30-inch Cured-in-Place Pipe (CIPP)	LF	\$135	-	-
36-inch Dig and Replace	LF	\$459	-	-
36-inch Cured-in-Place Pipe (CIPP)	LF	\$149	-	-
42-inch Dig and Replace	LF	\$473	-	-
42-inch Cured-in-Place Pipe (CIPP)	LF	\$162	-	-
60-inch Dig and Replace	LF	\$648	-	-
60-inch Cured-in-Place Pipe (CIPP)	LF	\$270	-	-
Dig and Replace Lateral to Property Line	EA	\$8,100	34	\$272,000
Manhole Rehabilitation/Replacement	EA	\$4,725	5	\$24,000
Post Construction CCTV Inspection	LF	\$6	1,681	\$10,000
Non-CIP Project CCTV Inspection	LF	\$6	-	-
Construction Subtotal				\$905,000
			Mobilization (12%)	\$109,000
Project Subtotal				\$1,013,000
			Contingency (30%)	\$304,000
			Engineering (7%)	\$71,000
			Construction Management (7%)	\$71,000
			Administration (2%)	\$20,000
Project Total				\$1,479,000

Table E-47 Project 14A – Upsize Portion of Construction Subtotal Cost

Upsize Description					
From Size	To Size	Unit	Unit Cost	Quantity	Total Cost
6-inch	8-inch	LF	\$297	-	-
8-inch	10-inch	LF	\$324	-	-
10-inch	12-inch	LF	\$378	-	-
12-inch	15-inch	LF	\$392	444	\$173,904
14-inch & 15-inch	18-inch	LF	\$405	-	-
16-inch & 18-inch	21-inch	LF	\$419	52	\$21,804
21-inch	24-inch	LF	\$432	361	\$156,082
	Dig and Replace Lateral to Property Line	EA	\$8,100	17	\$138,931
	Manhole Rehabilitation/Replacement	EA	\$4,725	3	\$12,052
	Post Construction CCTV Inspection	LF	\$6	858	\$5,210
Upsize Subtotal (Portion of Entire Project Construction Subtotal)				-	\$507,983

Appendix D:

Traffic Impact Analysis Technical Memo

Technical Memorandum

November 20, 2023

To	Brendan Byrd, City of Fortuna Director of Public Works/City Engineer		
From	GHD	Project No.	11230253
Project Name	PWP Fortuna Mill District Specific		
Subject	Traffic Impact Analysis Memorandum		

1. Introduction

City of Fortuna as part of a Specific Plan for the Mill District Focus Area is proposing to develop the former Pacific Lumber Company mill site, known as the Mill District, located to the west of Fortuna Boulevard, south of Newburg Road, and north of Kenmar Road in the City of Fortuna, Humboldt County, California. The development plan proposes approximately 381,000 sf of warehouse land use, 173,400 sf of industrial land use, 100,100 sf of retail, a 120-bedroom hotel, and 33,000 sf of vehicle sales and services uses on site.



1.1 Purpose of the Study

GHD Inc. was retained to undertake a traffic study for a site plan application for the proposed development. This traffic study assessed the level of service on the transportation system for existing, existing plus development, future, and future plus development traffic conditions to identify if there will be any impacts and the mitigation measures required to accommodate the proposed development.

1.2 Scope of Analysis

The overall methodology and scope of work for this study were submitted to Planwest Partners and City of Fortuna for review and comment. The study scope of work is described below:

Scenarios Analyzed

- 2023 existing traffic conditions – includes 2021 traffic volumes, collected as part of W-Trans “Traffic Impact Study for a Parcel Distribution Center” study, with growth rate applied to obtain 2023 volumes
- 2023 total conditions - includes year 2023 background traffic conditions and the proposed development fully built-out
- 2045 background conditions – includes year 2045 background traffic conditions
- 2045 total conditions - includes year 2045 background traffic conditions and the proposed development fully built-out

This Technical Memorandum is provided as an interim output under our agreement with City of Fortuna. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

Analysis Time Periods

- Weekday PM peak hour

Intersections Analyzed

- Kenmar Road/US 101 South Ramps
- Kenmar Road/US 101 North Ramps
- Kenmar Road/ Eel River Drive-Atterberry Lane
- South Fortuna Boulevard-Ross Hill Road/Kenmar Road
- South Fortuna Boulevard/McDonalds Driveway
- South Fortuna Boulevard/Newburg Road
- Newburg Road/Randolph Way
- 12th Street/Newburg Road
- Riverwalk Drive-12th Street/US 101 North Ramps
- Riverwalk Drive/US 101 South Ramps

1.3 Analysis Parameters and Methodology

1.3.1 Senate Bill (SB) 743

Senate Bill (SB) 743 was signed into law in 2013, with the intent to better align CEQA practices with statewide sustainability goals related to efficient land use, greater multimodal choices, and greenhouse gas reductions. The provisions of SB 743 became effective Statewide on July 1, 2020. Under SB 743, automobile delay, traditionally measured as level of service (LOS), are no longer considered an environmental impact under CEQA. Instead, impacts are determined by changes to VMT. VMT measures the number and length of vehicle trips made on a daily basis. VMT is a useful indicator of overall land use and transportation efficiency, where the most efficient system is one that minimizes VMT by encouraging shorter vehicle trip lengths, more walking and biking, or increased carpooling and transit. In recognition that the character of communities, availability of travel modes options and geographic areas all differ throughout the State, each jurisdiction, from regional agency, to County, to City, have been given the opportunity to establish their own VMT thresholds consistent with the State's guidelines and regulatory framework. Still, LOS will be utilized as a metric outside of CEQA, within agency policies for development approval.

1.3.2 Level of Service Methodologies

The Synchro 11.0 (Trafficware) software program will be used to implement the HCM 6 analysis methodologies for signalized and stop-controlled intersections. Synchro 11.0 takes into account intersection signal timing and queuing constraints when calculating delay and the corresponding LOS. Intersection Level of Service (LOS) will be calculated for all control types using the methods documented in HCM 6. For signalized or all-way stop-controlled (AWSC) intersections, an LOS determination is based on the calculated averaged delay for all approaches and movements. For two-way or side-street stop controlled (TWSC) intersections, an LOS determination is based upon the calculated average delay for all movements of the worst performing approach. The vehicular-based LOS criteria for different types of intersection controls are presented in Table 1.

Table 1 Level of Service (LOS) Criteria for Intersections

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay per Vehicle	
				Signal	TWSC
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and <20.0	>10.0 and <15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted	>20.0 and <35.0	>15.0 and <25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and <55.0	>25.0 and <35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and <80.0	>35.0 and <50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	>80.0	>50.0

Table 2 presents the technical parameters that will be utilized for the evaluation of the study intersection for the analysis scenarios. All parameters not listed should be assumed as default values or calculated based on parameters listed.

Table 2 Transportation Technical Parameters

	Technical Parameter	Assumption
1	Intersection Peak Hour Factor	0.92 (Default)
2	Intersection Heavy Vehicle Percentage	2% (Default)
3	Saturation Flow Rate (vphpl)	1900 (Default)
4	Grades	0% (Default)

Roundabouts will be analyzed in SIDRA simulation software using HCM 6 Roundabout Capacity Model. SIDRA Intersection 9.0 software was used to perform this analysis.

2. Existing Conditions

2.1 Site and Area Description

The subject site is located east of US Highway 101, west of Fortuna Boulevard, south of Newburg Road, and north of Kenmar Road in the City of Fortuna. The site area is known as the Mill District and is currently vacant with a private portion of Eel River Drive passing through it. The land use surrounding the area, shown in Figure 1, includes mixed use and residential to the east and north, and agriculture and residential to the south.

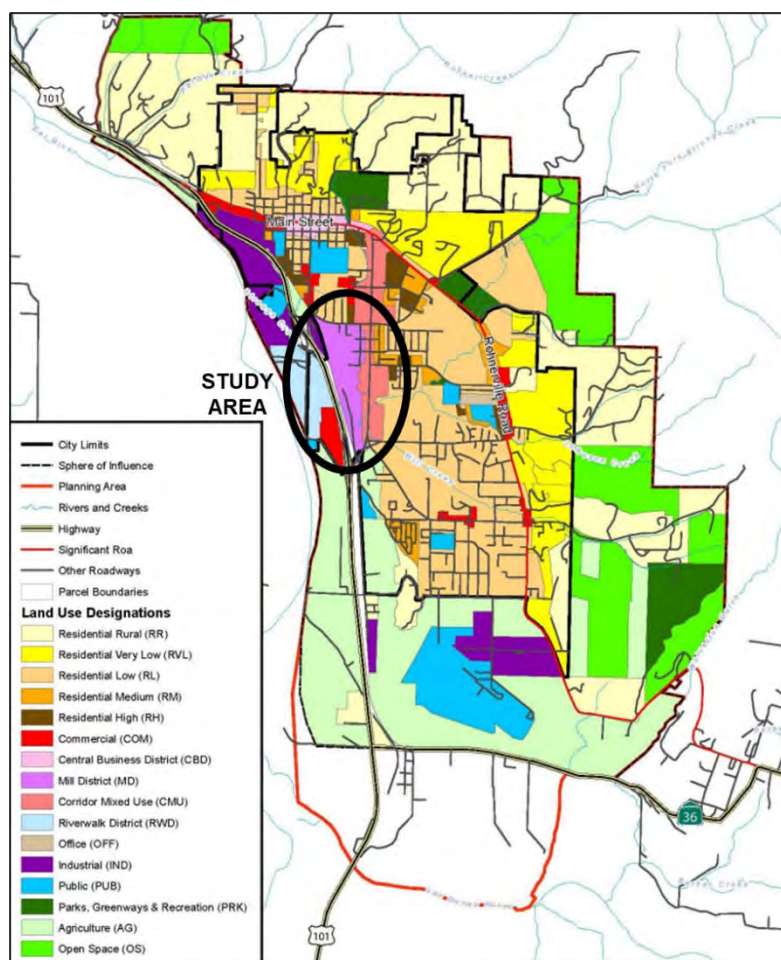


Figure 1 Existing Land Use (City of Fortuna General Plan)

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2.2 Existing and Planned Facilities

2.2.1 Road Facilities

The following provides a description of the primary road facilities within the study area and their relation to the proposed development of the site:

US Highway 101

US Highway 101 (US 101) is a north–south United States Numbered Highway that runs through the states of California, Oregon, and Washington. The portion of US 101 that runs through the study area is also known as Redwood Highway, and is a 4-lane divided highway. Several interchanges in the vicinity provide access to the City of Fortuna, including at (from south to north) Kenmar Road, 12th Street, and Main Street. Being a major highway within the state, US 101 will be the primary facilitator of motor vehicle traffic to and from the site for traffic originating/terminating outside of the City of Fortuna. 12th Street and Kenmar Road would provide access to the proposed development via their interchanges with US 101.

12th Street

12th Street is a 2-lane undivided minor arterial. As noted above, 12th Street forms one of three interchanges with US 101 in the City of Fortuna. Its southern end is located near the north-west boundary of the project site at the interchange with US101 from where it runs north for less than 1 mile, terminating in a residential neighborhood. Near its northern terminus, it intersects with Main Street, another minor arterial.

Existing conditions require traffic to exit US101 at 12th Street and turn right on Newburg Road at a Y-intersection before being able to access the project site.

South of US101 12th Street becomes Riverwalk Dr.

Riverwalk Drive

Riverwalk Drive is a 2-lane undivided collector that runs through the Riverwalk District west of the project site. Currently Riverwalk Drive passes through industrial areas and vacant lots, however according to the City of Fortuna General Plan 2030, the City intends to develop the Riverwalk District to support tourism, retail, business and recreation. Riverwalk Drive connects 12th Street at its northern end to Kenmar Road at its southern end.

Kenmar Road

Kenmar road is a 2-lane undivided road that runs east-west through the urban residential portion of Fortuna, and marks the southern boundary of the project site. Kenmar road is designated as a collector (see Figure 2), providing access to several local residential roads before terminating at Rohnerville Road, a minor arterial within the City. West of Redwood Highway, Kenmar Road becomes Riverwalk Drive. South Fortuna Boulevard intersects Kenmar Road at a signalized intersection located less than a quarter mile from the US 101/Kenmar Road interchange.

South Fortuna Boulevard

Fortuna Boulevard is a 4-lane divided principal arterial within the City of Fortuna, carrying traffic between Main Street in the north and Kenmar Road at its southern end. South Fortuna Boulevard becomes Ross Hill Road south of Kenmar Road. South Fortuna Boulevard runs east of the project site with proposed access to site facilitated through Newburg Road and the proposed Eel River Road.

Newburg Road

Newburg Road is a 2-lane collector forming the northern boundary of the site. The road starts near the north-west corner of the site at its intersection with 12th Street and intersects with South Fortuna Boulevard

before trailing north-east toward the eastern limit of the City of Fortuna and terminating approximately 1.5 miles away from the site in the locality of Newburg.

Eel River Drive

Eel River Drive is a 2-lane undivided local road that runs in the north-south direction south of Fortuna city limits, but within the City's sphere of influence. The paved portion of Eel River Drive terminates at Kenmar Road, but an unpaved access road continues north of this intersection. A park and ride lot lies adjacent to Eel River Drive just south of Kenmar Drive.



Figure 2 Existing Road Facilities

2.2.2 Pedestrian Facilities

Pedestrian facilities generally consist of any fixtures, structures or systems in place to facilitate pedestrian access and movement. These include items such as sidewalks, pedestrian trails and walkways, stairs, pedestrian bridges, crosswalks, pedestrian signals and lighting.

Access to the proposed development will be facilitated primarily through South Fortuna Boulevard, Newburg Road and Kenmar Road. Other means of pedestrian access include the proposed Great Redwood Trail which would pass through and adjacent to the project site.

South Fortuna Boulevard

Sidewalks exist on both sides of South Fortuna Boulevard north of Newburg Road. The west side of South Fortuna Boulevard has sidewalk coverage up to approximately ½-mile south of Newburg Road

(approximately 60% of the distance between Newburg Road and Kenmar Road), ending near the driveway between McDonald's and Burger King. On the east side of South Fortuna Boulevard, sidewalk coverage is interrupted between Burger King and Strongs Creek Drive, with a 400-ft stretch of coverage existing between Strongs Creek Drive and the Starbucks Coffee driveway, approximately 650-ft north of the Kenmar Road intersection. Crosswalks are present at the signalized intersections with Kenmar Road on three of four sides of the intersection, Strongs Creek Drive (two of three sides), Redwood Way (two of three sides) and Newburg Road (three of four sides). A signalized midblock crossing exists 60-ft south of Spring Street (O'Reilly Auto Parts). No pedestrian crosswalks exist at intersections with South 1st Avenue and 2nd Avenue, with the nearest crosswalks being approximately 520-ft and 450-ft away.

South of Newburg Road, consistent street lighting exists up to Spring Street (approximately 40% of the length between Newburg Road and Kenmar Road), and at the signalized intersections with Strongs Creek Drive and Kenmar Road.

Newburg Road

Directly north of the project site, between 12th Street and South 15th Street, sidewalk coverage exists only along the north side of Newburg Road. East of South 15th Street and up to Rohnerville Road (approx. ¾-mile east of the project site), sidewalk coverage exists on both sides of Newburg Road. Crosswalks exist at the intersection with South Fortuna Boulevard with the exception of the south side of the intersection, where pedestrians would be required to cross to the north side before being able to cross South Fortuna Boulevard. An unsignalized midblock crossing exists at Spring Street (350-ft west of South Fortuna Boulevard).

Between 12th Street and South Fortuna Boulevard, streetlights are mounted on some utility poles. The streetlights are spaced at approximately 350-ft to 400-ft.

Kenmar Road

No sidewalks exist on Kenmar Road between the US101 interchange and South Fortuna Boulevard, and crosswalks and street lighting in this area are limited to the intersection with South Fortuna Boulevard. Consistent sidewalks and streetlights exist on the north side of Kenmar Road east of South Fortuna Boulevard.

In addition to the existing roadways, several multi-purpose trails are proposed within and around the project site, according to the City of Fortuna General Plan 2030. Of note, is the Great Redwood Trail (GRT), a planned 316-mile trail connecting San Francisco Bay to Humboldt Bay. Locally, the plan is currently for the GRT to run primarily in place of the abandoned train rail along the western boundary of the project site. Furthermore, the Strongs Creek trail, running along Strongs Creek is also planned through the project site and will connect to the GRT. In addition to recreational use, the proposed trails can be a means of access to the site for staff and patrons travelling on foot or bicycle.

2.2.3 Bicycle Facilities

Bicycle facilities include roads and trails safely accessible to cyclists. This can include streets and highways without designated bike lanes, though high motor vehicle volumes coupled with limited lane widths, high speed limits and conflict points with motor vehicles at intersections can often pose serious safety concerns and dissuade the use of the certain roadways for cycling. This is most often the case in urban environments due to higher motor vehicle volumes. Therefore, the provision of designated bike lanes and other bikeways can be necessary to safely facilitate bicycle transportation. In the Highway Design Manual, 2020, Caltrans identifies five types of facilities accessible to bicycles:

- Shared roadway (no bikeway designation): Any street or highway without a bikeway.
- Class I Bikeway (Bike Path): Paths completely separate from streets and highways, often serving corridors not served by roads, such as through a utility right of way, along rivers and ocean fronts, canals, abandoned railroads, etc.
- Class II Bikeway (Bike Lane): A marked lane on a street for exclusive use of bicycle traffic. Sometimes with special signal facilities.

- Class III Bikeway (Bike Route): Facilities normally shared with motor vehicles, often with signage indicating that the street or highway lane must be shared with bicycle traffic. The responsible authority would ensure that the facility is suitable as a shared route. Class III facilities have continuity with other bicycle facilities (usually Class II).
- Class IV Bikeway (Separated Bikeway): A bikeway for the exclusive use of bicycles, using the same right of way as motor vehicle traffic but separated from motorized traffic by grade separation or some other barrier, such as flexible posts, on-street parking, rigid barriers, etc.

Existing facilities that could potentially provide bicycle access to the proposed development are generally limited to shared roadways, with the exception of a single bike lane (Class II) on the east side of South Fortuna Boulevard between Strongs Creek Drive and Kenmar Road (1/4-mile) and extending further south through Ross Hill Road. On the east side of Riverwalk Drive there is a 0.4-mile long bike lane (Class II), however it starts and ends on Riverwalk Drive and does not currently connect to the project site.

According to the City of Fortuna General Plan 2030, several new interconnected bikeways are planned around the project site. This includes planned bike lanes (Class II) for South Fortuna Boulevard, Newburg Road, 12th Street, Redwood Way, Kenmar Road (east of South Fortuna Boulevard) and extensions to the bike lane on Riverwalk Drive. A multi-use path is planned along Strongs Creek, a portion of which goes through the project site and terminates at the planned Great Redwood Trail along US 101. Additionally a bike path (Class I) is planned between Strongs Creek trail within the project site and West School Street (approx. 1/2-mile south of Kenmar Road).

2.2.4 Transit Facilities

Currently, two transit services operate within the City of Fortuna, including the Redwood Transit System, and Fortuna Transit (senior bus).

The Redwood Transit System (RTS) operates a commuter route between the Town of Scotia and the City of Trinidad with six stops in the City of Fortuna. Several stops near the project site exist, including the Fortuna Park & Ride on Kenmar Road directly south of the project site, two stops near South Fortuna Boulevard/Redwood Way, and one stop on Riverwalk Drive. The RTS route operates Monday – Saturday with more than 600,000 passenger trips per year. Additionally, the Southern Humboldt Intercity route, also operated by RTS provides service between Benbow and Eureka with four stops in Fortuna, with the stop on Redwood Way near South Fortuna Boulevard being the closest to the project site.

The City of Fortuna operates Fortuna Transit, a dispatcher-based system for people at least 50 years old and persons with a disability. The system operates within the boundaries of the City of Fortuna.

2.3 Existing Project Conditions

For the purposes of proposed project analysis, PM Traffic counts from W-Trans' *"Traffic Impact Study for a Parcel Distribution Center"* collected on October 7, 2021 and November 11, 2021 were used except for counts at Kenmar Road and Atterberry Lane/Eel River Drive which were taken from GHD's *"US 101 at Kenmar Road Interchange"* (January 2021) study. City's General Plan growth rate of 1.6% per year was further applied to the counts to represent the existing year (2023).

Figure 3 illustrates the turning movement volumes and lane geometry/control at the study intersections under Existing Conditions, based on the turning movement counts discussed above.

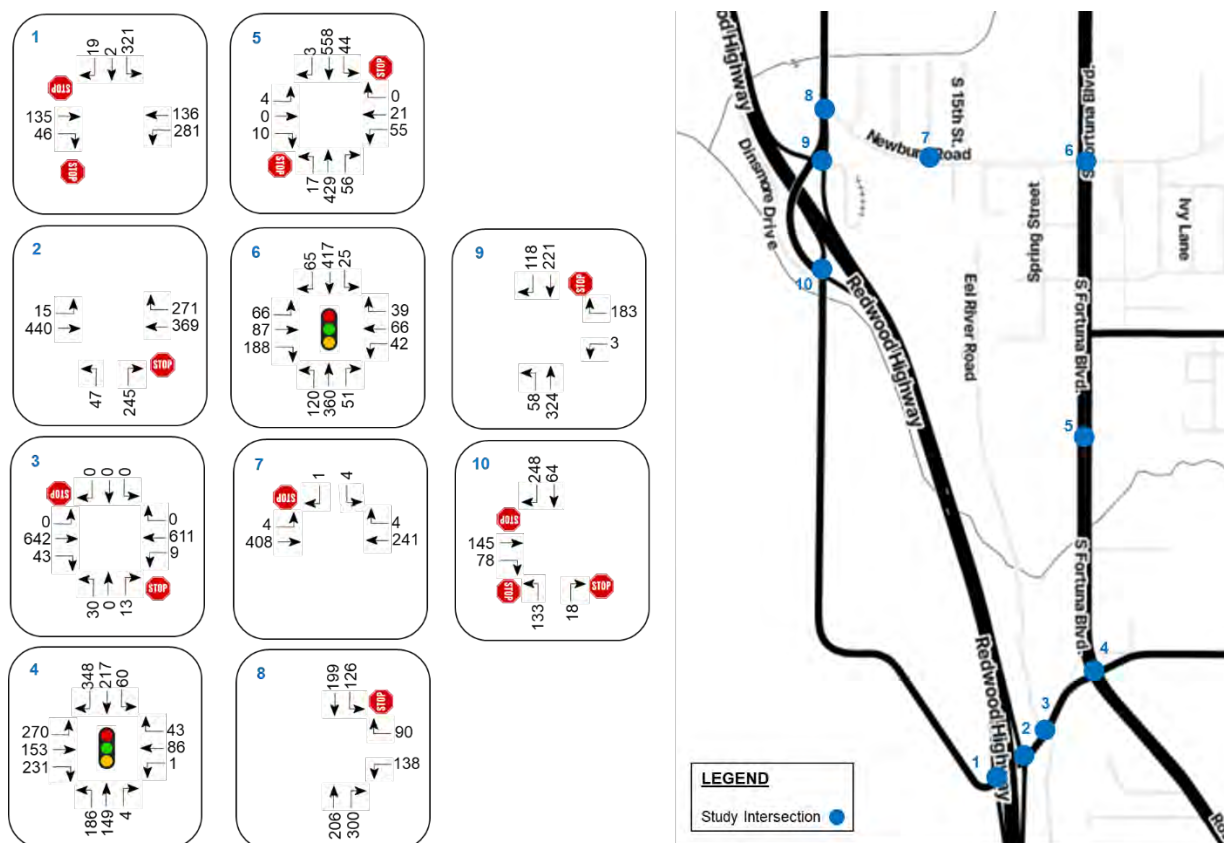


Figure 3 Existing Traffic Volumes

As shown in Table 3, under the existing conditions, the majority of intersections are operating acceptably with the exception of Kenmar Road/ Atterberry Lane-Eel River Drive (LOS E), Kenmar Road/ Ross Hill Road – S Fortuna Boulevard (LOS E), and 12th Street/ Newburg Road (LOS D). A detailed summary and synchro reports are shown in **Appendix B**.

Table 3 Existing Peak Hour Intersection Level of Service

#	Intersection	Control Type	Delay	LOS
1	Kenmar Rd & US 101 SB Ramps	TWSC	15.6	C
2	Kenmar Rd & US 101 NB Ramps	TWSC	16.7	C
3	Kenmar Rd & Atterberry Lane/Eel River Dr <i>Critical Movement: NB Approach</i>	TWSC	40.2	E
4	Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	Signalized	55.4	E
5	S Fortuna Blvd & Driveway & McDonalds Driveway	TWSC	38.7	C
6	S Fortuna Blvd & Newburg Rd	Signalized	27.2	C
7	Newburg Rd & Randolph Way	TWSC	13.3	B
8	12th St & Newburg Rd <i>Critical Movement: WB Approach</i>	TWSC	25.0	D
9	12th St/ Riverwalk Dr & Pond St & NB 101 Ramp	TWSC	1.2	A
10	Riverwalk Dr & 101 SB Ramp	AWSC	10	A

1. Under HCM 6 methodology, overall intersection LOS for two-way stop-control (TWSC) is determined by the highest delay minor street approach.

3. Project Description and Impacts

3.1 Development Summary

The development of the site is proposed to include approximately 381,000 sf of warehouse land use, 173,400 sf of industrial land use, 100,100 sf of retail, a 120-bedroom hotel, and 33,000 sf of vehicle sales and services uses on site (shown in **Appendix A**).

The site is proposed to include 1065 auto parking spaces and 82 tractor/ trailer parking spaces. Based on the requirements of the 2022 California Green Building Standard (CGBS), as applicable, the number of required electric vehicle (EV) capable parking spaces is estimated to be about 20% of parking spaces, and an estimated 25% of which must be equipped with EV charging stations. This equates to 210 EV capable spaces, 53 of which must be equipped with EV charging stations. Furthermore, based on the CGBS, secure bicycle parking must be provided for 5% of vehicle parking spaces, which equates to a secure parking capacity of 53 bicycles¹.

California Building Code further requires the provision of 20 required accessible parking spaces plus 1 for each 100, or fraction thereof, over 1000 when total number of parking spaces provided by the facility exceed 1001 spaces.

3.2 Site Access

According to the Conceptual Site Plan for the proposed development, a new Eel River Road is proposed that would provide vehicle access and thoroughfare from Newburg Road at the north end and curving eastward through the site to South Fortuna Boulevard at a proposed intersection located approximately at the halfway point between Newburg Road and Kenmar Road. Additionally, a driveway is proposed at the south end of the site allowing for access from Kenmar Road near the interchange with US Highway 101.

Although the driveway on Kenmar Road meets the HDM Index 405.10 (13) standard stating that driveways shouldn't be placed with 50 feet of the Inscribed Circle Diameter (ICD) of the roundabout, it is typically not desirable to provide full access driveways in the areas of splitter islands and raised lane separations and it is therefore recommended to make the driveway a right-in/right-out access.

3.3 Trip Generation, Distribution and Assignment

3.3.1 Trip Generation

The project trip generation forecast describes the anticipated increase in vehicle trips that is anticipated to result from the project. This includes a forecast of vehicle trips that would be generated during the typical weekday PM peak hour (one hour between 4:00 PM and 6:00 PM). The volume of vehicle trips that would be generated by the proposed project was estimated based on trip generation data from the Institute of Transportation Engineers (ITE) *Trip Generation Manual (11th Edition, 2021)* and based on procedures from the ITE *Trip Generation Handbook (3rd Edition, 2017)*.

The project site region north of Strongs Creek would include a mixture of connected industrial and commercial land uses largely consistent with the ITE Business Park land use (Code 770). The region south of the creek would not have a direct connection with the north region for non-emergency vehicles and was analyzed separately. Table 4 presents the forecasted trip generation for the project. As shown, the project is forecasted to generate 1,003 vehicle trips during the PM peak hour.

¹ Source: <https://codes.iccsafe.org/content/CAGBC2022P1/chapter-5-nonresidential-mandatory-measures>

Table 4 Project Trip Generation

ITE Code	Land Use	Intensity	Units	PM Peak Hour		
				Total	In	Out
310	Hotel	120	Rooms	61	31	30
822	Strip Retail Plaza	18	KSF	118	59	59
840	Automobile Sales (New)	33	KSF	81	32	49
770	Business Park	636.5	KSF	743	193	550
Total Vehicle Trips				1,003	315	688
Notes:						
1. KSF=1,000 square feet						

3.3.2 Trip Distribution and Assignment

The project trip distribution was determined based on the anticipated origin and destination pattern. This was derived from residency and employment information for Humboldt County and existing travel characteristics in the study area. Truck trips were assumed to comprise 10% of the Business Park trips based on existing truck data for US 101 near the project site. These trips were converted into Passenger Car Equivalents (PCE) with a factor of 3.0. Trips for the remaining land uses were assumed to be consistent with the existing truck mix on City roadways in the study area and were not adjusted. It was assumed that all project driveways will provide full access. The anticipated distribution of project trips is shown in Table 5.

Table 5 Project Trip Distribution

To/From	Project Site Region	
	North of Creek	South of Creek
US 101 north of Fortuna via 12th St	30%	0%
US 101 north of Fortuna via Kenmar Rd	15%	45%
US 101 south of Fortuna via Kenmar Rd	10%	15%
US 101 south of Fortuna via 12th St	5%	0%
Northern Fortuna via 12th St	8%	0%
Northern Fortuna via N Fortuna Blvd	0%	8%
Central Fortuna via S Fortuna Blvd to S Fortuna Blvd	3%	6%
Central Fortuna via S Fortuna Blvd to Newburg Rd	3%	6%
Central Fortuna via Newburg Rd to S Fortuna Blvd	3%	0%
Central Fortuna via Newburg Rd to Newburg Rd	3%	0%
East Fortuna via Kenmar Rd	4%	4%
East Fortuna via Redwood Way	4%	4%
South Fortuna via Ross Hill Rd	6%	6%
West Fortuna via 12th St	3%	0%
West Fortuna via Kenmar Rd	3%	6%
Total	100%	100%

3.4 Existing Plus Project Conditions

The addition of project-related traffic to existing volumes is shown in Figure 4

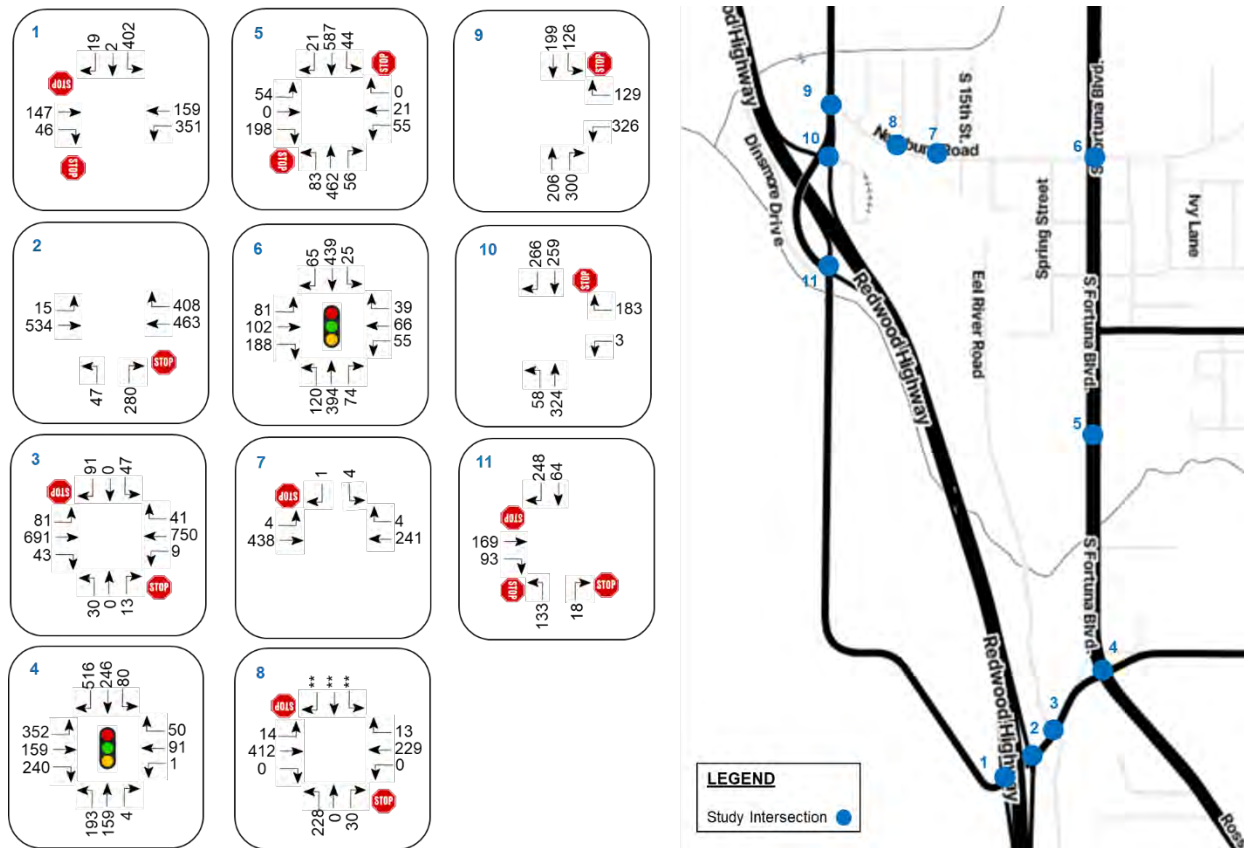


Figure 4 Existing Plus Project Traffic Volumes

** Counts not available at this intersection.

The addition will result in further degradation of some intersections operation. As shown in Table 6, Kenmar Road/ US 101 SB Ramp (LOS E), Kenmar Road/ Atterberry Lane-Eel River Drive (LOS F), Kenmar Road/ Ross Hill Road – S Fortuna Boulevard (LOS F), S Fortuna Boulevard/ Driveway Access (LOS F), Newburg Road/ Driveway Access (LOS E) and 12th Street/ Newburg Road (LOS F) are operating at LOS E or worse.

Table 6 Existing Plus Project Peak Hour Intersection Level of Service

#	Intersection	Control Type	Delay	LOS
1	Kenmar Rd & US 101 SB Ramps <i>Critical Movement: SB Approach</i>	TWSC	53.1	E
2	Kenmar Rd & US 101 NB Ramps	TWSC	22.3	C
3	Kenmar Rd & Atterberry Lane/Eel River Dr <i>Critical Movement: NB Approach</i>	TWSC	265.5	F
4	Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	Signalized	96.1	F
5	S Fortuna Blvd & Driveway & McDonalds Driveway <i>Critical Movement: WB and EB Approaches</i>	TWSC	145.5	F
6	S Fortuna Blvd & Newburg Rd	Signalized	27	C

#	Intersection	Control Type	Delay	LOS
7	Newburg Rd & Randolph Way	TWSC	13.7	B
8	Sunnybrook Dr/Driveway Access & Newburg Rd <i>Critical Movement: NB Approach</i>	TWSC	45.7	E
9	12th St & Newburg Rd <i>Critical Movement: WB Approach</i>	TWSC	148.0	F
10	12th St/ Riverwalk Dr & Pond St & NB 101 Ramp	TWSC	1.3	A
11	Riverwalk Dr & 101 SB Ramp	AWSC	10.4	B

- Under HCM 6 methodology, overall intersection LOS for two-way stop-control (TWSC) is determined by the highest delay minor street approach.

It should be noted that the access at S Fortuna Boulevard and Driveway meets the requirement for a signal warrant and could be further mitigated with the provision of signals at the intersection.

3.5 Future Conditions

City's General Plan growth rate of 1.6% was further applied to the counts to obtain future year 2045 volumes (Figure 5), with the exception of 12th St/ Riverwalk Dr & Pond St & NB 101 Ramp roundabout volumes which were taken from GHD's "12th Street Interchange Modernization" Project (April 2023).

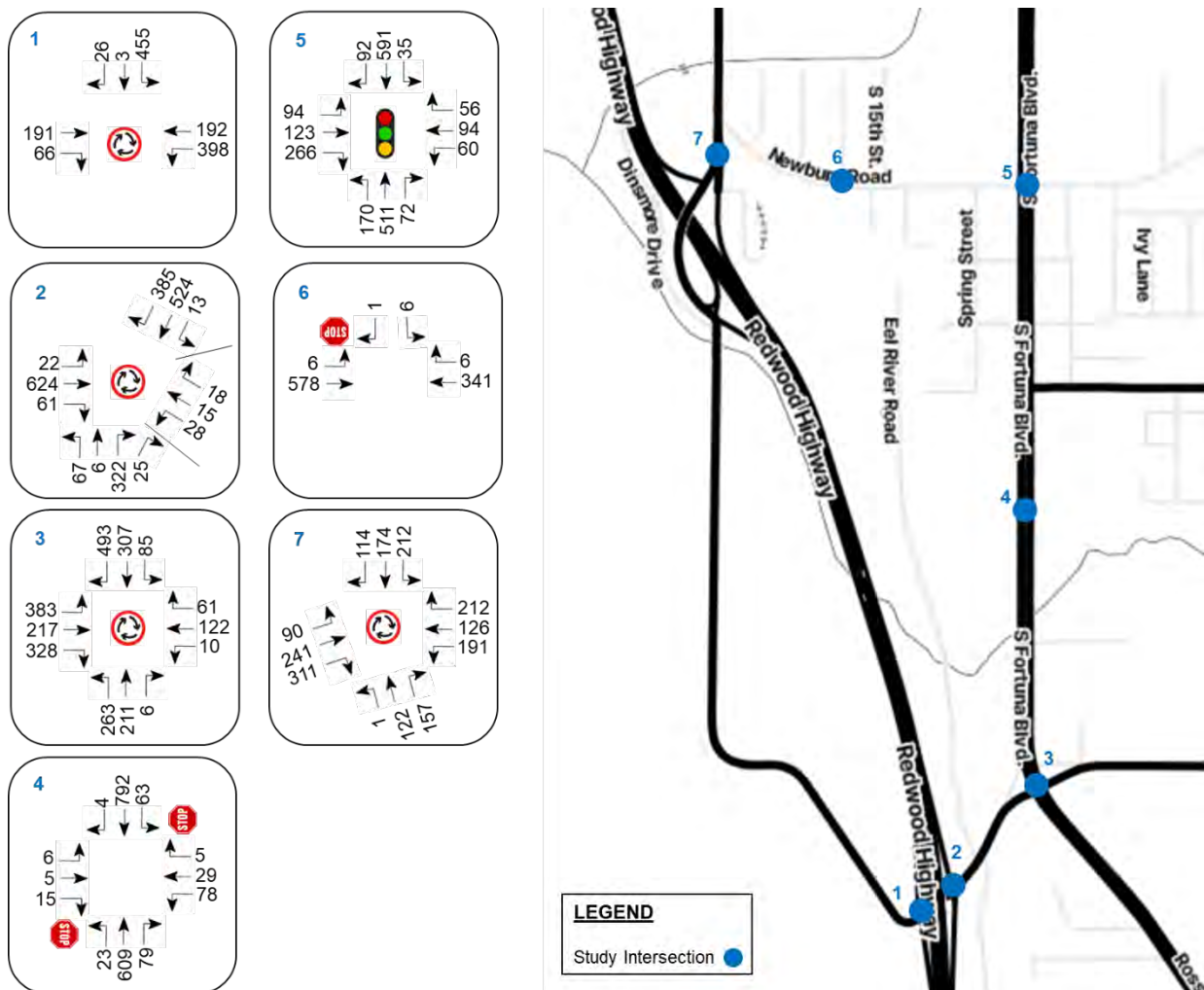
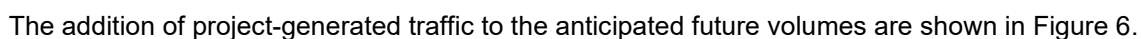


Figure 5 Future Traffic Volumes

As shown in Table 7, under the future conditions, the majority of intersections are operating acceptably with the exception of S Fortuna Boulevard/ McDonalds Driveway (LOS F), and S Fortuna Boulevard/ Newburg Road (LOS D).

- | # | Intersection | Control Type | Delay | LOS |
|---|---|--------------|--------------|----------|
| 1 | Kenmar Rd & US 101 SB Ramps | Roundabout | 12.2 | B |
| 2 | Kenmar Rd & US 101 NB Ramps | Roundabout | 6.9 | A |
| 3 | Kenmar Rd & Ross Hill Rd & S Fortuna Blvd | Roundabout | 8.7 | A |
| 4 | S Fortuna Blvd & Driveway & McDonalds Driveway | TWSC | 344.3 | F |
| 5 | S Fortuna Blvd & Newburg Rd | Signalized | 48.2 | D |
| 6 | Newburg Rd & Randolph Way | TWSC | 17.9 | C |
| 7 | 12th St & Newburg Rd & Riverwalk Dr & Pond St & NB 101 Ramp | Roundabout | 10.7 | B |

3.6 Future Plus Project Conditions



As shown in Table 8, addition of project-related traffic to future volumes will result in further degradation of some intersections operation. Under the future plus project conditions, the majority of intersections are operating acceptably with the exception of S Fortuna Boulevard/ McDonalds Driveway (LOS F), S Fortuna Boulevard/ Newburg Road (LOS D), and Newburg Road/ Driveway Access (LOS F).

Table 8 Future Plus Project Peak Hour Intersection Level of Service

#	Intersection	Control Type	Delay	LOS
1	Kenmar Rd & US 101 SB Ramps	Roundabout	18.4	B
2	Kenmar Rd & US 101 NB Ramps	Roundabout	8.4	A
3	Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	Roundabout	10.3	B
4	S Fortuna Blvd & Driveway & McDonalds Driveway	TWSC	1595.9	F
5	S Fortuna Blvd & Newburg Rd	Signalized	47.3	D
6	Newburg Rd & Randolph Way	TWSC	18.5	C
7	Sunnybrook Dr/Driveway Access & Newburg Rd	TWSC	231.4	F
8	12th St & Newburg Rd & Riverwalk Dr & Pond St & NB 101 Ramp	Roundabout	23.3	C

1. Under HCM 6 methodology, overall intersection LOS for two-way stop-control (TWSC) is determined by the highest delay minor street approach.

In order to achieve acceptable operations, signal warrant analysis was undertaken for both S Fortuna Boulevard/ McDonalds Driveway and Newburg Road/ Driveway Access. Both accesses meet the requirements for the provision for a signalized intersection. The signal timing at S Fortuna Boulevard/ Newburg Road was also optimized. The mitigated result for S Fortuna Boulevard/ Newburg Road is shown in Table 9 and signal warrants are provided in **Appendix C**.

Table 9 Future Plus Project Peak Hour Intersection Level of Service - Mitigated

#	Intersection	Control Type	Delay	LOS
5	S Fortuna Blvd & Newburg Rd	Signalized	26.0	C

4. Conclusions and Recommendations

The proposed project is expected to generate an average of 1,003 trips during the PM peak hour, causing some operational issues under existing conditions at Kenmar Road/ US 101 SB Ramp, and at the two project accesses on S Fortuna Boulevard and Newburg Road and further degradation at Kenmar Road/ Atterberry Lane-Eel River Drive, Kenmar Road/ Ross Hill Road -S Fortuna Boulevard, and 12th Street/ Newburg Road. Under future conditions, however, planned improvements such as the provision of roundabouts at Kenmar Road/ US 101 Ramps, Kenmar Road/ Ross Hill Rd & S Fortuna Blvd and 12th St & Newburg Rd/ US 101 NB 1 Ramp will help alleviate the operational issues observed during the existing conditions with the exception of S Fortuna Boulevard/ Driveway, S Fortuna Boulevard/ Newburg Road, and Newburg Road/ Driveway which could be mitigated through the provision of signals and optimization of signal timing plan at S Fortuna Boulevard/ Newburg Road.

It is also recommended that sidewalks and lighting be provided along the south side of Newburg Road to facilitate pedestrian access to the development from the north end. Additionally, it is expected that pedestrian demand at the South Fortuna Boulevard/Newburg Road intersection will likely increase following

the construction of the proposed development and the present lack of a crosswalk at the south side of this intersection could result in illegal and unsafe crossings. Therefore, it is recommended that a crosswalk be introduced as a mitigation measure. Furthermore, it is recommended that sidewalks and lighting be introduced near the southern end of South Fortuna Boulevard where they are presently lacking in order to facilitate pedestrian traffic with destinations/origins in nearby residential areas off Kenmar Road and Ross Hill Road.

5. Fair Share of Improvement Cost Calculations

The table below identifies study intersections with proposed improvements and the corresponding equitable share of these improvements. The proposed projects' equitable share is calculated using the methodology outlined in the Caltrans Guide for the Preparation for Traffic Impact Studies (State of California, DOT, December 2002), which is shown below.

$$P = T / (T_B - T_E) \text{ where,}$$

P = The equitable share for the project's traffic impact.

T = The vehicle trips generated by the project during the peak hour of adjacent roadway facility in vehicles per hour (vph).

T_B = The forecasted traffic volume on an impacted roadway facility at the time of general plan build-out (e.g. 20-year model or the furthest model date feasible), vph.

T_E = The traffic volume existing on the impacted roadway facility plus other approved projects that will generate traffic that has yet to be constructed/opened, vph.

Note that the percent fair-share calculated using the above formula is reported to the nearest whole number and the calculations are based on the highest fair-share percentage from all three peak hour scenarios.

5.1 Year 2045 Plus Project Fair-Share

Upon the City's direction, fair-share cost calculations were conducted for only the cumulative (Year 2045) conditions.

5.2 Intersections

The table below presents a summary of fair-share cost calculations performed for the study intersections with proposed improvements.

Future Plus Project Intersections	ID	T	T _B	T _E	Fair Share Calculation
Kenmar Rd & US 101 SB Ramps	1	188	1519	940	33%
Kenmar Rd & US 101 NB Ramps*	2	406	2516	1410	37%
Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	3	343	2829	1748	32%
S Fortuna Blvd & Driveway & McDonalds Driveway	4	385	2093	1197	43%
S Fortuna Blvd & Newburg Rd	5	123	2287	1526	16%
Newburg Rd & Randolph Way	6	30	968	662	10%
Sunnybrook Dr/Driveway Access & Newburg Rd***	7	-	1221	-	N/A
12th St & Newburg Rd & Riverwalk Dr & Pond St & NB 101 Ramp**	8	229	2180	1121	22%

This technical memorandum has been prepared by GHD for City of Fortuna. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

Accessibility of documents

If this Technical Memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.

Technical Memorandum

May 31, 2024

To	Merritt Perry	Contact No.	707.267.2275
Copy to	Vanessa Blodgett, Brett Vivyan	Email	Zach.stinger@ghd.com
From	Zach Stinger	Project No.	11230253
Project Name	PWP Fortuna Mill District Specific		
Subject	Analysis Progress Update		

1. Introduction

This Memorandum has been prepared to present an update on the progress of the intersection volume check and updated analysis being performed on the Kenmar interchange and the 12th Street intersections due to the Mill District Project projected trips.

2. Volume Comparison

The existing volumes previously used have been compared to newly obtained counts. Additionally, the growth methodology was reanalyzed to ensure the previous cumulative analysis reported conservative results for potential traffic from the Mill District project.

2.1 Existing Intersection Volumes

New counts were collected at the following intersections:

- Kenmar Rd & US 101 SB Ramps
- Kenmar Rd & US 101 NB Ramps
- Kenmar Rd & Atterberry Lane/Eel River Dr
- Kenmar Rd & Ross Hill Rd & S Fortuna Blvd
- 12th St & Newburg Rd
- 12th St/ Riverwalk Dr & Pond St & NB 101 Ramp

These new counts were compared to counts collected in 2021 for previous studies.

Table 2.1 presents the existing (2021) volumes obtained from the previous studies.

Table 2.1 *Intersection Volumes from Previous Studies*

Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Kenmar Rd & US 101 SB Ramps	0	0	0	321	2	19	0	135	46	281	136	0
Kenmar Rd & US 101 NB Ramps	47	0	245	0	0	0	15	440	0	0	369	271
Kenmar Rd & Atterberry Lane/Eel River Dr	30	0	13	0	0	0	0	642	43	9	611	0
Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	186	149	4	60	217	348	270	153	231	1	86	43
12th St & Newburg Rd	0	206	300	126	199	0	0	0	0	138	0	90
12th St/ Riverwalk Dr & Pond St & NB 101 Ramp	58	324	0	0	221	118	0	0	0	3	0	183

Table 2.2 presents the new (2024) intersection counts.

Table 2.2 *2024 Intersection Volumes*

Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Kenmar Rd & US 101 SB Ramps	0	0	0	314	0	6	0	117	51	265	123	0
Kenmar Rd & US 101 NB Ramps	43	0	227	0	0	0	9	359	0	0	349	248
Kenmar Rd & Atterberry Lane/Eel River Dr	27	0	14	0	0	0	0	566	35	12	585	0
Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	191	258	24	49	198	291	211	101	226	6	80	69
12th St & Newburg Rd	125	0	130	0	0	0	0	184	221	142	222	0
12th St/ Riverwalk Dr & Pond St & NB 101 Ramp	61	305	0	3	193	122	0	0	0	2	0	2

Table 2.3 presents the difference between the previous counts used and the new counts that have been collected.

Table 2.3 *Difference Between the New and Old Counts*

Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Kenmar Rd & US 101 SB Ramps	0	0	0	-7	-2	-13	0	-18	5	-16	-13	0
Kenmar Rd & US 101 NB Ramps	-4	0	-18	0	0	0	-6	-81	0	0	-20	-23

Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Kenmar Rd & Atterberry Lane/Eel River Dr	-3	0	1	0	0	0	0	-76	-8	3	-26	0
Kenmar Rd & Ross Hill Rd & S Fortuna Blvd	5	109	20	-11	-19	-57	-59	-52	-5	5	-6	26
12th St & Newburg Rd	125	-206	-170	-126	-199	0	0	184	221	4	222	-90
12th St/ Riverwalk Dr & Pond St & NB 101 Ramp	3	-19	0	3	-28	4	0	0	0	-1	0	-181

As presented in Table 2.3, the new intersection counts were overall lower than the counts from the previous studies. Therefore, no adjustments need to be made to the base volumes.

2.2 Growth Volumes

The forecasted volumes were originally calculated using the Humboldt County Travel Demand Model. These are being compared to the Mill District Project trips to ensure the cumulative volumes aren't being over or under projected.

It has been determined that the PM peak hour has the heaviest traffic, so any improvements that operate acceptable during that period will operate acceptable in the AM peak hour as well. The volumes along the Kenmar intersections are projected to be lower than previously analyzed or around the same. So previous analysis will be comparable. However the 12th Street intersections will need to be reanalyzed as the project is projected to generate more trips that was originally calculated based on the Humboldt Model.

3. Next Steps

The Cumulative Plus Project volumes in the PM peak hour are being finalized and will be analyzed for both existing intersection geometry and control, and for the proposed alternatives, at the Kenmar Interchange, the Ross Hill/Kenmar intersection, and the 12th street/US 101 Intersection.