



City of Fortuna General Plan Background Report



Demographics
& Economics



Land Use



Community
Character/
Design



Traffic &
Circulation



Natural &
Cultural
Resources



Public
Facilities &
Services



Public Health &
Safety





City of Fortuna

General Plan Background Report Public Hearing Draft

prepared by

**Mintier & Associates
Planwest Partners
W-Trans
SHN Engineers & Geologists**

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GENERAL PLAN CREDITS

CITY OF FORTUNA

CITY COUNCIL

John Campbell, Mayor
Pat Whitchurch, Mayor Pro Tem
Mel Berti, Councilman
Dean Glaser, Councilman
Doug Strehl, Councilman

PLANNING COMMISSION

Travis Low
Tami Gillam
Arden Henry
Neal Kesterson
John Marshall
Marvin Schwartz
Darren Tomasini

CITY STAFF

Duane Rigge, City Manager
Liz Shorey, City Planner
Stephen Avis, Assistant City Planner

COMMUNITY ADVISORY GROUP (CAG)

Matt Allen
Craig Berry
Mel Berti
John Campbell
Charlotte McDonald
Shannon McWhorter
Lisa Shikany
Doug Strehl
Ed Tanferani
Dawn Walcott

CONSULTANTS

MINTIER & ASSOCIATES, INC.

Larry Mintier, FAICP, Managing Principal
Jim Pepper, Senior Associate
Derek DiManno, AICP, Senior Project Manager
Ted Holzem, Associate
Jessica Schwartz, Assistant

PLANWEST PARTNERS

George Williamson, Principal
John Miller, Community & Economic Planner
Saskia Burrnett, Assistant Planner
Tiffany Wilson, Assistant Planner
Chris Trudel, GIS Analyst
Steven Hackett, Ph.D.
Alex Stillman, Principal Historian
Suzanne Guerra, Associate Public Historian

WHITLOCK & WEINBERGER TRANSPORTATION, INC.

Dalene J. Whitlock, PE, PTOE
Chris Helmer, Transportation Planner
Josh Abrams, Transportation Planner

SHN ENGINEERS AND GEOLOGISTS

Mike Foget P.E., Director of Environmental Services
Rob Wall, AICP, Senior Planner
Roland S. Johnson, C.E.G., Regional Manager
Tom A. Stephens, R.G., Geosciences Director
Arnie Herskovic, Economic Planning/Project Development



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1

Introduction

1.1 What is a General Plan?

Every city and county in California is required by State law to prepare and maintain a planning document called a general plan. A general plan serves as the jurisdiction's "constitution" or "blueprint" for future decisions concerning land use and resource conservation. All specific plans, subdivisions, public works projects, and zoning decisions must be consistent with the local jurisdiction's general plan.

A general plan has three defining features:

General. As the name implies, a general plan provides general guidance for future land use, transportation, and resource decisions.

Comprehensive. A general plan covers a wide range of social, economic, infrastructure, and natural resource issues. These include land use, housing, transportation, public facilities and services, recreation, agriculture, biological resources, and many other topics. Section 1.5 lists the topics covered in the Fortuna General Plan Background Report.

Long-Range. A general plan provides guidance on achieving a long-range vision for a city's future. To reach this envisioned future, the general plan must include policies and implementation programs that address both near-term and long-term needs. For Fortuna, the General Plan looks out to the year 2030 (roughly 25 years in the future).

2

Demographics & Economic Conditions



2.1 Introduction

This chapter describes key trends and forecasts relating to Fortuna's demographic and economic conditions.

This chapter is divided into the following sections:

- Demographics (Section 2.2)
- Economic Conditions (Section 2.3)

2.2 Demographics

Introduction

This section describes the demographic characteristics of Fortuna residents. This material includes both past and current data, with comparisons between Fortuna and Humboldt County. Forecasts are also provided for population and housing demand in Fortuna through 2030.

Key Terms

Average Annual Compound Growth Rate. A measure of population change on average, per year, over a multiple-year period, after the effects of compounding.

Demographics. The characteristics of human population and population segments.

Ethnicity. A group of people united or classified together on the basis of common history, nationality, or geographic distribution

Hispanic. Persons whose ancestry hails either from Spain, the Spanish-speaking countries of Latin America, or the original settlers of the traditionally Spanish-held Southwestern United States. The term is used as a broad form of classification in the U.S. census, local and federal employment, and numerous business market researches.

Race. A local geographic or global human population distinguished as a more or less distinct group by genetically transmitted physical characteristics or common history, nationality, or geographic distribution.

Total Fertility Rate. The average number of children a woman would bear in her lifetime at current age-specific fertility rates.



Regulatory Setting

No regulatory documents or agencies are discussed for this section.

Existing Conditions

Population Growth. The city of Fortuna has grown by 3,650 people during the past 25 years from 7,600 in 1980 to 11,250 in 2005, at an average annual growth rate of 1.6 percent. Table 2-1 shows the changes in population for the city and Humboldt County in five-year increments. The largest population gain in the city was from 1985 through 1990 when the city grew by 900 people (10.2 percent). Growth slowed from 1995 to 2000 with only a 7.6 percent change, and lessened slightly more over the past five years, 2000 through 2005 (6.7 percent). The California Department of Finance (DOF) estimated the city’s population in 2000 at 10,498. The DOF estimates the city of Fortuna’s 2005 population to be 11,250, an average annual growth rate of 1.6 percent.

TABLE 2-1 HISTORIC POPULATION GROWTH City of Fortuna and Humboldt County 1980-2005				
Year	City of Fortuna		Humboldt County	
	Population	Percent Change	Population	Percent Change
1980	7,600	N/A	108,400	N/A
1985	7,850	3.1	110,500	1.9
1990	8,750	10.2	118,400	6.7
1995	9,693	9.7	124,200	4.6
2000	10,498	7.6	126,859	2.1
2005	11,250	6.7	131,334	3.4

Source: California Department of Finance, 2005.

Projections. Table 2-2 shows three population projection scenarios for the city of Fortuna through the year 2030: the historic projection (1.6 percent); a low projection (1.4 percent); and a high projection (1.8 percent). As the table shows, Fortuna would grow by 5,480 people based on the historic growth rate, by 4,676 based on the lower rate, and by 6,323 based on the higher rate.

TABLE 2-2 POPULATION PROJECTIONS City of Fortuna						
Low Projection (1.4 Percent AAGR)						
Year	2005	2010	2015	2020	2025	2030
Fortuna	11,250	12,060	12,928	13,859	14,856	15,926
Historic Projection (1.6 Percent AAGR)						
Year	2005	2010	2015	2020	2025	2030
Fortuna	11,250	12,179	13,185	14,274	15,453	16,730
High Projection (1.8 Percent AAGR)						
Year	2005	2010	2015	2020	2025	2030
Fortuna	11,250	12,300	13,447	14,702	16,073	17,573
¹ Average Annual Growth Rate (AGR).						
² Historic projections continue the 1.6 percent growth rate occurring between 1980 and 2005.						
Source: Planwest Partners and Mintier & Associates, 2005.						

One demographic factor favoring the historic or high projection is the rapid increase in the Hispanic population of Fortuna. Census data indicate that Hispanics have gone from being 5.3 percent of Fortuna's population in 1990 to 10.5 percent in 2000. The growing share of Hispanic households in Fortuna is likely to result in a somewhat higher average household size than that of the county overall. According to the Census Bureau, the mean 2000 U.S. household size of Hispanic households was 3.36, while that of the population overall was 2.57. According to the National Center for Health Statistics, the total fertility rate of Hispanic women in Humboldt County in 2003 was 26 percent higher than that of women overall in the county. According to the Humboldt County FIMR/CDRT Report 2001-2002, while the Hispanic share of Humboldt County's population increased by 55 percent between 1990 and 2000, the Hispanic share of Humboldt County's births increased by 223 percent between 1990 and 2002. Thus, since Fortuna has a disproportionately large share of Hispanic residents relative to the county, it will likely experience a larger natural increase in population due to birth rates exceeding death rates. In addition, research shows there is a tendency for new immigrants to locate where other co-ethnic groups have already settled, a common process resulting from the need (or preference) to reunify with family members and other co-ethnic members and from initial unfamiliarity with the country's labor and housing markets (Bartel, 1989). Thus, the high population growth scenario for Fortuna is broadly consistent with a continuation of demographic trends for the Fortuna population.

The population projections presented in this chapter are higher than those contained in the County *Building Communities Report* (2002), which provides an annual average population growth rate forecast of 0.86 percent for Fortuna between 2000 and 2025. While the demographic and other assumptions underlying the County population forecast are not provided in the report, it appears that capacity for new housing was an important factor. In describing population forecast for Fortuna through 2025, the report states Fortuna does not have projections for total buildout. The 1993 Fortuna General Plan states that, "Since there is an adequate supply of land and public facilities for urban land use, the growth rate of the city should remain high compared to the rest of the county;" however, the Planning Department states that Fortuna will probably develop the remainder of its vacant residential land before 2025 and will need to annex more land in the interim (page 1-7).



Age. Table 2-3 shows the distribution of age in Fortuna according to the 2000 Census. The table shows that the city has a higher percentage of children and youths under the age of 15 (21.3 percent) when compared with the county (18.8). However, the city has fewer working age population (16 to 64) than the county, 61.4 and 68.7, respectively. Retiree age people in the city are a higher percentage than the county, with 17.3 percent over the age of 65 versus 12.5 percent.

TABLE 2-3 POPULATION AGE City of Fortuna				
Age	City of Fortuna		Humboldt County	
	Population	Percent	Population	Percent
15 or younger	2,234	21.3	23,841	18.8
16-24	1,405	13.4	21,234	16.8
25-44	2,700	25.7	34,695	27.4
45-64	2,344	22.3	30,972	24.5
65+	1,814	17.3	15,776	12.5
Total (2000)	10,497	100.0%	126,518	100.0%

Source: U.S. Census, 2000.

Gender. Table 2-4 shows the distribution of population between male and female in the city of Fortuna according to the 2000 Census. The table shows that the city has a higher percentage of females than males in the city by nearly 4.4 percent (471). The county population, meanwhile, is almost equal between males and females, with only 1.2 percent more females (1,454).

TABLE 2-4 GENDER City of Fortuna ,2000				
Age	City of Fortuna		Humboldt County	
	Population	Percent	Population	Percent
Male	5,013	47.8	62,532	49.4
Female	5,484	52.2	63,986	50.6
Total (2000)	10,497	100%	126,518	100%

Source: U.S. Census, 2000.

Race/Ethnicity. The ethnic makeup as of 2000 for Fortuna and Humboldt County is summarized in Table 2-5. As the table shows, Whites (9,278 or 88.4 percent) are the largest ethnic group in the city. Hispanics/Latinos with 10.5 percent (1,097) of the total population are defined as a separate category in the 2000 Census. When compared with the county, Fortuna has a higher percentage of Hispanics (10.5 percent versus 2.4 percent) and a slightly lower percentage of Whites (88.4 percent city versus 84.7 percent).

TABLE 2-5 RACE/ETHNICITY City of Fortuna and Humboldt County, 1990 and 2000				
Ethnicity	City of Fortuna		Humboldt County	
	Population	Percent	Population	Percent
White	9,278	88.4	107,179	84.7
African American	47	0.4	1,111	0.9
Native American	305	2.9	7,241	5.7
Asian	102	1.0	2,091	1.7
Pacific Island	18	0.2	241	0.2
Some other race	415	4.0	3,099	2.4
Two or more races	332	3.2	5,556	4.4
Total (2000)	10,497	100	126,518	100
Hispanic or Latino ¹	1,097	10.5	3,099	2.4

¹ Hispanic or Latino can be of any race as reported by the 2000 census and, therefore, have a separate category.
Source: U.S. Census, 2000.

While the racial composition of both Fortuna and Humboldt County remains substantially White, the Hispanic portion of each has increased substantially in percentage terms. Table 2-5 shows that while the share of the county's Hispanic population has increased by slightly over 50 percent between 1990 and 2000, the share of Fortuna's Hispanic population has nearly doubled. Other significant trends include a large percentage increase in the American Natives, Alaska Natives, or Aleut category in both Fortuna and Humboldt County, as well as the "Other" race category.

While Table 2-5 reveals nearly a doubling in the proportion of Hispanic residents in Fortuna between 1990 and 2000, Table 2-6 shows that this trend is even more dramatic among elementary school-aged children. In particular, the proportion of elementary school-aged Hispanic children in the Fortuna Union School District increased by 431 percent between 1993-94 and 2004-05. In addition, the data indicate that Fortuna is increasingly becoming a center for Hispanic residents in Humboldt County. While in 1993-94 the proportion of Hispanic elementary school children in Fortuna was 139 percent of the proportion for the overall county, by 2004-05 that figure had increased to nearly 300 percent.

TABLE 2-6 HISPANIC SCHOOL CHILDREN AS A PERCENTAGE OF TOTAL ELEMENTARY SCHOOL ENROLLMENTS City of Fortuna and Humboldt County, 1993-2005		
School Year	Hispanic School Children as a Percentage of Total*	
	Fortuna Union Elementary School District	Humboldt County Total (All Elementary Schools)
1993-94	6.1%	4.4%
1994-95	7.5%	4.8%
1995-96	9.8%	5.2%
1996-97	10.7%	5.5%
1997-98	12.1%	5.7%
1998-99	13.3%	5.8%



TABLE 2-6 HISPANIC SCHOOL CHILDREN AS A PERCENTAGE OF TOTAL ELEMENTARY SCHOOL ENROLLMENTS City of Fortuna and Humboldt County, 1993-2005		
School Year	Hispanic School Children as a Percentage of Total*	
	Fortuna Union Elementary School District	Humboldt County Total (All Elementary Schools)
1999-00	13.7%	6.1%
2000-01	18.4%	6.7%
2001-02	16.6%	7.6%
2002-03	22.6%	8.1%
2003-04	22.6%	8.3%
2004-05	26.3%	9.1%

Source: Department of Education, State of California, 2005.

Educational Attainment. Both Fortuna and Humboldt County experienced a slight increase in overall educational attainment between 1990 and 2000, as shown in Table 2-7. Nevertheless, Fortuna continues to lag the overall county in terms of the share of residents with bachelor’s degree or higher. Additionally, Fortuna continues to exceed the overall county in terms of the share of residents with a high school degree or less.

TABLE 2-7 EDUCATIONAL ATTAINMENT City of Fortuna and Humboldt County, 1990-2000				
Educational Attainment (Persons 25 Years and Older)	Percentage of Total			
	1990		2000	
	Fortuna	Humboldt County	Fortuna	Humboldt County
Less Than 9 th Grade	7.6%	6.1%	5.6%	4%
9 th to 12 th Grade, No Diploma	14.9%	13.4%	13.1%	11.1%
High School or Equivalency	30.2%	26.8%	29.5%	25.7%
Some College, No degree	26.6%	26%	29.6%	28%
Associate Degree	7.7%	7.7%	8.1%	8.1%
Bachelor’s Degree	8.3%	14.1%	10.6%	15.6%
Graduate or Professional Degree	4.7%	5.9%	3.5%	7.4%
Total	100%	100%	100%	100%

Source: Census 1990 and Census 2000.

Housing Stock. Table 2-8 shows the increase between 1990-2005 in housing stock. In 1990, Fortuna had about 7.3 percent of the overall county housing stock. By 2005, that share had increased modestly

to 8.15 percent. This trend is consistent with Fortuna's average household size becoming larger than that of the county overall.

TABLE 2-8 HOUSING STOCK City of Fortuna and Humboldt County, 1990-2005		
Year	Housing Units	
	Fortuna	Humboldt County
1990	3,711	51,134
1991	3,763	51,812
1992	3,805	52,497
1993	3,836	53,123
1994	3,918	53,857
1995	3,995	54,509
1996	4,066	55,146
1997	4,136	55,617
1998	4,203	56,085
1999	4,250	56,576
2000	4,290	56,963
2001	4,444	56,192
2002	4,537	56,577
2003	4,619	57,109
2004	4,678	57,550
2005	4,729	58,025

Source: Department of Finance, State of California, 2005.

Demand Forecasts for New Housing Units. The population forecasts provided in Table 2-2 are key components of the model used to derive the demand forecasts for new housing units in Table 2-9. The housing demand model begins with the most recent data on current housing stock. According to the data in Table 2-8, Fortuna's housing stock in 2005 was 4,729 units. The housing demand model assumes a mean household size of 2.5 people and a five percent mean vacancy rate. Future housing demand is then forecasted by taking the historic population forecast (1.6 percent growth rate), dividing by 2.5, multiplying by 1.05, and then subtracting from this figure the existing 4,729 unit housing stock.

The data in Table 2-9 indicate that by 2030, Fortuna will require 2,298 new housing units.



TABLE 2-9 DEMAND FORECASTS FOR NEW HOUSING UNITS * City of Fortuna, 2010-2030	
Year	New Housing Units
2010	386
2015	809
2020	1,266
2025	1,761
2030	2,298

**Estimation of housing demand starts with population forecasts from Table 2-7. Dividing population by average household size (2.5), and then multiplying the resulting quotient by a vacancy rate multiplier of 1.05, results in implied housing units. New housing demand is equal to implied housing units minus the 2005 Fortuna housing stock of 4,729 from Table 2-6. Source: Planwest Partners, 2005.*

Findings

- Between 1980 and 2005 Fortuna’s population grew at an average annual growth rate of 1.6 percent, slightly more than double that of the county growth rate.
- Based on 2000 census data, Fortuna has both a larger proportion of residents under age 18 than the county overall (26 percent compared to 23.2 percent), and a larger proportion of residents over age 64 than the county overall (17.3 percent compared to 12.5 percent).
- Fortuna has a larger proportion of Hispanic residents than the county overall, especially elementary school-aged children.
- Based on 2000 census data, Fortuna lags behind the overall county in terms of the share of its residents with a bachelor’s degree or a graduate or professional degree.
- Based on 2000 census data, Fortuna exceeds the overall county in terms of the share of its workforce employed in farming, forestry, and fishing occupations and in precision production, craft, and repair occupations. In contrast, Fortuna lags the overall county in terms of the share of its workforce employed in managerial, professional, and specialty occupations.
- Fortuna’s share of the overall county housing stock was approximately equal to its share of the county’s overall population in 1990. By 2005 Fortuna had 8.6 percent of the county’s population and 8.15 percent of the county’s housing stock. This trend is consistent with Fortuna’s average household size becoming larger than that of the county overall.
- Fortuna’s 2030 population will be 16,730 based on using the historic (1980-2005) growth rate of 1.6 percent.
- Fortuna will need 2,298 new housing units by 2030 to house new residents.

2.3 Economic Conditions

Introduction

The material in this section will focus on Fortuna's economic conditions and characteristics. This material will include both past and current data, much of which will facilitate comparisons between Fortuna and Humboldt County. Some of these data, including those from Employment Development Department (EDD), are based on the Fortuna zip code and, therefore, may extend beyond the Planning Area. Forecasts are also provided that estimate the future demand for commercial office space and retail space in Fortuna through 2030.

Key Terms

(CDBG) Community Development Block Grant. Federal government program to promote the development of viable urban communities by providing decent housing and a suitable living environment, as well as expanding economic opportunities primarily for low and moderate income persons.

Commercial Sector. A grouping of non-retail service subsectors of the economy that utilize commercial office space. These include information, professional and business services, educational and health services, leisure and hospitality, finance, insurance, real estate, real estate rental and leasing services, government, and other services.

North American Industry Classification System (NAICS). A set of industry categories standardized between the U.S. and Canada. Replaced the standard industrial classification (SIC) code system.

Per Capita. Per person, oftentimes referring to an average. For example, per-capita income in a population is average income per person, calculated as total income divided by total population.

Retail Sector. A grouping of service subsectors of the economy that sell directly to consumers. Many of these are identified by being subject to state sales and use tax, but exempt categories such as certain grocery store and pharmacy sales are included as well.

Redevelopment Project Area. A neighborhood or community level boundary that identifies an area where redevelopment financial assistance is offered to undertake physical improvements.

Physical Blight. One of the two forms of blighting conditions that must be present in order to qualify an area for redevelopment assistance. Typical characteristics include: unsafe buildings, incompatible uses, absence of utilities, and a lack of proper maintenance.

Economic Blight. The other blighting condition that must be present to establish a redevelopment project area. Typical characteristics include: high commercial building vacancies, low lease rates, a number of vacant and underutilized land parcels, lack of parking or support facilities, and an increase in reported crime.

Eminent Domain. The use of eminent domain is restricted to the first twelve years of the redevelopment agency plan. Many jurisdictions including the City of Fortuna and Humboldt County have determined not to allow the use of eminent domain (land condemnation) for a public purpose in their redevelopment agency programs.

Relocation. If either a residential or commercial tenant is displaced by a project undertaken as a result of the redevelopment agency, both financial and re-leasing assistance is offered under the provisions of the Uniform Relocation Act.



Tax Increment Financing. A public finance tool used to foster development in a specified area. It is intended to remove blight and promote tax base expansion in an area where development likely would not occur, but for the public investment. The redevelopment project area base property assessment is frozen from the date of the redevelopment plan adoption and the majority of the new property assessment revenue is distributed directly to the redevelopment agency for implementation of project area improvements. In some instances, local taxing agencies can also receive a portion of the newly generated tax increment revenue. Redevelopment agencies can issue debt in the form of bonds to provide project area infrastructure improvements. The repayment of these long term bonds are guaranteed by a pledge of the tax increment funds received by the local redevelopment agency. Tax increment debt is not in any instance an obligation of the city for repayment purposes.

Project Area Committee (PAC). A citizen advisory committee can be elected to represent the property owners, tenants, and other residents of the redevelopment project area. The PAC committee meets regularly and offers recommendations to the redevelopment agency (Fortuna City Council) on various projects, programs, and activities proposed under the redevelopment program.

Business Improvement District. A geographic area of commercial properties that uses a special assessment to generate fund for marketing, beautification, redevelopment, and other purposes to enhance business activity.

Building Façade. The face or exterior of a building, typically facing a public street.

Façade Easement. A recorded legal agreement between a landowner and local governmental agency that protects development rights in order to maintain building historic or natural features.

Historic Preservation. The restoration, protection, and rehabilitation of historic properties.

Infill Development. Any project intended to develop a vacant property within a generally developed area.

Mixed Use Development. A development that allows multiple compatible uses to be in close proximity in order to minimize transportation impacts. An example is ground floor retail with a second floor residential use.

(NAICS) North American Industry Classification System. Used by business and government to classify and measure economic activity in Canada, Mexico and the United States.

Purchasing Power Index. Value of a currency expressed in terms of the amount of goods or services that one unit of money can buy.

Retail Trade Area. The geographic area that generates the majority of the customers for a community, business district or downtown.

Regulatory Setting

Redevelopment Agency. The City of Fortuna Redevelopment Agency, created in 1988, operates under the authority of State redevelopment law (Sections 33000 to 34160.) Within the confines of these State Rlaw sections, it includes the following program guidelines: redevelopment definitions, what constitutes a blighted area, reporting requirements, appointment and removal of agency members, general powers of agencies, selection of redevelopment project areas, preparation of preliminary plans,

housing requirements, environmental impact report requirements, procedures for adoption of a redevelopment plan, owner participation in redevelopment, project area committees, acquisition and disposition of property and relocation of persons displaced by projects.

Fortuna Business Improvement District. The Fortuna Business Improvement District, created in 1990, finances its various community programs through a supplemental assessment that is levied on each of the existing 615 businesses within the city. This added business fee is included in the annual business license payment. This fee revenue is for acquisition, construction, or maintenance of parking facilities; decoration of public places; promotion of public events; furnishing music; and the general promotion of retail activities. The Parking and Business Improvement Area Law (AB 1693), created in 1979, allows cities to collect and distribute the assessment funds to the Business Improvement Association and charges the City Council as the responsible party for an accounting of uses and expenditures. The core area retail and commercial businesses are assessed a higher supplemental business improvement district fee than those businesses located throughout the city of Fortuna.

Existing Conditions

According to 2000 Census data, Fortuna and Humboldt County share very similar income distributions and levels of median household income. Table 2-10 shows 68.4 percent of Fortuna households in 1999 received between \$15,000 and \$74,999 in income. A slightly smaller number (63.7 percent) of Humboldt County households fell within that broad income range in 1999.

TABLE 2-10 DISTRIBUTION OF HOUSEHOLD INCOME City of Fortuna and Humboldt County, 1999		
Income Brackets	Distribution of 1999 Household Income	
	Fortuna	Humboldt County
Less than \$10,000	11.4%	13.8%
\$10,000 to \$14,999	9.7%	9.9%
\$15,000 to \$24,999	19.2%	17.2%
\$25,000 to \$34,999	14.8%	14.2%
\$35,000 to \$49,999	16.7%	16.4%
\$50,000 to \$74,999	17.7%	15.9%
\$75,000 to \$99,999	5.8%	6.8%
\$100,000 to \$149,999	2.7%	3.7%
\$150,000 to \$199,999	1.0%	0.9%
\$200,000 or more	1.0%	1.2%
Median Household Income (\$)	\$31,129	\$31,226

Source: Census 2000.



There are some relatively minor differences in the sources of household income between Fortuna and Humboldt County as shown in Table 2-11. Specifically, a smaller fraction of Fortuna households receive earned income, and a larger fraction of Fortuna households receive Social Security and retirement income. These differences at least partially reflect the larger proportion of retirement-age residents in Fortuna (17.3 percent) compared to the overall county (12.5 percent) according to Census 2000 data.

TABLE 2-11 HOUSEHOLD INCOME BY SOURCE CATEGORY City of Fortuna and Humboldt County, 1999				
Household Income Category	Fortuna		Humboldt County	
	Mean Income by Category (\$)	Percentage of Households	Mean Income by Category (\$)	Percentage of Households
Earnings	\$39,143	70.8%	\$39,292	76.8%
Social Security Income	\$11,361	36.4%	\$11,328	26.3%
Supplemental Security Income	\$5,848	6.7%	\$6,742	6.9%
Public Assistance Income	\$4,381	5.0%	\$4,415	6.1%
Retirement Income	\$13,423	20.3%	\$14,692	17.0%
<i>Source: Census 2000.</i>				

More than a third of all Fortuna families with related children under age five were in poverty, according to Census 2000 data shown in Table 2-12. This figure is higher than that for the county overall. Perhaps even more significant is that more than six of every 10 families with a female householder with no husband present and with related children under age five were living in poverty, a figure that is nearly identical for both Fortuna and Humboldt County.

TABLE 2-12 POVERTY STATUS City of Fortuna and Humboldt County, 1999		
Poverty Status Category	Percentage in Poverty	
	Fortuna	Humboldt County
Families	12.1%	12.9%
With Related Children Under Age 18	21.9%	20.8%
With Related Children Under Age 5	35.8%	27.8%
Families, Female Householder, No Husband Present	31.1%	35.4%
With Related Children Under Age 18	41.7%	44.6%
With Related Children Under Age 5	61.7%	61.0%
Individuals	17.4%	19.5%
Age 18 and Over	14.9%	18.4%
Age 65 and Over	4.6%	7.2%

Source: Census 2000.

As shown in Table 2-13, a larger percentage of Fortuna workers can be categorized as receiving wage or salary income from private-sector employers than for the county overall. Conversely, Fortuna has a smaller percentage of government workers and a slightly smaller percentage of self-employed and unpaid family workers.

TABLE 2-13 DISTRIBUTION OF WORKERS BY CATEGORY City of Fortuna and Humboldt County, 1999		
Class of Worker	Percentage of All Workers	
	Fortuna	Humboldt County
Private Wage and Salary Workers	71.7%	63.3%
Government Workers	17.1%	23.1%
Self-Employed Workers	10.9%	12.9%
Unpaid Family Workers	0.3%	0.6%
Total	100%	100%

Source: Census 2000.

Workforce. Table 2-14 shows that in 2000 Fortuna clearly exceeds the overall county in terms of the share of its workforce employed in farming, forestry, and fishing occupations, and in terms of precision production, craft, and repair occupations. In contrast, Fortuna lagged the overall county in terms of the share of its workforce employed in managerial, professional, and specialty occupations. Both Fortuna and the county overall experienced an increase in the share of overall employment in managerial, professional, and specialty occupations; service occupations; and precision production, craft, and repair occupations. Both Fortuna and the county overall experienced a decrease in the share of overall employment in technical sales and administrative support; farming, forestry, and fishing; and operators, fabricators, and laborers. These broad trends reflect the continuing economic transition away from



manufacturing and toward service occupations. Since 2000, large-scale lumber mill closures in Fortuna have likely caused employment for operators and fabricators and for precision production, craft, and repair workers, to decline.

TABLE 2-14 COMPARISON OF EMPLOYMENT BY MAJOR OCCUPATIONAL CATEGORY City of Fortuna and Humboldt County, 1990-2000				
Occupations (Age 16 Years and Over)	1990		2000	
	Fortuna	Humboldt County	Fortuna	Humboldt County
Managerial & professional specialty	19.4%	24%	26.6%	31.5%
Technical, sales & administrative support	28.5%	28.3%	19.9%	19.6%
Service	14.1%	16.4%	22.8%	24.9%
Farming, forestry, and fishing	7.0%	5.4%	4.5%	2.6%
Operators, fabricators, and laborers	19.4%	14.8%	8.9%	8.8%
Precision production, craft & repair	11.6%	11.1%	17.3%	12.6%

Source: Census 1990 and 2000.

In terms of employment, Table 2-15 shows that the largest sectors of the Fortuna economy are retail, government (including schools), healthcare, manufacturing, and accommodations and food service. Of these, the greatest growth between 2001 and 2004 was in retail employment. Declines occurred in manufacturing and healthcare employment in Fortuna during this time period. These data, however, do not include the loss of manufacturing employment in Fortuna due to the closure of the PALCO and Eel River lumber mills in 2005. The growth in retail employment in Fortuna between 2001 and 2004 was opposite of the overall county trend that featured a slight decline in retail employment. Moreover, the county-wide decline in manufacturing employment during this time period exceeded that of Fortuna in percentage terms.

When comparing employment share figures for each sector in Table 2-15 with the total employment share figures, they show that in 2004, Fortuna has a disproportionately large share of the county's agriculture, forestry, and fishing jobs, arts, entertainment, and recreation jobs, retail jobs, and manufacturing jobs. In contrast, Fortuna has a disproportionately small share of administrative and support and waste management and remediation jobs, government jobs, transportation and warehousing jobs, and wholesale trade jobs.

**TABLE 2-15
MEAN ANNUAL EMPLOYMENT BY SECTOR
City of Fortuna and Humboldt County, 2001-2004**

NAICS Code	NAICS Economic Sector	Mean Annual Employment by Sector, Fortuna Expressed as a Percentage of Humboldt County Total			
		2001	2002	2003	2004
11	Agriculture, Forestry, Fishing and Hunting	10.86%	15.67%	16.52%	15.83%
23	Construction	8.09%	8.83%	8.41%	7.42%
31	Manufacturing	8.54%	8.39%	9.16%	9.50%
42	Wholesale Trade	5.83%	5.15%	4.38%	5.97%
44	Retail Trade	8.02%	8.22%	9.07%	9.99%
48	Transportation and Warehousing	*	4.34%	1.36%	2.40%
52	Finance and Insurance	5.14%	6.03%	6.64%	6.87%
53	Real Estate and Rental and Leasing	6.11%	6.72%	7.42%	7.69%
54	Professional, Scientific, and Technical Services	5.51%	6.17%	7.06%	6.73%
56	Administrative and Support and Waste Management and Remediation Service	4.99 %	7.06%	6.00%	4.55%
62	Health Care and Social Assistance	9.50%	9.11%	9.48%	7.93%
71	Arts, Entertainment, and Recreation	9.78%	7.72%	9.98%	10.54%
72	Accommodation and Food Services	7.25%	7.24%	7.58%	7.93%
81	Other Services (except Public Administration)	4.60%	4.65%	4.67%	4.45%
GG	Government	4.31%	4.36%	4.12%	4.28%
	Total, All Industries	8.52%	8.71%	9.13%	9.01%

Note: Cells indicated with an "" indicate employment information unavailable due to reporting restrictions.
Source: Employment Development Department, State of California, 2005.*

Table 2-16 is a two-part table that focuses on retail transactions (first part), and both retail transactions and transactions from businesses that the Board of Equalization categorizes as "all other outlets" (second part). Table 2-16 shows that Fortuna's share of total taxable Humboldt County retail sales gradually increased from 8.4 percent in 1998 to 9.1 percent in 2003. While the data clearly show that Eureka is the county's retail center, accounting for more than half of the county's total taxable retail sales, Fortuna's rank among all incorporated cities is a close third behind the City of Arcata.



TABLE 2-16 TAXABLE TRANSACTIONS BY JURISDICTION As a Share of Humboldt County Total, 1998-2003						
Jurisdiction	1998	1999	2000	2001	2002	2003
Arcata	12.0%	11.5%	10.5%	10.1%	9.8%	9.5%
Blue lake	0.3%	0.3%	0.3%	0.4%	0.3%	0.3%
Eureka	57.1%	56.5%	58.0%	57.7%	57.5%	57.4%
Ferndale	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%
Fortuna	8.4%	8.8%	8.8%	8.8%	8.7%	9.1%
Rio dell	0.6%	0.6%	0.7%	0.6%	0.7%	0.6%
Trinidad	0.6%	0.6%	0.7%	0.7%	0.7%	0.6%
Incorporated Total	79.9%	79.5%	79.9%	79.3%	78.7%	78.6%
Unincorporated Area	20.1%	20.5%	20.1%	20.7%	21.3%	21.4%
Total Taxable Transactions Expressed as a Share of Humboldt County Total						
Jurisdiction	1998	1999	2000	2001	2002	2003
Arcata	11.6%	11.3%	10.7%	10.8%	10.5%	10.2%
Blue lake	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Eureka	49.9%	49.7%	51.0%	50.6%	50.5%	50.8%
Ferndale	0.8%	0.9%	0.8%	0.9%	0.8%	0.8%
Fortuna	7.3%	7.9%	7.8%	7.9%	7.9%	7.9%
Rio dell	0.5%	0.4%	0.5%	0.5%	0.5%	0.5%
Trinidad	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Incorporated Total	70.8%	71.0%	71.5%	71.6%	71.1%	71.0%
Unincorporated Area	29.2%	29.0%	28.5%	28.4%	28.9%	29.0%

Source: California State Board of Equalization (2004).

Demand Forecast for Commercial Office Space. The demand for commercial office space is derived from the space needs of workers in commercial space-utilizing occupations. As a result, the forecast model for commercial office space used in this analysis is built on the foundation of forecasted employment in economic sectors that utilize commercial space. While there are no employment forecasts for these occupations in Fortuna, in 2005 the State Employment Development Department created employment forecasts for various industrial sectors of the North Coast economy (Del Norte, Humboldt, Mendocino, and Trinity Counties) through 2012. These employment growth forecasts were used to compute the implied annual average rate of growth in North Coast employment in each of these categories. It was assumed that the ratio of annual average employment growth to annual average population growth at the regional level will be replicated for the Fortuna economy, and that this ratio will persist through 2030. Based on this approach, the model derives annual average employment growth rate estimates for sectors of the Fortuna economy that utilize commercial office space (e.g., government and various non-retail service sectors). The model also uses the historic population forecasts for Fortuna in Table 2-2.

Future employment in these office space-occupying sectors in Fortuna through 2030 are then estimated by applying the annual average employment growth rate estimates to actual 2004 employment in these sectors in Fortuna, based on data from the State Employment Development Department. Following the Building Communities report methodology, assuming that 30 percent of all government employees, 45 percent of all services-producing employees, and all finance, insurance, and real estate employees will require commercial office space. Likewise, the assumption that each commercial space-utilizing employee requires an average of 350 square feet of commercial office floor space is used. The results are shown in Table 2-17 below.

Table 2-17 shows that the forecast demand for new commercial office space would be 322,411 square feet of floor space by 2030. As mentioned above, this projection ultimately derives from the population forecasts based on the 1.6 historical growth rates in Table 2-2.

TABLE 2-17 FORECASTED DEMAND FOR NEW COMMERCIAL OFFICE FLOOR SPACE City of Fortuna, 2010-2030	
Year	New Commercial Space Demand (Sq Ft of Floor Space)*
2010	54,153
2015	107,188
2020	168,641
2025	239,861
2030	322,411

* Note: Square footage figures are in addition to 283,605 square feet of commercial office floor space that is estimated to be used in Fortuna as of 2004.
Source: Planwest Partners, 2005.

Demand Forecast for Retail Space. The demand for retail space is derived from retail consumer expenditures in different retail categories. Consumer expenditures are derived from factors such as consumer income and preferences. The demand for retail space is also derived from the productivity of a given square foot of retail space in generating retail sales. The retail space forecast model used in this analysis is based on an approach by the University of Wisconsin’s Center for Community Economic Development for rural sub-county jurisdictions.

The model begins with an estimate regarding the jurisdiction’s trade area. According to the City of Fortuna’s *Commercial Market Analysis* (1991), the primary trade area for Fortuna retail encompasses residents of the Highway 36 corridor through Bridgeville; the Highway 101 corridor from Fernbridge to Myer’s Flat; and the Eel River bottom communities of Loleta, Ferndale, and other areas to the coast. Secondary and tertiary trade areas include less frequent expenditures by residents of more distant portions of Humboldt County and the North Coast region. Table 2-15 shows that Fortuna captured 9.1 percent of total taxable retail sales in Humboldt County in 2003. Since there is no recent consumer expenditure survey for Fortuna, the total trade area population making retail purchases in Fortuna was estimated by first building a model to forecast per-capita consumer expenditures in the trade area, then using that model to generate a forecast for 2004. Actual taxable transactions data for Fortuna in 2004 are used to determine total retail sales in Fortuna for 2004. The effective trade area population in 2004 is then found to be the number of (full time equivalent) consumers that, when multiplied by the per-capita retail sales forecast for Fortuna for 2004, results in forecasted retail sales being equal to actual retail sales in 2004 from the tax data.



As noted above, one of the foundational elements of the Fortuna retail space forecast model is per-capita retail expenditures in the trade area. The University of Wisconsin methodology estimates the per-capita retail expenditures in a rural trade area by adjusting data on U.S. per-capita retail consumer spending patterns. These U.S. per-capita retail consumer spending data for 2004 were generated from national data on total retail sales by 3-digit NAICS category from the *Annual Benchmark Report for Retail Trade and Food Services: January 1992 Through February 2005* (U.S. Census, 2005), which are then divided by total U.S. population for 2004 to get U.S. per-capita spending by retail category. The University of Wisconsin methodology then calls for the derivation of a local purchasing power index (PPI) to adjust U.S. per-capita spending. The PPI is derived for the trade area consumer population using the most recent per-capita personal income data available (2002). The local PPI represents the ratio of per-capita personal income in Humboldt County to that of the U.S. overall. An estimate of per-capita retail consumer expenditures by 3-digit NAICS retail category for Fortuna's trade area is then found by multiplying U.S. per-capita retail consumer expenditures in each retail category by the Humboldt County PPI.

In 2004, a trade area population of 16,300 "full time-equivalent" consumers engaged in retail expenditures in Fortuna, a figure that includes both resident and tourist expenditures. Based on estimated per-capita expenditures by trade area consumers, the model estimates 2004 Fortuna retail sales to be \$159 million. As noted above, this figure corresponds with actual 2004 retail sales derived from taxable transactions data. If food services and drinking places sales are included, the figure increases to \$176 million.

The next step in the University of Wisconsin methodology is to transform Fortuna retail sales into square feet of gross floor space used to generate retail sales using data from the Newspaper Association of America (2001), on average US retail sales revenue generated per square foot of gross floor space by different 3-digit NAICS retail sectors. These data are not available for automobile dealerships and for gasoline stations, and so a specific estimate was derived for these retail sectors, using taxable transactions data and GIS-based estimates of gross floor space. As a result, the model derives an estimate of square feet of retail floor space required to support each consumer who shops in Fortuna. The model uses these data to estimate per-capita demand for retail floor space (in gross square feet) for each 3-digit NAICS retail category, as well as food services and drinking places. Retail space demand forecasts through 2030 are then derived by applying the historical population growth rate (1.68) forecasts underlying the data in Table 2-2 to the estimated 2004 retail trade area consumer population.

Table 2-18 provides retail floor space forecasts broken out by 3-digit NAICS retail sectors. This table also includes forecasts for food services and drinking places (hereafter referred to as food service). The grand total forecast demand for new retail and food service floor space for Fortuna by 2030 is estimated to be 243,455 square feet.

**TABLE 2-18
FORECASTED DEMAND FOR NEW RETAIL FLOOR SPACE
City of Fortuna, 2010-2030**

NAICS code	Retail Sector Name	Square Feet of Gross Floor Space				
		2010	2015	2020	2025	2030
441	Motor vehicle parts and dealers	3,692	7,049	10,683	14,618	18,877
442	Furniture and home furnishing stores	1,636	3,123	4,734	6,477	8,364
443	Electronics and appliance stores	1,201	2,292	3,474	4,754	6,139
444	Building material, garden equipment & supplies dealers	4,103	7,834	11,872	16,245	20,978
445	Food and beverage stores	3,616	6,904	10,464	14,318	18,490
446	Health & personal care stores	1,859	3,550	5,380	7,362	9,507
447	Gasoline Stations	2,039	3,892	5,899	8,071	10,423
448	Clothing and clothing accessories stores	2,611	4,986	7,556	10,339	13,352
451	Sporting goods, hobby, book, and music stores	1,467	2,801	4,246	5,809	7,502
452	General merchandise stores	17,044	32,542	49,320	67,483	87,147
453	Miscellaneous store retailers	2,829	5,401	8,185	11,200	14,464
44, 45	Subtotal in-store retail	42,098	80,375	121,814	166,676	215,244
722	Food services and drinking places	5,518	10,535	15,966	21,846	28,212
44, 45, 722	Grand Total	47,615	90,910	137,780	188,522	243,455

* Note: Square footage figures are in addition to the estimated 476,520 square feet of retail floor space in Fortuna as of 2004.
Source: Planwest Partners, 2005.

Applying the commercial office and retail floor space models to 2004 data provides an estimate of the 2004 demand for these types of business space in Fortuna. Based on actual 2004 office space-consuming employment data for Fortuna, the commercial office space model estimates a current demand for 283,605 square feet of commercial office floor space. Based on estimated per-capita spending by retail category in the Fortuna trade area and actual 2004 taxable transactions data for Fortuna retail sales, the retail floor space model estimates a 2004 demand for 476,520 square feet of retail space. The sum of these estimates is 760,125 square feet.

By way of comparison, the City of Fortuna's *Commercial Market Analysis* estimates that in 1991 total commercial office and retail gross building area in Fortuna was 726,675 square feet. By applying a 0.75 floor area ratio, this figure is equivalent to 545,006 square feet of usable floor space in 1991. The City of Fortuna's *Business Land Use Study* estimates that in 1995 there was 594,030 square feet of occupied business space in Fortuna. This figure may include hotels, motels, and inns that are not included in the current analysis. Nevertheless, allowing for net new construction in Fortuna since these studies were done, these estimates are comparable to the 760,125 square feet of 2004 commercial office and retail floor space demand.



Demand Forecast for Manufacturing Space. The demand for manufacturing space is derived from the space needs of those production employees who work for manufacturing businesses. As a result, the forecast model for manufacturing space used for this analysis is built on the foundation of forecasted employment in manufacturing subsectors of the Fortuna economy. Based on data and analysis provided by Dennis Mullins of the Employment Development Department, an estimated 335 workers were employed in manufacturing in Fortuna in 2005, a figure that represents about 10 percent of overall employment in the city. These data take into account the loss of nearly 200 lumber-based manufacturing job losses in 2005 due to the closure of two large lumber mills in Fortuna. These job losses were somewhat offset by gains in food-based manufacturing employment. Mullins also projected an annual average growth rate of 1.5 to 2 percent for manufacturing employment in Fortuna through 2015.

For the purposes of this analysis, a midpoint rate of 1.75 percent was used to project manufacturing employment forward through 2030. Mullins attributes this relatively rapid employment growth rate to the likelihood of new small-scale manufacturing businesses filling in behind the large plant closures of 2005, as well as the prospect for additional growth in dairy-based food manufacturing employment.

In order to estimate manufacturing space demand, new manufacturing employment was converted into square feet of manufacturing floor space based on estimates of square feet of floor space per manufacturing worker. While this figure can vary substantially across different types of manufacturing enterprise, interviews with manufacturers in Humboldt County provided some useful guidelines used here. Table 2-19 shows forecasts for square feet of new manufacturing space demand through 2030.

According to 2030 forecasts, the City of Fortuna will need 106,967 square feet of new manufacturing floor space, relative to the space that is being utilized in 2005. While relatively few new wood products manufacturing jobs are forecasted in Fortuna by 2030, this type of manufacturing requires far more space per worker than most other forms of manufacturing activity. Due to the lumber mill closures in 2005, there is a considerable amount of vacant or underutilized industrially-zoned land that could absorb much of this demand for new manufacturing space into the future.

TABLE 2-19 FORECASTED DEMAND FOR NEW MANUFACTURING FLOOR SPACE City of Fortuna, 2010-2030					
Manufacturing Sector	Square Feet of New Manufacturing Floor Space				
	2010	2015	2020	2025	2030
Nondurable Goods	8,518	17,808	27,939	38,989	51,040
Wood Products	6,796	14,208	22,292	31,108	40,724
Residual Miscellaneous	2,537	5,304	8,322	11,614	15,203
Total	17,851	37,321	58,554	81,711	106,967
<i>Note: Square footage figures are in addition to the estimated 197,000 square feet of manufacturing floor space in Fortuna as of 2005. Totals may be slightly skewed due to rounding. Source: Planwest Partners, 2005.</i>					

Fortuna Redevelopment Agency. The City of Fortuna executed a cooperation agreement with the newly formed Fortuna Redevelopment Agency in June 1988. The Fortuna City Council is responsible for all Redevelopment Agency activities and the City Manager is the Agency's Executive Director. The agreement calls for the City to provide staff assistance, supplies, and technical services and advance funds to the Agency for its operations. The Redevelopment Agency, in turn, is responsible for repaying the City for any funds advanced and services that are provided under the agreement.

The Redevelopment Agency can incur debt until 2009 and the debt must be paid off by 2049. The Redevelopment Agency is principally charged with encouraging employment opportunities, eliminating both economic and physical blight, encouraging business expansion and business retention, and improving neighborhood conditions by upgrading infrastructure and housing opportunities. The Fortuna Redevelopment Agency is mandated to adopt a five-year implementation plan, which will be updated in fiscal year 2005/2006. The implementation plan provides a greater level of detail on the type of Agency activities and programs to be undertaken.

The Fortuna Redevelopment Agency budget is based on both the Five-Year Implementation Plan and the City's adopted Capital Improvement Program. As mandated by California Redevelopment Law, each year 20 percent of the Fortuna Redevelopment Agency's tax increment funds are to be expended for the development of low and moderate income housing opportunities. The City's CIP lists a 24-unit Federal HOME assisted low/moderate income housing development, known as the Fortuna Family Apartments, for implementation in 2006-2007.

The Fortuna Redevelopment Agency also receives loan repayment funds from prior Community Development Block Grant (CDBG) funds it received in 1988, 1989, and 1992. These funds are restricted by a State-adopted Reuse Plan that determines which programs and what purposes the repayment monies can be allocated. There is also a smaller unrestricted CDBG housing fund, which no longer has State restrictions on the reuse of the loan repayments. Generally, these funds are to provide housing rehabilitation loans to low and moderate income households.

The Redevelopment Agency has an economic loan program with the express purpose of promoting business and economic development. The restricted loan program originated from a CDBG grant to the City for business expansion and attraction efforts. The unrestricted commercial loan program came from an Industrial Development Grant the Agency received from the Farmers Home Administration. The Redevelopment Agency lists five new community water line improvement projects totaling \$2,225,000, three wastewater projects totaling \$325,000, and 18 drainage projects totaling \$3,985,000 to be constructed between 2005-2009.

In the redevelopment community projects category, the Agency lists a City entrance and landscaping beautification project (\$75,000), citywide Americans with Disabilities Act (ADA) sidewalk construction (\$125,000), a Monday Club fence (\$1,500), City Hall parking lot repairs (\$8,500), Downtown street light replacement (\$85,000), and River Lodge furnishing and fixtures (\$9,700) for a total of \$304,700 over the next five-year period. The City of Fortuna has adopted four separate Redevelopment Project Areas where redevelopment assistance and activities can occur (see Figure 3-1). They include:

- 1) Main Street/Downtown Business District;
- 2) The South Fortuna Boulevard area;
- 3) The Riverwalk commercial/light industrial area; and
- 4) The Rohnerville Airport.



Since the Redevelopment Plan's inception in the late 1980s, the Downtown Redevelopment Project Area has undertaken a store-front renovation program, utility under-grounding, landscape improvements, N Street parking lot construction, acquisition of the former Bistrin property, and various streetscape (sidewalk, planters, and benches) activities. The Downtown Redevelopment Plan identified a need for some 360 additional parking spaces for the future development of the core retail commercial area. Infill mixed-use retail and upper floor residential projects are also a priority for the area.

Business attraction and retention efforts are also underway in the Downtown through the Fortuna Business Improvement District. A downtown business incubator study was completed identifying options for future retail/industrial business development. The south Fortuna Boulevard area is a commercial corridor that has received a number of infrastructure improvements and is a candidate for further landscape and streetscape projects. The City of Fortuna and the Redevelopment Agency are also contemplating improvements to the entryway areas of the city. The Department of Commerce funded a study that suggests the City's Downtown business district should consider a more cohesive building design theme to tie its varying architectural styles together.

The Riverwalk Project Area is clearly a success story in terms of community redevelopment. A combination of State grants and local redevelopment funds have implemented sewer and water service, as well as utility under-grounding, sidewalks, trails, landscaping, and drainage improvements. With the advent of the multi-purpose River Lodge facility, a host of new motel and recreational vehicle projects materialized. New commercial businesses and other light industrial highway-oriented facilities have also developed enhancing the tax increment base. The area still has several vacant parcels available for commercial/light industrial expansion. During 2006, the Agency will see the completion of a new local Ford dealership facing Highway 101. The Redevelopment Agency also completed Highway 101 landscaping, California Conservation Corps landscape improvements, and the Eel River overlook.

In its Rohnerville/Campton Heights Redevelopment Project Area, a number of public off-site drainage, subdivision drainage, and sidewalk improvements have been completed during the 1990s. These infrastructure improvements were instrumental in the further development of new housing opportunities and safe routes to neighborhood facilities including area schools.

This area, which is primarily residential with a nearby elementary school, includes some neighborhood commercial uses and the Grange building. A 30-unit high density affordable housing project is planned immediately east of Rohnerville Road in the unincorporated area by the Bear River Rancheria.

Within the next five year implementation plan horizon, it is likely that a new commercial/retail project will be proposed for the Pacific Lumber Company mill site and acreage located between 12th Street and Kenmar Road. This project could pose wide-ranging implications with regard to the future of the city's Downtown business district. It should be noted that to amend an existing Redevelopment boundary and create a new plan area is a major undertaking requiring the development of a new plan amendment along with an Environmental Impact Report. The length of time and costs associated with such an undertaking are both considerable.

Fortuna Business Improvement District. The Fortuna Business Improvement District (FBID) has been operational since 1990. The City of Fortuna operated the BID for the first two years of its existence. In 1992, the BID began to operate with its own staff and office location in the downtown business district. The FBID is a 501(c)4 non-profit organization that currently (January 2006) includes three target areas of

concentration within the city limits. There are two (2) core areas of operation that are located within downtown Fortuna, with specifically delineated boundaries and a third overall area that encompasses the entire current (January 2006) Fortuna city limits. Altogether, there are some 615 businesses that are assessed a supplemental business license fee for their membership in the Fortuna Business Improvement District. The FBID Board of Directors conducts regular bi-monthly open business meetings.

For the 2005 fiscal year, the FBID's budget totaled just under \$100,000, including marketing, salaries, equipment, mural grants, and web site development. The City of Fortuna provides matching funds to those funds collected by the FBID assessments.

The primary mission of the FBID is focused on attracting new businesses and retaining existing businesses within the city. It also concentrates heavily on regional marketing of available Fortuna locations for business activity. The FBID coordinates its marketing program closely with the Chamber of Commerce and other local and regional agencies. The District has a full-time program manager and an office located in downtown Fortuna. The FBID is principally charged with citywide print and media marketing and the planning and execution of all promotional events, such as the Autorama, Rodeo, Art and Wine in the Park, Hops in Humboldt, Civil War Days, and Apple Harvest Festival, among other events. There are plans, as funding and resources permit, to add new events in the future, such as a bicycling criterion or other complimentary event linked to the Tour of the Unknown Coast, and a citywide picnic (possibly in conjunction with the city's Centennial), quilt event, and a new promotion involving non-core area businesses.

The FBID has recently completed its Five Year Plan with both short- and long-term program goals. In the short term, FBID will continue to provide business opportunity information to potential new and relocating businesses regarding available sites in the community for commercial development. Other key activities include updating the FBID website, "FinditFortuna.com," which contains a listing of all Fortuna businesses by category and promote this site through a citywide television campaign. The website development will also include a method for communication between businesses, committees, and core areas.

Another program that the FBID is actively marketing is the support for further development of new painted murals on commercial business structures. FBID will work with the City of Fortuna, the Design Review Committee, Planning Commission, and City Council to identify and streamline the process for property owners planning murals. FBID will also develop a clear set of guidelines and standards for the quality of work to be performed by the mural program in order to receive local grant funding support. FBID also assist with the Storefront Improvement Program and the City's Design Review Program in an effort to encourage upgrading of existing building storefronts.

Among the key goals to be achieved in the Five Year Plan are: additional Wi-Fi business benefits, reassessing new potential core areas of operation for the Business Improvement District, and a focused effort to identify new potential light industrial space and manufacturing sites for future business development.

The FBID will continue its goal of providing additional downtown parking opportunities to further retail growth. To date, FBID has worked to develop added diagonal parking stalls and is working to implement other creative low cost parking initiatives such as shared-use parking. The current in-lieu parking cost to a business that cannot meet the City's parking requirements is \$5,000 per space. This cost is often a deterrent to business growth and expansion in the majority of the cities within Humboldt County.



Among its longer term goals, the FBID is interested in creating further light industrial business opportunities in close proximity to the Rohnerville Airport and surrounding area. It is also interested in identifying various landscaping and streetscape options for Fortuna Boulevard, as well as recommending the redevelopment of older trailer park residences located along South Fortuna Boulevard. The creation of an economic development agency or department within the confines of the city of Fortuna is also a long-term goal to assist with business attraction and retention services.

Findings

- Based on 2000 census data, Fortuna and Humboldt County share very similar income distributions and levels of median household income.
- Based on 2000 census data, a smaller fraction of Fortuna households receive earned income, and a larger fraction of Fortuna households receive Social Security and retirement income, relative to the county overall.
- Based on 2000 census data, more than a third of all Fortuna families with related children under age 5 were in poverty, a rate somewhat higher than that for the county overall.
- Based on 2000 census data, a larger percentage of Fortuna workers can be categorized as receiving wage or salary income from private-sector employers than for the county overall. Conversely, Fortuna has a smaller percentage of government workers, and a slightly smaller percentage of self-employed and unpaid family workers.
- In terms of employment between 2001 and 2004, the largest sectors of the Fortuna economy were retail, government (including schools), healthcare, manufacturing, and accommodations and food service. Of these, the greatest growth between 2001 and 2004 was in retail employment.
- As of 2004 Fortuna had a disproportionately large share of the county's agriculture, forestry, and fishing jobs, arts, entertainment, and recreation jobs, retail jobs, and manufacturing jobs.
- As of 2004 Fortuna had a disproportionately small share of administrative and support and waste management and remediation jobs, government jobs, transportation and warehousing jobs, and wholesale trade jobs.
- Fortuna's share of total taxable Humboldt County retail sales gradually increased from 8.4 percent in 1998 to 9.1 percent in 2003.
- By 2030, Fortuna will need to add approximately 322,411 square feet of new commercial office floor space.
- By 2030, Fortuna will need to add approximately 243,455 square feet of new retail floor space, including restaurants.

- By 2030, Fortuna will need to add approximately 107,000 square feet of new manufacturing floor space.
- The Fortuna Redevelopment Agency can incur debt until 2009 and must repay all outstanding debt by 2049.
- An updated five year redevelopment implementation plan is needed in 2006. The five year plan will outline the plans, programs, and projects that the Agency will undertake.
- The City of Fortuna's Capital Improvement Plan includes a 24 unit low/moderate income housing development to be developed as the Fortuna Family Apartments in 2006-07. This project will assist the Agency in meeting its annual affordable housing requirements through the use of the 20% housing set-aside funds.
- The Redevelopment Agency has a number of new infrastructure projects listed in the City's Five Year Capital Improvement Plan totaling \$2.225 million for five new water line projects, \$325,000 for three wastewater projects, and \$3.985 million for eighteen scattered site drainage improvement projects.
- The Redevelopment Agency has funds available to consider new commercial business loans that create employment opportunities in the Redevelopment Area.
- The Redevelopment Agency has completed a number of ADA sidewalk projects and landscape beautification projects. Also, the Agency is in the process of obtaining additional street lighting fixtures for the downtown area.
- Infill mixed use commercial/housing development remains a priority of the City's Redevelopment Plans and programs.
- Several vacant land parcels are available in the Riverwalk Project Area for further commercial/light industrial development.
- There could be redevelopment impacts associated with regional shopping center development between 12th Street and Kenmar Road. This site is not within the boundaries of the existing Redevelopment Project area.
- According to the 2000 Agency Five Year Plan, Fortuna's Redevelopment Agency has successfully leveraged its tax increment funds by a 1/1 ratio in outside grants received to local tax increment generated by the growth in its taxable property base. The plan indicates some \$4.891 million in tax increment received and \$4.898 in outside grants over the nine year period 1991-2000.
- There are some 615 existing Fortuna businesses that pay an assessment annually to assist with implementation of Business Improvement District programs.



- The FBID has completed its Five Year Plan with short and long term goals associated with business attraction and retention.
- The FBID's website will undergo further upgrades as a promotional business tool.
- FBID's will work with the City of Fortuna and its Design Review Committee, Planning Commission, and City Council to streamline the process for property owners planning building murals.
- The FBID is actively engaged in identifying new locations for light industrial and manufacturing space.
- The City's current in-lieu parking fee is considered by some businesses as a deterrent to further business expansion.
- The FBID is interested in identifying further city landscape options for Fortuna Boulevard along with some land use modifications.
- The FBID advocates the creation of a City Economic Development Department as a long term method to assist with business attraction and retention services.



1.2 Using the General Plan

As required by State law, the General Plan must be user-friendly. To this end, the General Plan is divided into two documents: the Background Report and the Goals and Policies Report. The Background Report is divided into nine sections (see Section 1.5), and the Goals and Policies Report is divided into 10 sections so that information can be easily referenced by subject or issue.

The following paragraphs provide a summary of the two component documents that make up the City of Fortuna General Plan:

Goals and Policies Report. This report is the essence of the General Plan. It contains the goals and policies that will guide future decisions within the city. It also identifies a full set of implementation programs that will ensure the goals and policies in the General Plan are carried out.

Background Report. The Background Report takes a “snapshot” of Fortuna’s current (2005-2006) trends and conditions. It provides a detailed description of a wide range of topics (see Section 1.5) within the Planning Area, such as demographic and economic conditions, land use, public facilities, and environmental resources. The Report provides decision makers, the public, and local agencies with context for making policy decisions. Unlike the Goals and Policies Report, the Background Report is intended to be objective and policy neutral. The Background Report serves as the environmental setting description for the Environmental Impact Report prepared on the General Plan.

As part of the Fortuna General Plan Update, the City prepared several General Plan support documents:

Issues and Opportunities Report. The Issues and Opportunities Report summarizes a range of issues and opportunities, identified by the public, City staff, and local decisionmakers, that currently (2006) exist or are seen as important issues for the future.

Alternatives Report. The Alternatives Report identifies geographical and policy alternatives that address the key issues and opportunities identified in the Issues and Opportunity Report. The Report is designed to frame an active discussion among community members and city decision makers, leading to direction from the City Council for the preferred policy direction for the Draft Goals and Policies Report. The Report includes supporting maps and graphics to illustrate the geographical alternatives and a narrative of the policy alternatives.

Program Environmental Impact Report. The program environmental impact report (PEIR) prepared for the General Plan responds to the requirements of the California Environmental Quality Act (CEQA). The Planning Commission and City Council use the EIR during the General Plan Update process in order to understand the potential environmental implications associated with implementing the General Plan.

1.3 Regional Setting

The city of Fortuna is located in southern Humboldt County 20 miles south of Eureka and 253 miles north of San Francisco (see Figure 1-1). The city lies along Highway 101 just east of the Eel River.

1.4 Local Setting

The General Plan Background Report and Goals and Policies Report use the following terms to describe key boundaries that are critical to the city's planning process:

- **City Limits.** The city limits includes the area within the city's corporate boundary over which the City exercises land use authority (see Figure 1-2).
- **Sphere of Influence (SOI).** Adopted by the Local Agency Formation Commission (LAFCO), the sphere of influence (SOI) includes both incorporated and unincorporated areas within which the City will have primary responsibility for the provision of public services (see Figure 1-2).
- **Planning Area.** State law requires cities to adopt a general plan that addresses physical development within its city limits, as well as any land outside its boundaries, "which in the planning agency's judgment, bears relation to its planning." The Fortuna Planning Area includes both incorporated and unincorporated areas. The Planning Area boundary follows the SOI boundary on the west, north, east, and extends beyond the southern SOI boundary to the Van Duzen River, and follows the river to a small creek where it then extends north back to the SOI boundary (see Figure 1-2). Much of information contained in the Background Report covers the entire Planning Area, while other information address only the area within the city limits.

1.5 Background Report Organization

The Background Report is organized into nine chapters, as follows:

Chapter 1, Introduction. This chapter provides an introduction to the Background Report and covers the following topics: what the general plan is and how it is used, Fortuna's local and regional setting, and the organization of the Background Report.

Chapter 2, Demographics and Economic Conditions. This chapter describes the population and demographic characteristics of the Planning Area, as well as a discussion of the city's current (January 2006) economic conditions. This chapter includes a summary of population, age, ethnicity, income, housing, employment, and other statistical information as reported by various agencies and historical and current demographic and growth trends. This section also provides a summary of the Fortuna Redevelopment Agency and forecasts retail and industrial space demand.



Chapter 3, Land Use. This chapter provides an overview of the existing land uses and land use regulations in the Planning Area. This includes an overview of the 1993 General Plan, zoning regulations, and other related plans.

Chapter 4, Community Character/Design. This chapter describes Fortuna's historical growth and development patterns, urban form and structure, views and viewsheds, placenames and identity, and overall community character.

Chapter 5, Transportation and Circulation. This chapter describes the transportation system and services in Fortuna. Included in this chapter is a summary of roadways and highways, public transportation, pedestrian and bicycle facilities and trails, and aviation.

Chapter 6, Natural and Cultural Resources. This chapter discusses the natural and cultural resources found in the Planning Area. This chapter discusses water resources, biological resources, agricultural resources, mineral/soil resources, parks and recreation, archeological/historical resources, cultural resources, and scenic resources.

Chapter 7, Public Facilities and Services. This chapter covers the existing infrastructure capabilities and public services provided in the Planning Area including: water supply, wastewater collection and treatment, stormwater drainage, solid and hazardous waste, public utilities, police and fire protection, schools, and libraries.

Chapter 8, Public Health and Safety. This chapter discusses existing public health and safety issues and concerns relevant to the planning process, such as air quality, noise, geologic and seismic hazards, human-made hazards, flood hazards, and wildland fires.

Chapter 9, References. This chapter identifies by chapter the various sources of information that were used to compile this Background Report. A list of persons who were consulted for information is also included.



3

Land Use

3.1 Introduction

This chapter provides the land use context for the General Plan. The chapter begins with a description of the existing land use followed by a summary of the City of Fortuna General Plan and Zoning Ordinance. The chapter continues with a discussion of county plans and a summary of the local, regional, state, and federal regulatory setting that may have an effect on land use planning in the city of Fortuna.

This chapter covers the following topic areas related to land use:

- Existing Land Use (Section 3.2)
- 1993 General Plan (Section 3.3)
- Zoning Ordinance (3.4)
- Redevelopment Plans (3.5)
- Sphere of Influence (3.6)
- Humboldt County General Plan (3.7)
- Regional/State/Federal Agencies (Section 3.8)

3.2 Existing Land Use

Introduction

This section describes where existing land uses are located throughout the Fortuna General Plan Planning Area. The method for mapping the location of different types of land uses employs information from the City of Fortuna and Humboldt County's geographic information system (GIS) to produce maps for this Background Report that highlight specific land use characteristics.

Key Terms

Agriculture. A land use classification which is dedicated to producing food, feed, fiber and other desired products by the cultivation of certain plants and the raising of domesticated animals (livestock).



Commercial. A land use classification which permits facilities for the buying and selling of commodities and services.

Development. The physical extension and/or construction of urban land uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities).

Industrial. The manufacture, production, and processing of consumer goods. Industrial is often divided into "heavy industrial" uses, such as construction yards, quarrying, and factories; and "light industrial" uses, such as research and development and less intensive warehousing and manufacturing.

Land Use. Land use is the occupation or utilization of land or water area for any human activity or any purpose defined in the General Plan.

Land Use Classification. Land use classification is a system for classifying the appropriate use of properties.

Open Space. Open space is any parcel or area of land or water which is essentially unimproved and devoted to an open space use for the purposes of (1) the preservation of natural resources, (2) the managed production of resources, (3) outdoor recreation, or (4) public health and safety.

Residential. Residential is any parcel or area of land whose primary function is to provide for human habitation.

Service Reviews. A comprehensive study designed to better inform LAFCO, local agencies, and the community about the provision of municipal services.

Vacant Land. Vacant Land is unoccupied property, not currently being used. It may have utilities and off-site improvements as contrasted with raw land with no improvements or structures.

Regulatory Setting

The General Plan is required by State law to provide background information on the existing land uses within the Planning Area.

Existing Conditions

Table 3-1 provides a summary of existing land use in the City of Fortuna, Fortuna's Sphere of Influence (SOI), and Fortuna's General Plan Planning Area. A majority of the urbanized area in the Planning Area is located within the city limits while agricultural and open space uses are located throughout the SOI, remaining Planning Area, and areas to the south and west (see Figure 3-1). From the city limits outward through the SOI and Planning Area, the percentage of urban uses (residential, commercial, industrial) decreases and the percentage of open space, agricultural, and rural residential uses increases. Within the city limits over half (52.5 percent) of the land is single family residential, while only 26.3 percent and 23.4 percent are present in the SOI and Planning Area, respectively. In contrast, 20 percent of the Planning Area is comprised of agricultural land, while only 13.6 percent and 0.2 percent of the SOI and city limits, respectively, are classified as agricultural uses.

Table 3-1 shows that the city limits contain approximately 840 acres of land that is available for development (vacant, open space, and agriculture). However, a large amount of this land may not be developable due to factors such as floodplain, slope, and other regulatory constraints (e.g., Williamson Act or habitat lands). Within the Planning Area, vacant land consists of about 1,171 acres of which 1,151 acres are in the SOI and 614 are in the city limits. There are 1,822 acres of rural residential lands within the SOI and Planning Area. Often times, in many California communities, rural residential sites will also urbanize as growth continues outward from a city, increasing property values and providing services that facilitate an increase in density.

TABLE 3-1 EXISTING LAND USE City of Fortuna, Sphere of Influence, Planning Area						
Existing Land Use	City Limits		Sphere of Influence		Planning Area	
	Acres	Percent	Acres	Percent	Acres	Percent
Agriculture	6	0.2%	934	13.6%	1,557	20.0%
Rural Residential	203	6.5%	1,445	21.0%	1,502	19.3%
Single Family	1,651	52.5%	1,805	26.3%	1,822	23.4%
Multifamily	71	2.3%	85	1.2%	87	1.1%
Commercial	123	3.9%	150	2.2%	172	2.2%
Industrial	144	4.6%	171	2.5%	175	2.2%
Public	110	3.5%	344	5.0%	344	4.4%
Open Space	220	7.0%	571	8.3%	725	9.3%
Timber	0	0.0%	220	3.2%	220	2.8%
Vacant	614	19.5%	1,151	16.7%	1,171	15.1%
Total	3,142	100.0%	6,877	100.0%	7,775	100.0%

¹ Total only includes those parcels provided with an existing land use.
Source: Humboldt County Assessors Database, 2005; City of Fortuna Planning Department, 2005; Mintier & Associates, 2006.

Findings

- Within the city limits over half (52.5 percent) of the land is single family residential, while only 26.3 percent and 23.4 percent are present in the SOI and Planning Area, respectively, are classified as agricultural uses.
- The city limits contain approximately 840 acres of available land. However, a large amount of this land may not be developable due to factors such as floodplain, slope, and other regulatory constraints (e.g., Williamson Act or habitat lands).



3.3 Existing General Plan

Introduction

This section describes the 1993 General Plan. The General Plan determines how land in the city may be developed and used by designating each parcel of land for a particular use or combination of uses and by establishing broad development policies. Land use designations identify both the types of development (e.g., residential, commercial, and industrial) that are permitted and the density or intensity of allowed development, such as the number of housing units permitted on an acre of land.

Key Terms

Buildout; Build-out. Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

City. City, with a capital "C," generally refers to the government or administration of a city. City, with a lower case "c" may mean any city, or may refer to the geographical area of a city (e.g., the city's bikeway system.)

Density, Residential. The number of permanent residential dwelling units per acre of land. Densities specified in the General Plan may be expressed in units per gross acre or per net developable acre.

Dwelling Unit. A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen), which constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis.

Environmental Impact Report (EIR). A report required of general plans by the California Environmental Quality Act and which assesses all the environmental characteristics of an area and determines what effects or impacts will result if the area is altered or disturbed by a proposed action. (See "California Environmental Quality Act.")

General Plan. A compendium of a city's or a county's policies regarding its long-term development, in the form of maps and accompanying text. The general plan is a legal document required of each local agency by the State of California Government Code Section 65301 and adopted by the City Council or Board of Supervisors. In California, the general plan has seven mandatory elements (circulation, conservation, housing, land use, noise, open space, safety and seismic safety) and may include any number of optional elements (such as air quality, economic development, hazardous waste, and parks and recreation). The general plan may also be called a "city plan," "comprehensive plan," or "master plan."

Goal. A general, overall, and ultimate purpose, aim, or end toward which the County will direct effort.

Housing Element. Article 10.6 of the California Government Code requires each city and county to prepare and maintain a current housing element as part of the community's general plan in order to attain a statewide goal of providing "decent housing and a suitable living environment for every California family." Under State law, housing elements must be updated every five years.

Infrastructure. Public services and facilities, such as sewage-disposal systems, water-supply systems, other utility systems, and roads.

Land Use Element. A required element of the general plan that uses text and maps to designate the future use or reuse of land within a given jurisdiction's planning area. The land use element serves as a guide to

the structuring of zoning and subdivision controls, urban renewal and capital improvements programs, and to official decisions regarding the distribution and intensity of development and the location of public facilities and open space.

Policy. A specific statement of principle or of guiding actions which implies clear commitment but is not mandatory. A general direction that a governmental agency sets to follow, in order to meet its goals before undertaking an action program.

Regulatory Setting

State Government Code 65300 provides general requirements for city and county general plans. This section focuses on the Land Use Element of the General Plan. State law requires the land use element to address the distribution of all land use types including the location of government facilities, areas subject to flooding or other natural hazards, and other categories of public and private uses of land. In addition, the general plan must contain quantifiable population density and building intensity standards.

Existing Conditions

The City of Fortuna last updated their General Plan on July 19, 1993. The Land Use Element, responsible for future growth and development, lays out the city's development intentions with a total buildout of about 3,070 acres. In 1993 (the year of the Land Use Element update), the City designated over 1,980 acres of residential land, followed by public lands with 615, industrial with 150, commercial with 195, and about 130 acres of agriculture. Figure 3-2 shows the 1993 Fortuna General Plan land use designations.

Policies of the 1993 General Plan guide city growth within the Planning Area. The Plan's goals are for a self-sufficient, full service city where its citizens live, work, and play. Such growth includes a mix of well planned commercial, residential, and industrial uses that provide employment, commerce, and housing choices. The plan utilizes 12 land use designations and a land use diagram to guide development. They are as follows:

- Residential Estates (RE)
- Residential Single Family (R-1)
- Residential Multifamily (RM)
- Mobilehome Combining (T)
- Commercial Thoroughfare (C-T)
- Neighborhood Commercial (NC)
- Freeway Commercial (FC)
- Retail Commercial (R-C)
- Light Industrial (M-1)
- Heavy Industrial (M-2)
- Agricultural Exclusive (AE)
- Public Facilities (PF)

The Fortuna General Plan Land Use Diagram provides land use direction within the city limits. The General Plan does not designate any land outside of its city limits. All other land use, outside the city limits and within the Planning Area, is directed by Humboldt County. (Section 3.7 provides a more detailed discussion of the County's land use designations with the city's Planning Area).

Table 3-2 provides an acreage summary of the 1993 General Plan land use designations. In addition, the amount of available acreage within each designation is also provided along with the percentage available. Available acres include lands identified as being vacant, open space, or in agricultural use. As the table shows, a majority of Fortuna is designated for Residential Single Family with about 1,252 acres, 239 (19 percent) of which are available for development. Commercial Thoroughfare has the largest amount of commercial designated lands with 148 acres, 28 acres (18.8 percent) of which is available. Freeway Commercial has the highest percentage of available land with 43.7 percent (24 acres), 56 acres of which is



available. In total, about 2,796 acres in Fortuna are designated for development and about 623 acres (22.3 percent) is available for new development.

Factors that could constrain continued development of Fortuna include the floodplains that surround the city to west and mountains to the west. In addition, several creeks and bluffs that exist within the city limits and Planning Area constrain the growth of certain areas due to flooding and slope.

TABLE 3-2 1993 GENERAL PLAN DESIGNATIONS City of Fortuna				
Land Use Designation	Acres	Percent	Developable Acres ¹	Percent Available
Residential Estates	699	22.4%	173	24.7%
Residential Single Family	1,252	40.2%	239	19.1%
Residential Multifamily	148	4.8%	35	23.7%
Neighborhood Commercial	7	0.2%	2	34.1%
Retail Commercial	27	0.9%	2	5.9%
Commercial Thoroughfare	148	4.8%	28	18.8%
Freeway Commercial	56	1.8%	24	43.7%
Light Industrial	99	3.2%	18	18.0%
Heavy Industrial	75	2.4%	7	9.8%
Public Facilities	196	6.3%	81	41.3%
Agriculture Exclusive	88	2.8%	14	15.5%
Subtotal	2,796	89.8%	623	22.3%
Other/Unknown (<i>Rights of Ways</i>) ²	318	10.2%	5	1.4%
Total (City Limits Only)³	3,114	100.0%	628	20.2%
¹ "Developable" lands include vacant, open space, and agricultural lands. These could be constrained due to floodplains, slopes, or other factors. ² "Other/Unknown" includes undesignated areas such as rights-of-ways for roads. ³ The total area covered by the 1993 General Plan is contained within the city limits. For a detailed description of the existing Humboldt County General Plan within the Planning Area see section 3.7. Source: City of Fortuna 1993 General Plan; Humboldt County Assessors Database, 2005; City of Fortuna Planning Department, 2005; Mintier & Associates, 2006.				

In addition to land use designations, the goals and policies of the Land Use Element cover topics including, but not limited to, citywide growth, residential development, commercial development, agriculture and natural resource preservation, park and recreation facilities, municipal services, and community character.

In addition to the Land Use Element, the Fortuna General Plan also includes a Community Profile Element (1993), Housing Element (1993, currently (January 2006) being updated), Public Services and Facilities Element (1988), and Hazards and Resources Element (1988).

Findings

- The Land Use Element, responsible for future growth and development, lays out the city's development intentions with a total buildout of about 3,070 acres.

- The 1993 land use element utilizes 12 land use designations and a land use diagram to guide development.
- The Fortuna General Plan provides land use direction within the city limits. All other land use direction in the Planning Area is directed by Humboldt County.
- A majority of Fortuna is designated for Residential Single Family with about 1,252 acres.
- Factors that could constrain continued development of Fortuna include the floodplains that surround the city to west and mountains to the west. In addition, several creeks and bluffs that exist within the city limits and Planning Area constrain the growth of certain areas due to flooding and slope.

3.4 Existing Zoning Summary

Introduction

The purpose of this section is to summarize existing information regarding the City of Fortuna Zoning Ordinance as amended through June 2005. A major difference between the General Plan and Zoning Ordinance is that the General Plan provides guidance on the location, type, density, and timing of new growth and development over the long-term, while the Zoning Ordinance determines what development can occur on a day-to-day basis. Both the land use designations of the General Plan and the zoning districts and development standards of the Zoning Ordinance determine the holding capacity and buildout potential of the city. Holding capacity and buildout potential are measures of the ultimate population size and extent of development that could be allowed by the City based on current policies and regulations. Knowledge of what is possible under existing zoning is important in formulating the new General Plan because the consequences of new land use proposals can best be understood when compared to the type and extent of development that is now possible.

Key Terms

Buildout Potential. Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

Holding Capacity. A measure of the ultimate population size and extent of development that could be allowed within a geographic area based on current policies and regulations.

Ordinance. A law or regulation set forth and adopted by a governmental authority, usually a city or county.

Zoning. The division of a city or county by legislative regulations into areas, or zones, which specify allowable uses for real property and size restrictions for buildings within these areas; a program that implements policies of the general plan.

Zoning District. A designated section of the city for which prescribed land use requirements and building and development standards are uniform.

Regulatory Setting

State law requires that zoning ordinances be consistent with the General Plan pursuant to Government Code Section 65860.



Existing Conditions

Zoning regulations clearly indicate the extent and type of development that can occur in the incorporated areas (and hence holding capacity and buildout potential of the community). The text of the Zoning Ordinance contains the regulations that govern development and land use in the zoning classifications shown on the zoning maps. The Ordinance text includes three main components: detailed descriptions of each zoning classification in terms of the type of land uses that are allowed in each zone; standards for the development of new land uses within each zone (building height limits, setback requirements, off-street parking and sign requirements, minimum parcel size, etc.); and procedural requirements for the processing of land use permit applications and the administration of the ordinance itself. The minimum parcel size determines the density of residential development (i.e., the number of dwellings per acre), and establishes a direct relationship between the size of commercial and industrial parcels and the extent of development that may be allowed on them.

The Zoning Ordinance establishes 16 primary zones and nine combining zones. The combining zones work with the base zones to provide additional development standards. The purpose of all zones is to translate the broad land use categories established by the City of Fortuna General Plan into detailed land use classifications that are applied to property with much greater precision than the General Plan. Working with the zoning classifications, the text of the Zoning Ordinance provides detailed regulations for the development and use of land.

Table 3-3 lists each of the zoning classifications, a general purpose of the district, the lot area allowed by the district for new subdivisions of land and the allowed building coverage. The minimum lot area requirements are expressed in acreage or square footage, and represent the smallest lot size that could be approved in a new subdivision in the applicable zone.

TABLE 3-3 ZONING SUMMARY City of Fortuna				
Zoning District		General Purpose	Lot Area (Sq.Ft.)	Coverage (Percent)
Residential Estate	RE-43	Low Density Single Family	43,560	N/A
	RE-20	Low Density Single Family	20,000	N/A
Residential Single Family	R1-10	Neighborhoods of Single Family	10,000	35%
	R1-6	Neighborhoods of Single Family	6,000	35%
Multifamily Residential	RM	Townhomes, Apartments, Condos	10,000	N/A
Freeway Commercial	FC	Service traveling public	12,000	N/A
Neighborhood Commercial	NC	Service residential neighborhoods	2,000	N/A
Retail Commercial	RC	Commercial center downtown	N/A	N/A
Commercial Thoroughfare	CT	Retail, highway, heavy commercial	N/A	N/A
Public Facilities	PF	Public and quasi-public facilities	6,000	60%
Light Industrial	M-1	Manufacturing, wholesaling, storage	10,000	60%
Heavy Industrial	M-2	Manufacturing and processing	20,000	N/A
Agriculture Exclusive	A-E	Protect agricultural uses	4 Acres	35%

Source: City of Fortuna Zoning Ordinance as amended through June 2005.

In addition to the zoning districts described above Fortuna also has four combining zones. These zones work with a base zone to provide additional development requirements or special standards. The combining zones are as follows:

Design Review (D). This combining zone combines with any principal zone in which the appearance and design of buildings and the landscaping of yards is desired to protect the overall appearance of the zone by regulating the design of development.

Special Building Site (B). Allows less restrictive yard requirements in areas with parcels generally smaller than 10,000 square feet in size that are zoned R-1-10, RE-20, and RE-43 to prevent or reduce further subdivisions in areas with drainage, flooding, sewage disposal, access, or water supply problems.

Qualified (Q). This combining provides for the sound and orderly planning indicated by the specified principal permitted uses, or conditional uses otherwise allowed under the principal zone.

Mobile Home (T). The mobile home zone is combined with any residential estate or residential zone in which the location of mobile home architecture is or may become compatible with development.

Table 3-4 provides a summary of zoned land in the City of Fortuna. As the table shows, a majority of the city is zoned for residential uses (RE-43, RE-20, R1-10, R1-6, RM) with about 2,099 acres (67.4 percent) of which 447 acres (21.3 percent) are available. Commercial zoned lands (FC, NC, RC, and CT) comprise the next largest zoned area with 238 acres, of which 54 acres (22.7 percent) are available, followed by 196 acres of Public Facilities (PF) with 81 acres (41.3 percent) available. The remaining industrial (M-1 and M-2) and agriculture (A-E) zones comprise 174 and 88 acres, respectively, with 25 acres (14.4 percent) and 14 acres (15.5 percent) available, respectively.



TABLE 3-4 ZONING DISTRICTS ACREAGE City of Fortuna				
Zoning District	Acres	Percent	Developable ¹ Acres	Percent Available
RE-43	342	11.0%	38	11.2%
RE-20	357	11.5%	135	37.7%
R1-10	376	12.1%	82	21.7%
R1-6	877	28.1%	158	18.0%
RM	148	4.8%	35	23.7%
FC	56	1.8%	24	43.7%
NC	7	0.2%	2	34.1%
RC	27	0.9%	2	5.9%
CT	148	4.8%	28	18.8%
PF	196	6.3%	81	41.3%
M-1	99	3.2%	18	18.0%
M-2	75	2.4%	7	9.8%
A-E	88	2.8%	14	15.5%
<i>Subtotal</i>	<i>2,796</i>	<i>89.8%</i>	<i>623</i>	<i>22.3%</i>
Other/Unknown ²	318	10.2%	5	1.6%
Total (City Limits)³	3,114	100.0%	628	20.2%
<p>¹ "Developable lands" include vacant, open space, and agricultural lands. These lands could be constrained due to floodplains, slopes, or other issues.</p> <p>² "Other/Unknown" includes undesignated areas, such as rights-of-ways for roads.</p> <p>Source: City of Fortuna Zoning Ordinance as amended through June 2005; Humboldt County Assessors Database, 2005; City of Fortuna Planning Department, 2005; Mintier & Associates, 2006.</p>				

Findings

- The Zoning Ordinance establishes 13 primary zones and nine combining zones.
- A majority of the city is zoned for residential uses (RE-43, RE-20, R1-10, R1-6, RM) with about 2,099 acres (67.4 percent) of which 447 acres (21.3 percent) are available.

3.5 Redevelopment Plans

Introduction

There are four redevelopment project areas in the City of Fortuna located within the city limits. Below is a general description of each redevelopment plan including the general size and goals for each project area. Redevelopment plans are structured to provide the redevelopment agency with the maximum legal flexibility in implementing redevelopment in a community's project area.

Key Terms

Redevelopment. Redevelopment is a set of public actions that local governments may undertake to stimulate activity when the private market is not providing sufficient capital and economic activity to achieve the desired level of improvement.

Redevelopment Agency. A redevelopment agency is the lead public agency and public developer for the city regarding affordable housing, public housing, and redevelopment projects and issues.

Redevelopment Plan. A redevelopment plan describes the purposes, goals, and objectives that help eliminate existing deteriorating and/or inadequate physical and economic conditions within a project area. A plan is formulated and an implementation program is selected to achieve the goals and objectives for the local redevelopment program.

Redevelopment Project Area. A project area is the area within which actual redevelopment will take place. A proposed project area must first be reviewed in a public hearing (giving citizens who will be included in the project area a chance to express their views) after which the redevelopment agency acts on the adoption of the project area and becomes primarily responsible for future projects.

Regulatory Setting

A redevelopment plan is a legal document, the content of which is largely prescribed by California Community Redevelopment Law. In accordance with the State redevelopment law, redevelopment plans set the general activities and implementation procedures used by the redevelopment agency. These include steps the agency may undertake in pursuing the redevelopment process in a community. The plans also include a description of activities that the redevelopment agency is required to undertake to conform to Community Redevelopment Law. Many of the circumstances existing in a community that influence the nature and scope of the most appropriate redevelopment activities are addressed by the redevelopment agency on behalf of the community's members and property owners.

Existing Conditions

The City of Fortuna adopted its Redevelopment Plan in 1989 with a plan horizon of 2029. The redevelopment project area consists of four separate areas totaling approximately 585 acres. Planning Area 1 consists of about 68 acres in downtown Fortuna. Area 2, Fortuna Boulevard, consists of about 148 acres. Area 3, the Riverwalk area, covers about 97 acres. Area 4, the Rohnerville area, is made up of 272 acres. Figure 3-3 shows the boundaries of the four Fortuna Redevelopment Plan areas. The Redevelopment Agency has established goals and policies to provide direction in making redevelopment decisions. These goals include:

- Provide a favorable environment for carrying out the plan.
- Ensure that people are aware of the redevelopment project.
- Encourage the revitalization of downtown.
- Encourage the redevelopment of commercial buildings.
- Revitalize housing and residential neighborhoods; and
- Encourage development through private investment and public incentives.



Fortuna's redevelopment efforts have resulted in several projects reducing blight conditions. According to the Fortuna Five-Year Work Program (January 2001), redevelopment provided during its first nine years:

- Over \$36 million in new development;
- 403 new jobs;
- \$220,000 in tax increment funds;
- \$105,000 in sales tax revenue; and
- \$207,000 in bed tax revenue.

In addition to economic gains made available through redevelopment, the Redevelopment Agency has also received statewide recognition on 10 occasions for their redevelopment work, including "Best Project" award in 2000 for the River Lodge Conference Center.

Findings

- The Fortuna redevelopment project area consists of four separate areas of the city totaling approximately 585 acres.
- The Redevelopment Agency has also received statewide recognition on 10 occasions for their redevelopment work, namely the best project in the state for the River Lodge Conference Center.

3.6 Sphere of Influence

Introduction

This section discusses the sphere of influence for the City of Fortuna. A "sphere of influence" is a boundary surrounding cities and special service districts that is intended to represent the ultimate area into which the city or district may expand and extend public services. The adoption of spheres of influence and changes to existing sphere boundaries must be approved by the Local Agency Formation Commission (LAFCO). The LAFCO is a state-mandated regulatory body that oversees changes in jurisdictional boundaries including annexations, detachments, formations, dissolutions, consolidations, mergers, incorporations, and dis-incorporations. LAFCO is directed by State law (the Cortese/Knox Local Government Reorganization Act of 1985) to establish and periodically review the spheres of influence for each local agency under its jurisdiction.

Key Terms

Annex. An area of land that is incorporated into an existing district or municipality, with a resulting change in the boundaries of the annexing jurisdiction.

Local Agency Formation Commission (LAFCO). A five-member commission within each county that reviews and evaluates all proposals for the formation of special districts, incorporation of cities, annexation of land to special districts or cities, consolidation of districts, or the merging of districts and cities. Each county's LAFCO is empowered to approve, disapprove, or conditionally approve proposals. The five LAFCO members generally include two county supervisors, two city council members, and one member representing the general public. Some LAFCO include members who are directors of special districts.

Sphere of Influence (SOI). A boundary surrounding cities and special service districts that is intended to represent the ultimate area into which the city or district may expand and extend public services.

Memorandum of Understanding (MOU). A legal document describing an agreement between parties, such as tax revenue sharing and other interjurisdictional responsibilities between the city and county.

Service Review. A comprehensive study designed to better inform LAFCO, local agencies, and the community about the provision of municipal services.

Regulatory Setting

In 2000, the Local Government Reorganization Act of 2000 was signed into law to reform local government reorganization law. These revisions include, but are not limited to, streamlining and clarifying LAFCO policies and procedures; making LAFCO neutral, independent, and balanced in its representation of counties, cities, and special districts; strengthening LAFCO powers to prevent sprawl and ensure the orderly extension of government services; enhancing communication, coordination, and procedures of LAFCOs and local governments; and enhancing opportunities for public involvement, active participation, and information regarding government decision making.

Service reviews were added to the LAFCO mandate with the passage of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. A service review is a comprehensive study designed to better inform LAFCO, local agencies, and the community about the provision of municipal services. Service reviews attempt to capture and analyze information about the governance structures and efficiencies of service providers, and to identify opportunities for greater coordination and cooperation between providers. The service review is a prerequisite to a sphere of influence determination and may also cause a LAFCO to take other actions under its authority.

Existing Conditions

The policies of LAFCO require a plan for the extension of services to be submitted with every application for a boundary change. The HCAOG policies also require a development plan to be submitted with an application for annexation. Other policies discourage the annexation of farmlands when significant areas of non-prime farmland are already available, and encourage the development of vacant areas within cities before the annexation and development of fringe areas. The City of Fortuna's sphere of influence comprises about 7,129.5 acres of which about 3,114 acres are within the city limits. Figure 3-4 shows the city of Fortuna's SOI.

Annexation History. The City of Fortuna was incorporated on February 20, 1906, becoming Humboldt County's fifth city. Through several annexations, the city has grown to encompass about 4.68 square miles. Table 3-5 shows Fortuna's annexation history from 1950 through 1980 together with the city's population for each decade. Fortuna's growth has been moderate with an average of 1.4 square miles annexed per decade.

In 1950, the city encompassed about one square mile, growing to 5.3 square miles by 1980. The largest addition to the city (nearly 33 percent) occurred between 1975 and 1980 with the annexation of the Campton Heights-Rohnerville area. Population growth generally followed the same trend as annexation and the city grew by 3,277 people between 1970 and 1980, the same timeframe as the largest annexation.



TABLE 3-5 ANNEXATION HISTORY City of Fortuna				
Year	City Land Area (Square Miles)	Percent Change	Population	Percent Change
1950	1.0	-	1,763	-
1960	1.4	40.0%	3,523	99.8%
1965	1.4	0.0%	-	-
1970	2.0	42.8%	4,314	22.4%
1975	3.0	50.0%	-	-
1980	5.3	76.6%	7,591	76.0%

Source: City of Fortuna Sphere of Influence Report, January 1983.

City/County Memorandum of Understanding. In the 1970's the City of Fortuna entered into a Memorandum of Understanding (MOU) with Humboldt County to facilitate an exchange of property tax revenues for areas annexed into the city that are currently in the unincorporated area of the County. This MOU is applicable to future jurisdictional changes. Upon an annexation of land from the county into the city the tax share of the property is divided in the proportion of 78.7 percent to the County and 21.3 percent to the City with future value increases due to the addition of improvements retained by the City. This MOU, along with many of the other MOU's with the other cities in the county, was negotiated before the passage of Proposition 13 in the late 1970's that significant change property tax assessments and subsequently the distribution of property tax to local governments such as the City and County. The property tax distribution formulas used in each of the MOU's vary widely, and therefore the City and the County should consider renegotiating a new MOU that take current economics into consideration since the City will be responsible to provide the majority of public services to the area that maybe annexed.

Findings

- Service reviews were added to LAFCOs mandate with the passage of the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000. The service review is a prerequisite to a sphere of influence determination and may also lead a LAFCO to take other actions under its authority.
- Since 1950, the city has grown through several annexations by 4.68 square miles.
- The largest addition to the city (nearly 33 percent) occurred between 1975 and 1980 with the annexation of the Campton Heights-Rohnerville area.
- The City of Fortuna has entered into a Memorandum of Understanding (MOU) with Humboldt County to facilitate an exchange of property tax revenues for areas of the county that are annexed into the city.

3.7 Humboldt County General Plan

Introduction

Humboldt County has an adopted General Plan (1984) that contains development goals, policies and programs that guide land use decisions including the unincorporated areas in and around the Fortuna General Plan Planning Area. This section summarizes the aspects of the County General Plan that are of greatest relevance to the City of Fortuna's General Plan. It describes the area covered by the Humboldt County General Plan, local constraints on future development, and the major policies concerning the issues of growth, annexation, and ultimate physical size and population.

Key Terms

Community Plan. A community plan is a plan, adopted by the County, to address and implement more localized community concerns for designated areas and is consistent with the countywide General Plan.

Regulatory Setting

The Humboldt County General Plan is subject to the same State requirements as Fortuna's General Plan, as described in Section 3.3.

Existing Conditions

The 1984 Humboldt County General Plan is organized into two volumes that contain the text, diagrams, and maps for two general geographic areas. Volume I establishes goals, policies, and standards for countywide issues and development of the rural areas of the county, and establishes the boundaries of the Community Planning Areas. Volume II contains a number of individual plans for specific geographic areas as identified in Volume I. These include the Local Coastal Plans (LCPs) for the Coastal Zone and the Community Plans for the non-coastal areas of the county. In addition to identifying the boundaries between urban and rural development, and specifying and designating urban land uses, specific policies are included that address the special needs of the Coastal Act and each community. Volume I and the Community Plans in Volume II are organized into the following chapters: Chapter 1 Introduction, Chapter 2 Land Use and Development, Chapter 3 Hazards and Resources, Chapter 4 Public Facilities, and Chapter 5 Implementation Programs.

The major policies included in Volume I provide for:

1. The protection and conservation of resource production lands and incentives to enhance their productivity.
2. Measures that allow an increase of rural residential densities within or adjacent to existing unincorporated communities.
3. A commitment to local government (cities and service districts) to provide services in existing and developing communities.
4. Broadened public participation at all levels of the decision making process; including study, workshops, hearings, and plan revisions.
5. The designation of a boundary between urban and rural areas of development.
6. Establishment of relationships between the availability of services (sewer and/or water) and the conversion of rural lands to urban development.



7. Adequate housing.
8. Economic development.
9. Identification of areas of special consideration (i.e., sensitive habitats, cultural resources, landslide, flood, etc.).

Chapter 2 of the 1984 Humboldt County General Plan contains land use direction and standards for development. Table 3-6 summarizes the County's General Plan Designations within the Planning Area, excluding the city limits (see Figure 3-2). The County has designated a majority of land (2,548 acres or 51.6 percent) for agricultural uses (AE, AG, AR, and AS) of which 2076 (81.4 percent) is available. Residential (AS, RL, and RM) land comprises the next largest amount with 1,329 acres (26 percent) of which about 280 acres (21 percent) are available. The remaining 22.4 percent of unincorporated land is designated for commercial, industrial, public, and timber uses. Most of the available land is Commercial Recreation with 126 acres (86.9 percent) of its 144 acres available.

TABLE 3-6 1984 HUMBOLDT COUNTY GENERAL PLAN General Plan Planning Area (excluding city limits)				
Land Use Designation	Acres	Percent	Available¹ Acres	Percent Available
Agriculture Exclusive (AE)	2,104	42.7%	1,918	91.2%
Agriculture Grazing (AG)	94	1.9%	32	33.8%
Agriculture Rural (AR)	350	7.1%	126	36.0%
Agriculture Suburban (AS)	1,058	21.5%	236	22.3%
Commercial General (CG)	5	0.1%	2	37.8%
Commercial Recreation (CR)	144	2.9%	126	86.9%
Commercial Service (CS)	2	0.0%	1	63.3%
Industrial General (IG)	147	3.0%	63	42.9%
Industrial Related (IR)	48	1.0%	11	23.0%
Public Facilities (PF)	174	3.5%	0	0.0%
Rail	13	0.3%	0	0.0%
Residential Low Density (RL)	270	5.5%	44	16.1%
Residential Medium Density (RM)	1	0.0%	0	0.0%
Timber (T)	159	3.2%	43	27.2%
Subtotal	4,575	93.0%	2,605	56.8%
Other/Unknown (<i>Rights of Ways</i>) ²	334	7.0%	52	15.2%
Total (Planning Area minus City Limits)³	4,933	100.0%	2,657	53.9%
¹ Available lands include vacant, open space, and agricultural land. These could be constrained due to floodplains or slope. ² Other/Unknown includes undesignated areas such as rights-of-ways for roads. ³ The total area reported by the 1984 General Plan is contained within the Planning Area minus the city limits. For a detailed existing General Plan description of the City Limits see section 3.3. Source: 1984 Humboldt County General Plan; Humboldt County Assessors Database, 2005; City				

of Fortuna Planning Department, 2005; Mintier & Associates, 2006.

As of January 2006, the County is in the process of updating their General Plan and is currently developing alternatives. The County is scheduled to adopt their General Plan in sometime in late 2007.

Fortuna Area Community Plan (1985). The Fortuna Area Community Plan (about 8 square miles) is a long-range statement of public policy for the use of unincorporated land around the city of Fortuna (see Figure 3-5). The Framework Plan, community plans and coastal area plans that comprise the Humboldt County General Plan cover countywide issues while the Fortuna Area Community Plan addresses land use within the Fortuna Planning Area. Policies in the Fortuna Area Community Plan direct the City to adopt the Community Plan as part of their General Plan, which includes direction on unincorporated land use, utilities, and density/intensity. Figure 3-5 shows the area covered by the Fortuna Area Community Plan in relation to the city limits, sphere of influence, and Planning Area.

Findings

- The Humboldt County General Plan is organized into two volumes that contain the text, diagrams and maps for two general geographic areas.
- Chapter 2 of the 1984 Humboldt County General Plan contains land use direction and standards for development.
- Within the Planning Area, excluding the city limits the County's General Plan designates a majority of land for agricultural uses (AE, AG, AR, and AS) with about 2,548 acres (51.6 percent) of which 2076 (81.4 percent) is available.
- The Fortuna Area Community Plan covers about 8 square miles and is the long range statement of public policy for the use of unincorporated public and private lands around the city of Fortuna.

3.8 Regional/State/Federal Agencies

Introduction

This section discusses plans affecting land use, growth, and development in the Planning Area that are either regional in nature or that deal with a particular governmental function.

Key Terms

Approach Zone. The air space at each end of a landing strip that defines the glide path or approach path of an aircraft that should be free from obstruction.

Air Pollution. Concentrations of substances found in the atmosphere that exceed naturally occurring quantities and are undesirable or harmful in some way.



Clear Zone. That section of an approach zone of an airport where the plane defining the glide path is 50 feet or less above the center-line of the runway. The clear zone ends where the height of the glide path above ground level is above 50 feet. Land use under the clear zone is restricted.

Council of Governments. Associations of cities and counties that are formed through joint powers agreements. Their governing boards are composed of locally elected members of city councils and county boards of supervisors.

National Ambient Air Quality Standards. The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

Regulatory Setting

Section 3.8 covers a broad range of regional, State, and federal regulatory issues. There is no specific regulatory setting to report.

Existing Conditions

This section discusses the roles and responsibilities of government agencies, and relevant regulation and policy.

Humboldt County Association of Governments. The Humboldt County Association of Governments (HCAOG) provides population projections based on Department of Finance DOF estimates for use in planning regional transportation and housing. HCAOG's jurisdiction includes the cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad, and unincorporated county land. HCOG serves as the designated Regional Transportation Planning Agency (RTPA) as well as the Service Authority for Freeway Emergencies (SAFE). The agency is largely responsible for programming State highway and local road improvements, public transportation resources, and the road-side call box program. HCOG also bears responsibility for the preparation and implementation of the Regional Transportation Plan (RTP).

As required by State law, the HCAOG administers the apportionment of housing allocation requirements for various income and housing categories for all communities in the county. These are based on DOF and census data and also on data received from each city and the County.

HCAOG developed their Regional Transportation Plan (RTP), in 2004. The RTP is a 20-year planning document that is consistent with the Regional Transportation Improvement Program (RTIP) to qualify projects for the State Transportation Improvement Program (STIP). The RTP has been required to be updated every two years until 1999, when the California Transportation Commission (CTC) amended the requirement to every three years. The most recent RTP was updated in 2004.

Rohnerville Airport Land Use Plan. The Rohnerville Airport Master Plan, adopted in May 1993, covers the Rohnerville Airport located south of the City of Fortuna. The Plan evaluates the airport and helps protect the airspace that is essential to the safe operation of aircraft in the vicinity of the airport. The plan's land use findings identify that there aren't any substantial issues with any existing land uses in the vicinity of the

airport, but the findings site that future development near the airport could affect operations, or cause the airport to acquire additional land to insure its continued use. [See Chapter 5 for an expanded description of the Airport Master Plan]. The Rohnerville Airport, located to the south of the City Limits, can cause constraints to development, as flight paths must be kept clear of development.

North Coast Regional Water Quality Control Board. The City of Fortuna is located in the North Coast Basin. The North Coast Regional Water Quality Control Board (NCRWQCB) adopted its first interim basin plans in 1971. These were followed in 1975 by a comprehensive Water Quality Control Plan for the Klamath River Basin (1A) and a comprehensive Water Quality Control Plan for the North Coastal Basin (1B). In 1988, the Regional Water Quality Control Board combined and updated the two comprehensive plans and their abstracts into a single Water Quality Control Plan for the North Coast Region (Basin Plan). In 1993, the Regional Water Board again updated descriptions and corrected inaccuracies in the Basin Plan. The Regional Water Quality Control Board has amended the Basin Plan numerous other times between 1975 and 1996.

The goal of the Basin Plan is to provide a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses of water in the North Coast Region. The Basin Plan is comprehensive in scope and includes the following:

- Descriptions of the resources and beneficial uses to be protected;
- Water quality objectives that have been established for the protection of those uses;
- Implementation plans and control strategies to achieve the water quality objectives;
- Descriptions of statewide plans and policies that apply to the waters of the North Coast Region; and
- Descriptions of the North Coast Region's surveillance and monitoring activities.

The Regional Water Quality Control Board's technical staff uses the Basin Plan as a regulatory tool. The Regional Water Board develops the Basin Plan's water quality standards and prohibitions applicable to a particular discharge. Other agencies use the Basin Plan in their permitting and resource management activities. It also serves as an educational and reference document for dischargers and members of the public. [Chapter 6 includes an expanded discussion of the NCRWQCB]

North Coast Unified Air Quality Management District. Fortuna is located within the North Coast Unified Air Quality Management District (NCUAQMD), a part of the North Coast Air Basin that includes Del Norte, Humboldt and Trinity, and Mendocino and northern Sonoma Counties, which each comprise separate air districts within the North Coast Air Basin. This district is comprised of three counties: Humboldt, Del Norte, and Trinity, located in the northwestern portion of California. The District contains 7,767 square miles, or approximately five percent of California. It is bordered on the west by the Pacific Ocean and extends from the Oregon Border south approximately 140 miles to the Mendocino County line and varies between 30 to 100 miles in width inland. Much of the District consists of sparsely populated mountainous forest land. About 80,000 persons (1/2 of the District's population) reside within the Humboldt Bay region. Crescent City (Del Norte County) and Weaverville (Trinity County) are also important centers of population within the District. The District is managed by its Governing Board, consisting of five members who represent the Counties and the Cities within the District, set policy, and direct District staff. [Chapter 8 includes an expanded discussion of the NCUAQD]



State Responsibility Area (SRA) Fire Safe Regulations. The "SRA Fire Safe Regulations" constitute the basic wildland fire protection standards of the County for lands within State Responsibility Areas (SRA). These regulations have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction and development in SRA. These regulations constitute local alternative standards as authorized by Section 4290 of the Public Resources Code. These measures provide for emergency access; signs and address numbering; private water supply reserves for emergency fire use; and vegetation modification. The fire protection standards specify minimums for these measures. [Chapter 8 includes an expanded definition of the SRA]

Draft Humboldt County Community Wildfire Protection Plan (Humboldt County Fire Safe Council). The draft Humboldt County Master Fire Protection Plan (MFPP) serves as the Community Wildfire Protection Plan (CWPP) for Humboldt County, California. The MFPP identifies and prioritizes areas for hazardous fuel reduction treatments. It recommends the types and methods of treatment to reduce the risk of wildfire to Humboldt County communities and resources. The MFPP summarizes the Risk Assessment and Mitigation Strategies (RAMS) analysis used to identify areas that are of highest risk for loss of lives, property, and resource values by the threat of catastrophic fire. The outcome of the RAMS assessment is a composite risk ranking for specific geographic areas of the County accompanied by relevant information and maps that can be used to identify appropriate fire mitigation strategies and allocation of resources. The MFPP also recommends measures to reduce the ignitability of structures throughout Humboldt County

The Humboldt County Master Fire Protection Plan goals are as follows:

- Assure adequate fire protection of people, property, and communities.
- Support development of local fire fighting organizations and local Fire Safe Councils.
- Encourage effective and risk-based allocation of fire prevention and suppression services.
- Encourage local efforts to reduce or mitigate fire fuel loads for community fire prevention and protection.
- Promote local fire safe planning and education programs.
- Support fire prevention and resource protection funding and technical assistance efforts of local fire organization and communities.

California Department of Transportation. The California Department of Transportation (Caltrans) has authority over State highway and freeway rights-of-way, including easements and undeveloped rights-of-way that have been acquired in anticipation of future construction. Any project that proposes to construct a road connection to a State highway or freeway or to conduct earthwork within its right of way must obtain an encroachment permit from Caltrans.

The Alton Interchange Project is a Caltrans proposal to construct an interchange at the junction of Highway 36 and Highway 101 to decrease the collision rate, facilitate, turn and merge movements, and reduce waiting time for turn movements. The plan calls for two continued travel lanes along Highway 101 and Highway 36 as an over crossing structure across Highway 101 with two land and turn pockets. The over cross would accommodate bicycle and pedestrian traffic.

Included in this project is the closure of the Drake Hill Road connection to Highway 101. Additional traffic along Eel River Drive will impact the Kenmar Road and Highway 101 interchange.

California Department of Fire (CDF). The California Department of Forestry and Fire Protection (CDF) Humboldt-Del Norte Unit represents the most northern Unit of the California coastline. The Unit extends approximately 180 coastal miles and inland approximately 50 miles. Humboldt County has moderate risk of experiencing an urban interface fire (i.e., a forest fire adjacent to an urban area). [Chapter 8 includes an expanded definition of the CDF]. The Rohnerville Airport is home to the CDF fleet of fire fighting aircraft and crew members.

State of California Native American Heritage Commission. The State of California Native American Heritage Commission reviews projects and comments on potential impacts to Native American archaeological resources. The Commission becomes directly involved with development projects if Native American artifacts or remains are discovered during construction activities.

Findings

- The Humboldt County Association of Governments (HCAOG) provides population projections based on Department of Finance (DOF) estimates to use in regional transportation and housing planning.
- The 2004 Regional Transportation Plan is a 20-year planning document that is consistent with the Regional Transportation Improvement Program (RTIP) to qualify projects for the State Transportation Improvement Program (STIP).
- The Rohnerville Airport Master Plan land use findings identify that there are not any existing land use conflicts in the vicinity of the airport, but states that future development near the airport could affect operations, or cause the airport to acquire additional land as a buffer to insure its continued use.
- The North Coast Basin Plan is used as a regulatory tool by the Regional Water Quality Control Board's technical staff. The Regional Water Quality Control Board's orders list both the Basin Plan's water quality standards and prohibitions applicable to a particular discharge.
- Fortuna is located within the North Coast Unified Air Quality Management District (NCUAQMD) a part of the North Coast Air Basin which includes Del Norte, Humboldt and Trinity Counties (which comprise the North Coast Unified Air Quality Management District), and Mendocino and northern Sonoma Counties, which each comprise separate air districts within the North Coast Air Basin.
- The Alton Interchange Project (May 2005) is a Caltrans proposal to close the Drake Hill Road connection and construct an interchange at the junction of SR 36 and SR 101 to decrease the collision rate, facilitate, turn and merge movements, and reduce waiting time for turn movements.
- The State of California Native American Heritage Commission reviews projects and comments on potential impacts to Native American archaeological resources.

4

Community Character & Design



4.1 Introduction

Community character and design are integral to the continued quality and identity of Fortuna. Character and design add to a sense of place and familiarity which reinforces common bonds and relationships among the various neighborhoods and districts in the city. This chapter summarizes the main components of community character and design in the Planning Area.

This chapter is divided into the following topics:

- Historic Growth and Development (Section 4.2)
- Urban Form (Section 4.3)
- Urban Structure (Section 4.4)
- Views and Viewsheds (Section 4.5)
- Placenames and Identity (Section 4.6)
- Community Character (Section 4.7)

4.2 Historic Growth and Development

Introduction

This section summarizes the historic events and forces that have shaped the urban form and structure of Fortuna, an understanding of which will greatly assist in planning for the city's future, particularly since some of these historic forces remain as important influences or determinants in the form and structure of the city.

Key Terms

Ford. A shallow area in a stream or river that can be crossed.

Spur Line. A railway line connected to a trunk line.

Regulatory Setting

There is no regulatory setting for section 4.2.



Existing Conditions

Settlement Period. Fortuna's previous name of "Springville" was a natural outgrowth of the Springville Mill, which was the first of a number of lumber mills within what is now the Fortuna Planning Area. The precise date of the mill construction is unclear, but likely in the late 1860s. As the name suggests, the mill was located near a spring, which itself was situated at the forest edge of what is now the end of 2nd Avenue. The presence of numerous springs in the area suggests geologic conditions that include water-bearing strata, which in turn pose the possibility of landslides or slumps due to the steepness of the slopes. When the first post office was built in the late 1870s, the name "Springville" already existed in California, and, interestingly enough, the name "Slide," which was the city's original name, was selected for the post office address, in reference to the numerous landslides in the area.

According to historic accounts, the initial 16-lot plat for the town occurred in 1875, and by 1880 the town had grown to 88 lots. These lots, located near the intersection of 11th (formerly 1st Street) and Main Streets, were organized into a traditional rectilinear block and street pattern, as shown on the original town plat. This original plat established the block and street pattern that expanded over the next 125 years and that forms the historic core of Fortuna as well as containing the city's historic and contemporary central commercial district.

The historical record indicates that the handful of businesses that occupied the initial commercial core included a slaughter house, a packing plant, a livery stable, general merchandise store, and a grist mill. Soon the town included salons, hotel, a stage stop, and a blacksmith shop. Like so many smaller cities in the west, Fortuna enjoyed the many benefits of a "classic Main Street" where the center of commerce, culture, and community events were focused. The remnant portion of this historic area contains a substantial number of existing buildings that thus constitute a natural focus for revitalizing this important district within the city.

In 1884, the citizens of Springville (as they preferred to call their town) petitioned the California Legislature to change the name of the town to Fortuna. The legislature accepted the petition, and in 1888 the city and the Slide Post Office name were both changed to Fortuna. The name "Fortuna," meaning "good fortune" was selected due to its excellent location between the redwood forests and the Eel River Valley, and its close proximity to the Pacific Ocean.

A second settlement located only 2.5 miles to the south of Springville had occurred in the 1850s, predating the Slide/Springville/Fortuna settlement. Pioneer Henry Rohner had opened a general store in this area in 1849, and soon a small town was established. Originally known as Eel River Township, the town was later named Rohnerville after Mr. Rohner. Although many of the Eel River Valley residents had been originally drawn to California as a result of the discovery of gold, most soon returned to farming and settled the rich agricultural lands of the Rohnerville area. By 1870, Rohnerville was the third largest settlement in Humboldt County. Although the commercial core of Rohnerville is but a fraction of the original town, the residential community has survived and its identity largely intact. A wooden sidewalk (4 feet wide) linked Rohnerville and Fortuna for many years.

Early Roads, Bridges, and Ferries. Land development and land use are inextricably linked to transportation. In the early development of the region, the steep topography dense stands of timber and the sheer size of the Eel River and its major tributaries, limited overland vehicular transportation (both horse-drawn and internal combustion powered) to a system of roads that generally followed the valley floor and avoided major river crossings. As Eureka and Arcata emerged as major seaports, as well as the centers of political

and economic power in the region, the road system linking Fortuna and Rohnerville to these ports was critical to the early growth of both towns. The early maps of the area suggest that this primary road access generally preceded the historic alignment of U.S. Route 101.

In 1906, the California Northwestern Railroad ran north from San Francisco for 152 miles, and the Eureka, Scotia, and Camp Five Railroad ran south from Eureka for a distance of 36 miles. Until a rail connection was completed, the 100-mile gap between the terminations of these two rail lines required stagecoach travel followed by the early automobiles in the early 1900s. Rough topography and steep grades made this overland journey particularly difficult, and mountain streams made the road impassible in winter and during spring runoff. Ferries were required at major river crossings.

Automobile stages, the precursor to busses, arrived in 1908. When the highway was built through Fortuna in 1921, motor vehicle travel and access to the region was greatly enhanced. By 1925, the West Coast Transit Company provided motor stage service from San Francisco to Portland. The company was subsequently sold to Greyhound lines in 1930.

Important secondary roads included the old stage road that linked the area to Hydesville to the east and Ferndale to the west. The stage road preceded the Hydesville-Rohnerville Road that is still in use today. The Fernbridge bridge completed in 1911 facilitated travel between the Fortuna and Ferndale areas without being ferried across the Eel River. There were two major ferry crossings--the East Ferry landing located near the present day River Lodge and the Singley Ferry located near the foot of Drake Hill Road.

Finally, the Eel River also provided a transportation route during the settlement period. The Great Marie went as far as McCann and the Poison Oak went up river to Meyers Flat. These river boats were used to transport fruit (apples) and vegetables as well as passengers.

Historic Economic Base. The timber industry was central to the economic development of Fortuna and Rohnerville, and timber harvest, milling and shipping accounted for a major portion of the employment for the area for the 65-year period from 1865 – 1930. During the heyday of this natural resource base, there were approximately eight lumber mills in the area, each with an independent rail system. Principal mills included the following:

- Springville Mill
- Fortuna Milling Company
- Pacific Lumber Company
- E. J. Dodge Lumber Company
- Carson Lumber Company
- Eel Valley Lumber Company
- Humboldt Milling Company [1888] (in triangle defined by RR, 7th (Market Street) and Main Street (County Road))
- Clay Brown Mill

[Note: Some lumber mills were eventually acquired and subsumed under their successor's names.]

Figure 4-1 shows the approximate location of these mills that were in operation during this period. As shown in Figure 4-1, the areas selected for logging started in the 1870s with the area north of Springville (the historic core of Fortuna) in the Palmer Creek drainages. Logging operations were then concentrated in



the Newburg area approximately a mile and a quarter from the current intersection of Main Street and Fortuna Boulevard. This area is in and beyond the northeasterly portion of the Planning Area. The Eel River Valley Lumber Company began operations in this area in 1883, initially hauling wagon loads of lumber to the shipping town of Hookton located on Humboldt Bay. When the rail line opened to Eureka, the Eel Valley Lumber Company built a spur line to the Newburg area to facilitate more rapid shipping to their newly constructed wharf at Fields Landing. By 1896, the Eel Valley Lumber Company was the largest lumber operation in Humboldt County. The company also established a major retail lumber yard at Newburg Junction on the main railroad line between Eureka and San Francisco. The yard was part of a substantial industrial complex that also included Associated Oil Company's site at Rohnerville Road adjacent to the rail line.

By 1891, the primary focus of logging operations had again moved in a clockwise direction to Strongs Creek located south of the Newburg Area, also in and beyond the northeastern portion of the Planning Area. Once logging operations had moved through the two Strongs Creek tributaries – North Fork Creek and South Fork Creek, the operations moved further south to Jameson Creek in 1901 and Wolverton Gulch in 1916, 3.5 miles due east of Rohnerville. These two drainages are both situated immediately to the east and southeast of the Planning Area.

In 1914, E.J. Dodge acquired full control of the Eel River Valley Lumber Company and changed the company name to the E.J.Dodge Lumber Company. In the early 1920s, Dodge moved logging operations further east to Yager Creek (further east of the Planning Area), and then in 1924 the company moved their operations to the west across the Eel River to Atwell Creek in the Howe Creek drainage. Log rafts were created to float the harvested timber across the Eel River to Metropolitan, a former settlement located 2.5 miles south of the Planning Area at the confluence of the Van Duzen and Eel Rivers. This timber was then milled at the Newburg Mill and then shipped via rail to Humboldt Bay or San Francisco. At its zenith, the Eel River Valley Lumber Company employed 200 men and shipped 18,000,000 board feet of lumber per year, nearly all of which was redwood.

The opening of the Panama Canal in 1915 led to a boom in the logging and lumber business, as markets for California Redwood expanded to the east coast. This heyday of the industry was sustained until 1930 when the severe economic impacts of the Great Depression swept the country. The Newburg Mill closed in 1931 and was dismantled in 1934, along with the rail lines that were torn up and sold for scrap metal. The remaining three locomotives were eventually sold for scrap in 1948, the same year that the rail yard was sold.

In addition to the timber and lumber industry, the area was also widely known for its excellent agricultural lands, particularly for the production of vegetable crops, fruits (many apples from south Humboldt and the Mattole Valley came through Fortuna by boat and wagon), and berries, as well as for the Eel River fisheries. The area currently (January 2006) occupied by the Pacific Lumber Mill site was once the location of a large "evaporator" or complex of drying sheds for drying apples. This localized agricultural economy provided an important support for the logging and lumber industries that dominated the regional economy.

Rail Transportation. In 1884, a rail tunnel was completed at Table Bluff just north of Loleta, and in 1885, the Pacific Lumber Company Railroad completed the rail line linking Fortuna to the docks at Fields Landing situated on Humboldt Bay some four miles south of Eureka. The advent of this rail link to Fields Landing ushered in a major period of economic development based on the timber industry.

Rail transportation revolutionized the timber industry, as each mill sought to gain a competitive advantage by building its own rail system, and each time the logging operations moved, the rail lines were extended or moved, thus creating a network of rail lines throughout the area.

Links to the seaport in Eureka and Fields Landing were initially important, but once Fortuna became a regular stop on the rail line between Eureka and San Francisco, the timber industry, as well as the city, grew economically stronger and the smaller outlying communities bypassed by the railroad began their decline. The old railroad depot, now a free museum in Rohner Park, chronicles Fortuna's railroad history and its contributions to the town.

The gentle curves in Newburg Road reflect a rail line alignment that likely preceded the road and that led into the hills near Newburg. A dam creating a large mill pond was located along these tracks about a half mile beyond Newburg Park. A company store and bunk houses for loggers and mill workers was located there. Figure 4-1 shows the approximate location of rail lines operating within the Planning Area circa 1900.

Parklands. Henry Rohner donated land for the first city park in Fortuna, but the site was destroyed by flooding in the late 1800s. However, in the early 1900s Henry's widow sold the town some 53 acres that is the location of the present-day Rohner Park. The Rohner's sold the land in installments, and Rohner's daughter, Elizabeth Barcus Rohner, sold the third section of land to the City for \$1 with the stipulation that the park's name never be changed. The deed of the parkland was signed by Abraham Lincoln, and a replica can be seen in the park's Depot Museum.

Civic, Cultural, and Recreation Events. Fortuna was also home to a number of cultural, civic, and recreation events and festivals. In its heyday, the Eel River Jockey Club located in Rohnerville provided one of the most colorful periods of areas history. Shields Lane marks the Northeastern edge of the racetrack ellipse. The first races were held at the big race track and fairground in 1866 before a crowd of 700. Local horsemen brought some of America's prestigious Morgan and Standardbred bloodlines into Humboldt County, and through the end of the 1800s, some of California's finest horses raced on the track. Harness racing also provided a major source of pride for the area, as Rohnerville's trotting horses traced their ancestry to two of the greatest bloodlines in the county. The fairgrounds and race track were located on a site along the north side of Kenmar Road and just west of the main county road through Rohnerville.

Currently (January 2006), one of the most popular events is the annual rodeo that has been held Rohner Park since 1921. The event has grown and prospered over the years, and was recognized by the Rodeo Cowboy Association from 1936 – 1953. In 1954, the Fortuna Rodeo Association was formed to produce the event, with association membership shared equally between the Chamber of Commerce and the Volunteer Fire Department. All profits are used to maintain Rohner Park.

Contemporary events such as the Daffodil Show in March, Art and Wine in the Park in June, the Fortuna Redwood Autorama (now known as the Auto Xpo) in July, the Apple Harvest Festival in October, and the Christmas Home Tour and Christmas Music Festival in December, replaced other various events with historic origins conducted under the town's nickname as "The Friendly City."

Schools. The first public school in the area was built in Rohnerville in the late 1860s. Shortly after, there was also a school in Springville, and in 1872 Mount St. Josephs College was built south of Rohnerville on the site of the airport. Despite intermittent closings, the college continued in operation for over 30 years. The buildings were demolished in the early 1920s, following a period of ownership by the Feignbaum estate. Over time a public school system was established, and the area now contains two elementary schools, two middle schools, and the Fortuna Union High School complex.



Findings

Fortuna was also home to a number of cultural, civic, and recreational events and festivals. The Eel River Jockey Club located in Rohnerville provided one of the most colorful periods of the area's history. The first races were held at the big race track and fairground in 1866 before a crowd of 700.

4.3 Urban Form

Introduction

The following discussion sets forth the various factors that have given shape to the urban form of the greater Fortuna area. Some of these factors are very evident today, whereas others have receded in importance over time. In the aggregate, these factors will continue to influence and shape the future growth pattern of the area.

Key Terms

Ecotone. An ecotone is a transition area between two adjacent ecological communities (ecosystems). It may appear on the ground as a gradual blending of the two communities across a broad area, or it may manifest itself as a sharp boundary line. Changes in the physical environment may produce a sharp boundary, as in the example of a shoreline or the interface between areas of forest and cleared land. Elsewhere, a more gradually blended interface area will be found, where species from each community will be found together as well as unique local species. Mountain ranges often create such ecotones due to the wide variety of climatic conditions experienced on their slopes.

Urban Form. Urban form refers to the distinguishing physical features of an urbanized area, including both natural factors and elements of the built environment that are determinants of the geography. The overall urban form is in turn further defined and differentiated into smaller units or districts, characterized by differences in building type, historical periods, parcel sizes and ownership, and other distinctive features that delineate the shape and extent of the settlement pattern. The configuration of this settlement pattern may be determined by any number of factors, including but not limited to, physical barriers to development such as rivers, floodplains, and steep topography, or factors that provide the structure for urban growth as discussed below.

Regulatory Setting

There is no regulatory setting to report for Section 4.3.

Existing Conditions

Historic Settlement Pattern. As discussed in the previous section, the historic settlement pattern is still evident in the historic downtown area, as well as in the Rohnerville area. Similarly, the primary historic transportation routes that were in place by 1900, both vehicular and rail, remain central to the organization of the city's circulation system. And although historic employment centers no longer exist, most particularly the lumber mills, the buildings of the last remaining mill (which closed in 2005) still remain as a part of the historical settlement pattern.

Extensions of the original town plats for both Fortuna and Rohnerville followed the initial patterns of the initial plats, and in combination with the rail and primary road system resulted in a development pattern that still serves to define the primary elements of the city's form and structure.

With the advent of the railroad connection to San Francisco and Portland, a substantial industrial area developed along the rail alignment. Standard Oil and Union Oil had industrial facilities near east of 3rd Street, and Shell Oil had an extensive operation, including shops, warehouses, and storage area across from the old train depot at the foot of 7th Street (formerly Market Street). This is now the site of Fortuna Elementary (Town) School. The Humboldt Milling Company was situated adjacent to the rail line one-half block west of 7th Street and one-half block south of Oak Street. These facilities, along with numerous barns, warehouses, shops, and railroad facilities, comprised a major industrial and employment core for the city.

Evolution of the Development Pattern. It is useful to understand the evolution of the contemporary development pattern in addition to these historic roots. The growth pattern that occurred between 1900 and the present can be grouped using five twenty-year periods:

- Through World War I: 1900-1920
- The Depression Years: 1920-1940
- World War II and Post WWII: 1940-1960
- Cold War suburban expansion and annexation: 1960-1980
- Declining resource era: 1980-present

In 1976, Campton Heights added 33 percent to the land area via annexation. City growth between 1950 and 1980 are shown below.

TABLE 4-1 ANNEXATION HISTORY City of Fortuna			
Year	Annexed Area (Sq Mi)	Total Area (Sq Mi)	Percent Increase
1950	ND	1.0	N/A
1960	0.4	1.4	40%
1970	0.6	2.0	42%
1975	1.0	3.0	50%
1980	2.3	5.3	77%
<i>Source: City of Fortuna, 2006.</i>			

Prominent subdivisions in the Planning Area include Lawdale (1950s) Kenwood Meadows and Braun (1980s), Rancho Buena Vista (2000), and Forest Hill Estates (2002). In contrast with the grid pattern of street utilized in the Downtown area, these subdivisions use cul-de-sacs and curvilinear streets characteristic of post-WWII development across the entire United States.

Later, the development pattern moved from the gentle topography of the Eel River Valley and moved onto the steeper forested slopes on the north and eastern edges of the developed area.

Natural and Physical Features Influencing Urban Form. In terms of ecological factors, the Planning Area is within the Northern California Coast section of the California Coastal Steppe, Mixed Forest and Redwood



Forest ecological province. The Planning Area falls along the ecotone between the Redwood Forest vegetation type and the riparian woodland characteristic of the Eel River floodplain and estuary. These ecological conditions underscore the fact that the Planning Area occurs within a dynamic natural environment where steep mountain slopes intersect with the depositional lands west of the Eel River. For more detailed information on ecological features in the Planning Area, see Chapter 6, Natural and Cultural Resources.

Surface hydrology and the fluvial processes of erosion and deposition are central to the character of the landscape and are readily apparent throughout the Planning Area. The Eel River Valley is primarily a level floodplain, with the city of Fortuna occupying an upland depositional remnant between the river and the Coast Range Mountains to the east. The Eel River, the Van Duzen River, Palmer Creek, Rohner Creek, Strongs Creek, Jameson Creek, Mill Creek, and several smaller, unnamed drainages constitute natural edges and barriers within the pattern of human settlement, as well as providing important visual features within the Planning Area. For more detailed information on hydrological features in the Planning Area, see Chapter 6, Natural and Cultural Resources.

The bottomlands along the Eel River are depositional lands, and historically have been especially fertile as a result of continual flooding. During 1964 historic high flood levels, the Eel River was reported to be flooded to a depth of 41 feet. Section 8.6, Flooding, provides a more detailed discussion of historic floods and flooding potential.

Flooding continues to present a physical constraint to low-lying development in the Planning Area. Levee failure and overtopping continue to pose flooding problems, although not nearly as severe as was the case prior to the late 1950s when improvements were made. After the 1955 flood, local congressmen worked closely with contacts in the White House and Senate to get a levee project as well as the corresponding appropriation approved in the same session. The Army Corps of Engineers constructed a three-mile levee in 1959 to an elevation above the 1955 high water mark. The levee has not been improved/ reconstructed since that time.

Topographic variation within the portion of the Planning Area defined by the historic development pattern is quite modest, ranging from approximately twenty (20) feet in elevation where the Eel River leaves the Planning Area in the Northwest to 400 feet south of Rohnerville Airport. The lower-lying lands within the city of Fortuna range from 30 to 70 feet in elevation, and the Rohnerville area elevation ranges from 120 to 400 feet.

The topographic variation in the Planning Area is considerably greater, with the steep, forested slopes to the east reaching an elevation of nearly 1,200 at the highest point a half mile east of Loop Road. Since steep slopes typically constitute a significant development constraint, especially to road and building construction. Figure 4-2 consists of a map showing slope categories. Sound engineering practices usually limit street grades to less than 12 percent, and slopes greater than 16 percent usually pose significant difficulty in terms of road construction due to curve radii and road grade constrains. As of June 2005, the Zoning Ordinance does not regulate development on slopes.

This forested topography provides a strong visual element along the eastern part of the Planning Area, as well as constituting a significant development constraint, particularly in terms of access. Due to the steep slopes, the existing road pattern serving this area generally follows drainages or alignments across side-slopes in order to provide roads on ridgelines. In both instances, the resulting circulation system can lead to

locating development either on ridge tops where development tends to be highly visible or in canyon/stream bottoms where ecological problems are more likely.

Since no significant topographic features dominate the visual landscape in the area defined by the historic development pattern, visibility through and across the area is generally unrestricted, except where tree cover and/or buildings, limit views to the most immediate foreground.

Findings

Flooding continues to present a physical constraint to low-lying development in the Planning Area.

The steep, forested slopes to the east constitute a significant development constraint. As of June 2005, the Zoning Ordinance does not regulate development of slopes.

The forested topography provides a strong visual element along the eastern part of the Planning Area, as well as constituting a significant development constraint, particularly in terms of access.

4.4 Urban Structure

Introduction

In 1960 the urban planning profession benefited significantly from the publication of "The Image of the City", a book that has become a classic in the literature of the field. Among the major contributions of author Kevin Lynch, a professor at Massachusetts Institute of Technology, was his formulation of a systematic way to better understand the structure of the places where we live, and a set of short-hand protocols that can be used to diagram city structure.

This method is useful for understanding how to enhance, expand, and repair the existing urban fabric, and is also particularly valuable in guiding the formulation of general plans, specific plans, and urban design projects.

The short hand system consists of five elements:

- Paths;
- Edges;
- Districts;
- Nodes; and
- Landmarks.

Key Terms

Districts. See definition under "Existing Conditions" section.

Edges. See definition under "Existing Conditions" section.

Landmarks. See definition under "Existing Conditions" section.

Nodes. See definition under "Existing Conditions" section.

Paths. See definition under "Existing Conditions" section.

Urban Structure. This refers to the overall physical framework of the built environment that provides the basic structure for the city's development pattern. This structure consists primarily of transportation and



other infrastructure that serve to define the historic patterns of urban growth and provide the internal and external linkages that constitute the pattern of settlement and development. Urban structure also refers to the constellation of specialized development nodes that provide essential services to specific geographic areas within the larger settlement pattern, ranging in scale from regional centers, traditional downtowns, neighborhood centers, and even to the more fine-grained structure of schools, parks, and other public spaces.

Regulatory Setting

There is no regulatory setting to report for Section 4.4.

Existing Conditions

Figure 4-3 describes the city's paths, edges, nodes, and landmarks as described in the following paragraphs, while Figure 4-4 identifies districts and distinct neighborhoods.

Paths. The dominant paths within the Planning Area are Highway 101 and the railroad right-of-way, both of which also serve as significant barriers to east-west connectivity across their respective alignments. Secondary but significant paths are the Main Street-Rohnerville Road alignment, the Fortuna Boulevard-Ross Hill-School Street alignment, and the 12th Street-Riverwalk Drive-Kenmore/Kenwood alignment. Newburg Road and Rohnerville-Hydesville Road also constitute important paths that serve to define the primary, overall circulation system within the Planning Area.

Edges. The Eel River, as well as Highway 101 and the railroad, constitute an important edge that defines the western boundary of the Planning Area. This edge is particularly pronounced since the Eel River constitutes a significant continuous barrier, and the highway and railroad constitute a barrier with only limited points of access. As a result, the strip of land between the river and these major paths is relatively isolated from the balance of the Planning Area.

To the east, the steep forested slopes of the Coast Range constitute an equally dominant edge, although the road system penetrates this edge as noted earlier. To the south, the Van Duzen River defines another strong edge, and the various creeks and streams that cross the Planning Area similarly provide important intermediate edges and barriers.

Districts. Districts are more difficult to identify with much precision since they tend to be defined either by clear changes in land use or in the historic development pattern. In some communities, the names of larger subdivisions become synonymous with districts, whereas in others distinct neighborhood names are used, often in reference to some geographic location (e.g., the Upper West Side) or the name of the individual responsible for the annexation and/or development of the area (e.g., Johnson's Addition).

In the case of Fortuna and Rohnerville there are two distinct settlement areas that provide a starting point for discerning identifiable districts. In addition to the historic Downtown commercial district along Main Street, there is a clearly identifiable historic residential area defined by the grid street and block pattern that extends from 6th Street to 16th Street in an east-west direction, and north-south from I Street to P Street.

There is also a discernable industrial/manufacturing district west of Highway 101 in the northern portion of the Planning Area, and the Pacific Lumber Company (PALCO) property which remains a strong visual presence in the center of Fortuna. Less distinct and smaller commercial districts occur in other parts of the

Planning Area, notably along Fortuna Boulevard, but the smaller size of these areas tend to make them less significant in the overall structure of the area.

A considerable number of distinct neighborhoods also exist within the Planning Area as shown in Figure 4-4.

Nodes. Nodes define concentrated points of activity that are readily identifiable. They often occur at important street intersections or are defined by a concentration of specific buildings such as a civic center or a school complex.

In Fortuna, the River Lodge and associated visitor-serving accommodations constitute important nodes as does the hospital and the adjacent medical offices and assisted living complex. The Fortuna Union High School complex on 12th Street creates an obvious node, as does the Rohner Park/Rodeo Grounds complex, and Newburg Park. The commercial development concentrated at the intersection of Redwood Way and South Fortuna Boulevard could be considered a node. Finally, in the future, Rohnerville Airport could become a more significant node.

There are historic nodes as well, lost in the path of on-going development of the city. For example, there was an outdoor market once located at the intersection of Main Street and 7th (formerly "Market Street"), and the train depot formerly located at the foot of 7th street adjacent to the railroad tracks.

Landmarks. Landmarks are the distinctive individual buildings, monuments, or natural features that provide distinctive visual elements or markers within the built environment. Landmarks are well known and widely recognized by residents and are used consciously and unconsciously to organize our locations in space. People tend to use landmarks when describing directions to visitors or in establishing places for meeting someone.

In spite of being relatively isolated west of Highway 101, the River Lodge is clearly a newer landmark within the Planning Area. The historic Train Depot in Rohner Park and the movie theater on Main Street. In addition to constituting a node, the large Pacific Lumber Company buildings serve as landmarks as well. A large cross that once stood on city parkland was moved to adjacent private land where it remains a clearly visible landmark within the area. For many years, Fortuna had a bowling alley located at the north end of Main Street that was one of the gathering spots for the community. The building is now vacant but soon to be developed by C. Crane Radio Company. Regardless of use, the building still serves as a landmark and a reminder of its past role in the community.

Findings

There are no findings identified for Section 4.4.

4.5 Views and Viewsheds

Introduction

This section summarizes visual aspects of the Planning Area, underscoring important vistas, views, and viewsheds. The Planning Area is located in the Eel River Valley, and the dominant presence of the valley and containment provided by the surrounding mountains is apparent throughout. The most extensively developed parts of the Planning Area are situated on the depositional lands along the Eel River and are thus generally flat, although there are several discernable or abrupt changes in topography. This depositional area is visually bounded by the dominant forested mountain slopes to the north and east and the Eel River and is riparian corridor to the west, although the river is not immediately visible from much of



the Planning Area. At the south, the Planning Area slopes steeply down from the airport into the Van Duzen River Valley.

Key Terms

There are no key terms for this section.

Regulatory Setting

The city does not have any regulations or restrictions in place to protect views and viewsheds, other than the design review process described in Section 4.7 under "Regulatory Setting."

Existing Conditions

Views and vistas within the majority of the Planning Area consist of foreground detail with views across the city to the forested mountain slopes to the east and north, or across the river to the flat, agricultural lands bounded by forested slopes to the west. Moving through the more developed part of the Planning Area, visual changes in the overall landscape are generally subtle, although there are discernable changes in the character of development when moving across the major streams that cross the area in an east-west direction – Rohner Creek, Strongs Creek, Jameson Creek, and Mill Creek. Historically, these creeks must have served as barriers to development, and thus mark the edges of particular periods of land development. The riparian vegetation along these creeks also provides a visual break in the urban fabric.

Many of the major roads (paths described in Section 4.4) now cross through several of these development periods, thus the visual character of the Planning Area as viewed from these primary paths changes accordingly. For example, the Main Street – Fortuna Boulevard alignment passes through the historic core of Fortuna, crosses Rohner Creek into a later development period with a different visual character, then across Strongs Creek and Mill Creek back into an earlier development period of Rohnerville with yet another corresponding change in visual character.

Views and vistas to the north and east terminate with the forested mountain slopes, and even to the west and south, forested mountain slopes are present in the distance. The ubiquitous presence of conifer forests on mountain slopes is clearly a defining visual feature of the Planning Area. Often the foreground or middleground views also contain deciduous trees, thus there is a pronounced layering of vegetation, as well as contrasts in vegetation types. Although there are smaller-scaled viewsheds within the Planning Area, the dominant viewshed is defined by grass-covered hills and forested mountains that occur the edges of the valley floor.

Vegetation along Highway 101 provide an intermittent visual barrier or screen along that portion of the alignment that passes through the developed area, thus tending to screen much of the city of Fortuna from any extended or extensive views from the Highway. Due to the industrial character of the lands immediately adjacent to the rail line, this intermittent screening also serves to screen views of this less attractive land use. The Pacific Lumber Company complex is the most dominant element in the built environment visible from Highway 101.

Views and vistas of the Eel River are magnificent from the bluffs and forest slopes, as well as immediately along the river bank. However, due to topography along the eastern river bank, only in the most southerly

and northerly portions of the Planning Area is the river actually visible from Highway 101. The pronounced bluff that defines the western edge of Rohnerville, starting at Drake Hill Road and extending to south of the airport, constitutes a dominant visual feature in the otherwise relatively flat portion of the developed portion of the Planning Area.

Development on the forested hillsides and ridges enjoy a totally different visual context, as many of these areas afford sweeping views and vistas across the cities of Fortuna and Rohnerville, as well as to the vast open agricultural lands to the west of the Eel River.

Similarly, since the southern portion of the Planning Area contains far less development, the views and vistas are more open and agricultural, thus the visual character of this portion of the valley floor is decidedly more rural.

Findings

There are no findings identified for Section 4.5.

4.6 Placenames and Identity

Introduction

The names of places contribute to the identity of any community, and the replacement of identifying names with less personal labels – such as the telephone number revolution around 1950 when “named” prefixes (such as Pennsylvania 6-5000) were replaced with mere digits (in this example, 73). The connotation and association of “place” with “Pennsylvania” was far more compelling than “73”, and clearly this change reduced personal identity and relationship with something as modest as a phone number.

Key Terms

There are no key terms for this section.

Regulatory Setting

There is no regulatory setting to report for Section 4.6.

Existing Conditions

Extensive changes in street names have occurred at least twice in the historic core of Fortuna. Historic plat maps, annexation maps, and various other survey maps indicate that the names of all the streets in this area have changed over the years. During the early period the streets were all formal “names”, likely descriptive names that identified some important function or facility on the street. These names included, Market Street, Grand Avenue, Sandy Prairie Road, Spring Street, Redwood Street, Pine Street, Annie Street, and Hall Street. At some point, these street names were changed to numbered streets (e.g., 1st, 2nd, 3rd, etc.). This change to a numbered street system was subsequently followed by a second change in the numbering system, apparently when the city grew to the northwest and 1st street had to be moved north. It is not clear at which time the alphabet streets (e.g., A, B, C, etc.) replaced the remaining street names.

What is clear, however, is that the replacement of the original “names” removed not only a modest slice of history, it also changed any unique identity that might be associated with the street name – that is, going from Grand Avenue to 8th Street adds just another small increment to the depersonalization of the city. This



is not to suggest that the historic names should be restored; it simply illustrates the importance of “names”, and the importance of imprinting the past on Fortuna’s present. It may also have a bearing on how Fortuna creates even the slightest sense of uniqueness in the character of our communities.

Findings

There are no findings identified for section 4.6.

4.7 Community Character

Introduction

This final portion of the chapter discusses the specific character and unique attributes of neighborhoods and community areas that make up the city. The term “character” is difficult to generalize, since it is the specific attributes of a given location or place that give it the quality we define as “character.” Nonetheless, there are some generalizations that can be made about community character that should be useful in formulating the General Plan Update.

Key Terms

Urban Character. This is a reflection of the aesthetic and social expression of the built environment – the particulars of the architecture, the landscape, and the patterns of human use and activity -- that constitute the unique attributes and “places” that provide meaning in the lives of the residents. In brief, this expression is an aggregate “image” and consists of elements such as key landmarks, distinctive buildings and landscapes, public spaces, unique neighborhoods, and other features that are the essential physical and social expression of a community.

Regulatory Setting

In the early 1980s, the City of Fortuna created the Design Review Board in response to an increase in the construction of multifamily apartment buildings that had a barracks-like appearance. The review process incorporates site plans and elevations and covers placement on the site, landscaping, exterior lighting, signs, paint colors, building materials, harmony with surrounding uses, and overall visual compatibility.

Projects that are subject to the design review process are as follows:

- All projects in the Retail Commercial (RC) district, which comprises the downtown core;
- All multi-family projects regardless of zoning district;
- All planned unit developments (PUD);
- Shopping centers; and
- All projects in the Freeway Commercial (FC) district.

Currently (January 2006), there are no design guidelines in place. As a result, sometimes project applicants have difficulty knowing what approach the City (through the DRB review process) would like them to take. This will be especially true for new shopping centers that may incorporate large retail operations.

The Board is composed of five members appointed by the City Council. One member is required to be in the construction trade and one member is required to be a Planning Commissioner. (There are no requirements

of stated desirability for having architects, historic preservationists, landscape designers, craftsmen, artists or other professions related to design.) The City's Community Development Department staff performs staff duties for the Board.

Existing Conditions

Undeniably the "historic" character of many buildings in the Planning Area points to the importance of the architecture a critical component of "community character." It is also likely that the historic role, indeed the dominance of the timber and lumber industries played a central role in the types and forms of building construction, thus their presence is likewise a central ingredient in the "community character".

The "scale" of the built environment is a major factor in defining the "small town character" that is so widely cited as a key attribute of Fortuna; the attribute that is likely responsible for the city's self-definition as "the Friendly City." The "human" scale associated with many of the wood frame structures and the types of streets and neighborhoods that they create, all contribute to the "sense of place" that is so critical to the identity of any community. The fact that most housing stock is well maintained also points to a sense of "pride" that is yet another component in the visual manifestation of community character.

The built environment also has a clarity and crispness which is a result of the strong contrast between the darker colors and organic forms of the surrounding forest lands and the geometric and lighter-colored buildings. This contrast is also accented by the muted quality to the forest lands, which tend to be richly layered and visually defined by receding lighter tones in the distance. Buildings tend to stand out in such a setting and on sunny days almost "shine" within the deep green colors of the surrounding forest.

Landscape is a critical component in the character of the community, particularly since the conifer forests on the surrounding mountain slopes gives the community a strong sense of "containment" and "enclosure." As a result, the resulting character is decidedly that of a small town or city set within a vast natural forested region. This in turn accentuates the sense of scale where the built environment is clearly subordinate to the natural environment.

There is also a "semi-rural" aspect to the character of the greater community. This is in part a result of the intermittent patches of open grasslands and riparian corridors that occur throughout the Planning Area, that in turn provide a natural "separation" between parts of the community. These natural separations help to maintain a scale that is not yet urban, or even suburban. In fact, these natural areas suggest a series of smaller hamlets set within a larger natural landscape; a natural landscape consisting of both agricultural and forested lands.

The substantial number of civic, cultural, and recreational events that occur within the city speak to the essence of a true "community"—a community whose inhabitants are truly engaged in a wide variety of community-wide events that reflect the pastimes and vocations of its residents. Parks also obviously play an important part in the life of the community, thus parks and open space are an essential component of community character.

Findings

There are no findings identified for Section 4.7.



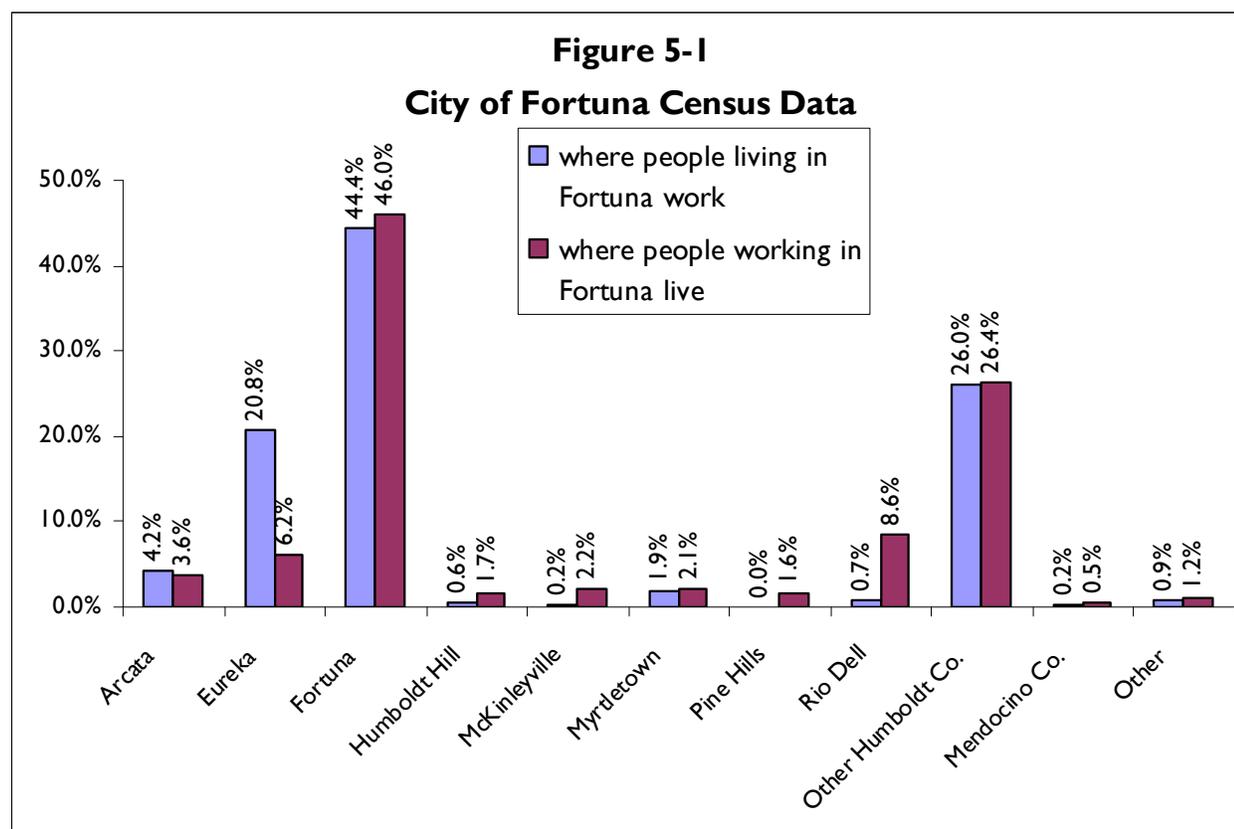
5

Transportation and Circulation

5.1 Introduction

Fortuna's circulation system is comprised of Highway 101 together with city streets as well as sidewalks, bikeways, trails and informal paths. According to information published in the 2000 U.S. Census, the predominant mode of transportation for city residents is driving alone, with 68 percent of all commute trips being in single-occupant vehicles. Carpooling accounts for 12 percent of the trips, working at home and walking make up another three percent each, and bicycling and "other" trips comprise the last two percent.

The U.S. Census also provides information relative to where people work and live, including both the employment location of residents and the residency of persons employed in Fortuna. As shown in Figure 5-1, 44.4 percent of Fortuna residents also work in the city and 46.0 percent of all jobs held in Fortuna are by residents of the city of Fortuna. The other 55.6 percent of Fortuna residents work predominantly in Humboldt County, but outside any of the cities or large communities, or in the city of Eureka. Besides residents of Fortuna, most of the jobs in Fortuna are held by residents who reside in the unincorporated areas of Humboldt County or the city of Rio Dell.





The Census information indicates that a substantial number of the trips that will be generated by future development are likely to have both their origin and destination within the City. This pattern results in lesser traffic impacts to the City's circulation system than would be expected if most residents commuted outside the City to work while non-residents commuted in for any new jobs created.

This chapter covers the following topic areas related to transportation and circulation:

- Roadways and Highways (Section 5.2)
- Public Transportation (Section 5.3)
- Pedestrians (Section 5.4)
- Bicycles and Trails (Section 5.5)
- Aviation (Section 5.6)

5.2 Roadways and Highways

Introduction

This section presents an operational analysis of the roadways, and more importantly, the intersections in the city of Fortuna that provide primary access to existing and future residential and commercial developments. Consideration was also given to the safety records of these intersections. The results of this analysis provide insight into operational or safety deficiencies that may be addressed.

Key Terms

Level of Service. Operational analyses typically focus on intersections rather than road segments since the capacity of the intersections is usually more critical than the capacity of the roadway. Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions.

Level of Service Methodologies. The study intersections were analyzed using methodologies from the Highway Capacity Manual 2000 (HCM), Transportation Research Board, 2000. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The study intersections which are currently or will be signalized were analyzed using the Operations Method contained in the Highway Capacity Manual 2000 (HCM). The signalized intersection methodology is based on factors including traffic volumes, green time for each movement, phasing, whether or not the signals are coordinated, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. It should be noted that the levels of service for this study were calculated using optimized signal timing.

Operating conditions at the all-way stop-controlled intersections were analyzed using the "All-Way Stop-Controlled Intersection" methodology contained in the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. The delay which is calculated is then related to a Level of Service.

The Levels of Service for the intersections with side-street stop controls, or those that are “unsignalized,” were analyzed using the unsignalized intersection capacity method from the HCM. This method determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. The movement with the highest level of delay is presented as the Worst Case Level of Service. The through movements on the main street are assumed to operate at free flow and a Level of Service A.

Criteria for establishing Levels of Service are indicated in Table 5-1.

Peak Periods. Traffic analyses typically focus on operation during the morning and evening peak periods when demand, and therefore congestion, is at its highest. The a.m. peak hour is the highest volume hour between 7 a.m. and 9 a.m., and captures the outbound commute to work or school. The p.m. peak hour occurs between 4 p.m. and 6 p.m. and typically represents the worst congestion of the day as drivers travel home or to other destinations such as shopping and restaurants.

Traffic Signal Warrants. The Manual on Uniform Traffic Control Devices (MUTCD), Federal Highway Administration, 2003, has been adopted by the State of California as a replacement for the Caltrans Traffic Manual. Section 4C of the MUTCD provides guidelines, or warrants, which may indicate need for a traffic signal at an unsignalized intersection. As indicated in the MUTCD, a traffic signal should not be installed unless one or more of the warrants are met; however the satisfaction of a warrant or warrants shall not in itself require the installation of a traffic control signal. The MUTCD also states that a traffic control signal should only be installed when an engineering study indicates that the installation of a signal will improve the overall safety and/or operation of the intersection, and that a traffic control signal should not be installed if it will seriously disrupt progressive traffic flow. Potential need for installing traffic signals at unsignalized study intersections exhibiting unacceptable operation was evaluated using Warrant #3, Peak Hour Volume.



TABLE 5-1 INTERSECTION LEVEL OF SERVICE CRITERIA City of Fortuna			
LOS	Unsignalized	All-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Source: Highway Capacity Manual, Transportation Research Board, 2000.

Regulatory Setting

Level of Service Standard. The City of Fortuna’s existing adopted Level of Service (LOS) standard is contained in the 1998 General Plan Circulation Element. This current standard allows for a minimum operation of LOS D for Main Street and LOS C for all other roadways. The policy does not include any intersection standards and makes no differentiation between various types of intersection control. For purposes of preparing a preliminary estimate of existing conditions, the LOS C standard was applied to overall operation at signalized and all-way stop controlled intersections as well as the stop-controlled approaches to unsignalized intersections except along Main Street, where a threshold of LOS D was applied.

Existing Conditions

Street System. Regional access to the city of Fortuna is provided by Highway 101, a grade-separated four-lane freeway which traverses the western edge of the city of Fortuna in a north-south alignment. There are three interchanges with Highway 101 serving the city at Main Street on the north, at 12th Street in the central part of the city, and at Kenmar Road at the south end of the city (see Figure 5-2).

The following roadways have been identified as providing primary access throughout the community.

- 12th Street
- Fortuna Boulevard
- Kenmar Road
- Main Street
- Newburg Road
- Redwood Way
- Riverwalk Drive
- Rohnerville Road
- Ross Hill Road
- School Street

With the exception of Fortuna Boulevard and Ross Hill Road, which are median-divided four-lane roadways, all of the roadways in Fortuna have one travel lane in each direction. Left-turn pockets or two-way left-turn lanes exist on sections of some of these roadways.

Critical Intersections. The analysis of critical intersections in the Planning Area included 17 intersections; 16 of these exist as of January 2006, and the intersection at South Fortuna Boulevard/Strongs Creek Drive is under construction and expected to be operational during 2006. The locations of the following critical intersections are shown in Figure 5-3, and their existing right-of-way controls are indicated in parentheses.

1. 9th Street/Main Street (all-way stop-controlled);
2. 12th Street/Main Street (signalized);
3. North Fortuna Boulevard/Main Street-Rohnerville Road (unsignalized);
4. Rohnerville Road/Newburg Road (unsignalized);
5. 12th Street/Newburg Road (unsignalized);
6. Fortuna Boulevard/Newburg Road (signalized);
7. 12th St/Highway 101 NB Ramps (unsignalized);
8. 12th Street-Riverwalk Drive/Highway 101 SB Ramps (unsignalized);
9. South Fortuna Boulevard/Redwood Way (signalized);
10. Rohnerville Road/Redwood Way (unsignalized)
11. South Fortuna Boulevard/Strongs Creek Drive (signalized – under construction);
12. South Fortuna Boulevard-Ross Hill Road/Kenmar Road (signalized);
13. Rohnerville Road/Kenwood Drive (unsignalized);
14. Kenmar Road/Eel River Drive (unsignalized);
15. Kenmar Road/Highway 101 NB Ramps (unsignalized);
16. Kenmar Road/Highway 101 SB Ramps (unsignalized – non-standard); and



17. Rohnerville Road/School Street-Mill Street (unsignalized).

Traffic Volumes. Traffic counts were obtained during the morning peak period and evening peak period in November 2004 and June 2005 for the various intersections evaluated. Existing volumes are shown in Figure 5-4.

Collision History. Traffic collision data were obtained from the California Highway Patrol Statewide Traffic Integrated Records System (SWITRS) for the five-year period including 2000 through 2004. The SWITRS data includes all reported collisions submitted by City Police and the California Highway Patrol. The Crossroads Collision Evaluation Software was used to sort the SWITRS data. This software allows the user to evaluate such factors as collision concentrations, collision, severity and trends.

During the five-year study period there were 479 reported collisions that occurred within the city of Fortuna. Of these, the majority (374 collisions or 78 percent), occurred at or within 150 feet of intersections, while 105 collisions, or 22 percent, occurred at mid-block locations. During the study period there was one (1) reported fatality collision; it occurred in 2004, and listed "Auto Right-of-Way" as the primary collision factor. Of all the collisions citywide, 158 or 33 percent, occurred at or within 150 feet of the 17 study intersections.

Intersection Levels of Service. Based on the count data collected and the standards applied, 14 of the 16 existing study intersections are currently operating acceptably. The exceptions are at North Fortuna Boulevard/Main Street-Rohnerville Road, which is operating unacceptably at LOS F during the evening peak hour, and Kenmar Road/Highway 101 South Ramps, which is at LOS D during the evening peak hour. The Level of Service calculations are summarized in Table 5-2.

**TABLE 5-2
SUMMARY OF EXISTING LEVEL OF SERVICE CALCULATIONS
City of Fortuna**

Intersection		AM Peak		PM Peak	
Approach		Delay	LOS	Delay	LOS
1	9th Street/Main Street	9.1	A	16.4	C
2	12th Street/Main Street	17.1	B	24.1	C
3	North Fortuna Boulevard/Main Street-Rohnerville Rd				
	<i>WB (Rohnerville Road) Left-Turn</i>	14.7	A	92	F
4	Rohnerville Road/Newburg Road				
	<i>EB (Newburg Road) Approach</i>	11.7	B	15	C
	<i>WB (Newburg Road) Approach</i>	11	B	12	B
5	12th St/Newburg Rd				
	<i>WB (Newburg Road) Approach</i>	16.1	C	20.6	C
6	South Fortuna Blvd/Newburg Rd	31.6	C	31.9	C
7	12th St/US 101 NB Ramps				
	<i>WB (US 101 NB Off-ramp) Approach</i>	14	B	14.9	B
8	12th Street-Riverwalk Drive/U.S. 101 SB Ramps				
	<i>EB (Riverwalk Drive) Approach</i>	7.1	A	8.9	A
	<i>WB (US 101 SB Off-ramp) Approach</i>	9.9	A	10.1	B
9	South Fortuna Blvd/Redwood Way	20.1	C	20.8	C
10	Rohnerville Road/Redwood Way				
	<i>Eastbound (Redwood Way) Approach</i>	9.7	A	11	B
11	South Fortuna Blvd/Strongs Creek Dr	n/a	n/a	n/a	n/a
12	S Fortuna Bl-Ross Hill Rd/Kenmar Rd	30.5	C	28.1	C
13	Rohnerville Road/Kenwood Drive				
	<i>EB (Kenwood Drive) Approach</i>	6.9	A	6.8	A
14	Kenmar Rd/Eel River Dr				
	<i>NB (Eel River Drive) Approach</i>	18.9	C	15.6	C
15	Kenmar Rd/US 101 NB Ramps				
	<i>NB (US 101 Ramp) Approach</i>	10.3	B	11.3	B
16	Kenmar Rd/US 101 SB Ramps				
	<i>SB (US 101 SB Off-ramp) Approach</i>	12.5	B	29.5	D
	<i>Eastbound (Kenmar Road) Approach</i>	10.2	A	14.2	B
17	Rohnerville Road/School Street-Mill Street				
	<i>EB (School Street) Approach</i>	6.9	A	7.5	A
	<i>WB (Mill Street) Approach</i>	7.1	A	7.6	A

Italics = results for stopped controlled approaches at unsignalized intersections
Source: Whitlock & Weinberger Transportation, Inc.



Collisions Types. The majority of collisions at or within 150 feet of the study intersections involved two or more motor vehicles (motor vehicle-motor vehicle collisions), accounting for 124 collisions or 78.4 percent of the reported incidents. Motor vehicle-fixed object collisions accounted for 18 collisions or 11.4 percent of the total number reported, while pedestrian collisions made up 3.2 percent and bicycle collisions were also 3.2 percent of those reported. The most common types of collisions between two vehicles were broadside or right-angle collisions at 38.7 percent, followed by rear-end collisions at 36.3 percent, sideswipe collisions at 15.3 percent and hit-object collisions at 1.6 percent. These four collision types represent 72.2 percent of all reported collisions at or within 150 feet of the study intersections.

Of all reported collisions at or within 150 of the study intersections, 70.2 percent involved property damage only without injury, while 29.8 percent involved injury. Pedestrian collisions comprised 6.4 percent of all reported injury collisions. Bicyclists were also involved in 6.4 percent of all reported injury collisions. Taken collectively, pedestrians and bicyclists comprised 12.8 percent of all injury collisions while only being involved in 6.4 percent of the reported intersection-related collisions.

Collisions Rates. Collision rates for intersections are a numeric value indicating the number of collisions per million vehicles entering (c/mve) in a year. In this way relative safety of one intersection can be compared to another or to regional or statewide averages. The collision rate information is summarized in Table 5-3.

TABLE 5-3 SUMMARY OF INTERSECTION COLLISION RATES FOR 2000-2004 City of Fortuna					
	Intersection	Daily Volume Entering	Number of Collisions	Collision Rate	Statewide Average Rate
1	9 th Street/Main Street	10,730	4	0.2	0.51
2	12 th Street/Main Street	13,420	19	0.78	0.58
3	Fortuna Blvd/Main St-Rohnerville Rd	13,090	5	0.21	0.19
4	Rohnerville Road/Newburg Road	7,140	8	0.61	0.34
5	12 th Street/Newburg Road	10,610	19	0.98	0.19
6	Fortuna Boulevard/Newburg Road	17,690	22	0.68	0.58
7	12 th Street/U.S. 101 NB Ramps	7,300	3	0.23	0.34
8	12 th St-Riverwalk Dr/U.S. 101 SB Ramps	6,190	24	2.12	0.34
9	Fortuna Boulevard/Redwood Way	14,640	21	0.79	0.19
10	Rohnerville Road/Redwood Way	6,440	2	0.17	0.19
11	Fortuna Boulevard/Strongs Creek Dr	n/a	n/a	n/a	n/a
12	Fortuna Blvd-Ross Hill Rd/Kenmar Rd	11,770	12	0.56	0.58
13	Rohnerville Road/Kenwood Drive	6,130	2	0.18	0.19
14	Kenmar Road/Eel River Road	9,860	3	0.17	0.34
15	Kenmar Road/U.S. 101 NB Ramps	8,530	7	0.45	0.34
16	Kenmar Road/U.S. 101 SB Ramps	7,200	2	0.15	0.34
17	Rohnerville Rd/School St-Mill St	5,510	6	0.6	0.34

Source: As published in 2002 Accident Data on California State Highways.

The following nine study intersections have rates above the statewide average collision rate for similar intersections in a suburban setting, so were reviewed to determine if there were any existing trends or patterns that could indicate a specific safety concern to be addressed.

12th Street/Main Street. 12th Street/Main Street had a collision rate of 0.78 c/mve, which is about 34 percent higher than the average rate for four-legged signalized intersections along highways in suburban areas. There were no clear patterns among the 19 reported collisions with no more than five of any single type of collision reported; however, there were three vehicle/pedestrian crashes at this location, all attributed to pedestrian right-of-way violations.

Fortuna Boulevard/Main Street-Rohnerville Road. Fortuna Boulevard/Main Street-Rohnerville Road had a collision rate of 0.21 c/mve, which is only about 10 percent above the statewide average of 0.19 c/mve for suburban tee intersections with one stop-controlled approach. With only five collisions reported, it would be difficult to ascertain any trends. Because the intersection has a collision rate only marginally above the average and such a small incidence of crashes, the safety record of this location appears to be consistent with what might be expected.



Rohnerville Road/Newburg Road. Rohnerville Road/Newburg Road had a collision rate of 0.61 c/mve, nearly 80 percent higher than the statewide average of 0.34 c/mve for an unsignalized, four-legged intersection. Of the eight collisions reported at or within 150 feet of the intersection, six were broadsides and four of these involved an eastbound vehicle. Since average delays at this intersection are well within tolerable limits, sight distance, particularly from the slightly skewed eastbound approach, may be reviewed and increased if necessary to meet typical design standards.

12th Street/Newburg Road. 12th Street/Newburg Road had a collision rate of 0.98 c/mve, which is substantially higher than the Statewide average rate of 0.19 c/mve for an unsignalized "tee" intersection. Of the 19 collisions reported, 10 were rear-ends, and seven of these involved two southbound vehicles. To address this problem, a left-turn pocket could be installed so that left-turning vehicles will no longer need to stop in the through lane and impede through traffic.

Fortuna Boulevard/Newburg Road. Fortuna Boulevard/Newburg Road had a collision rate of 0.68 c/mve, which is about 17 percent higher than the statewide average for four-legged signalized intersections. The reported crashes were split fairly evenly between broadside, sideswipe and rear-end collisions involving vehicles on all four approaches. Since no clear pattern was identified and the rate is only marginally higher than the statewide average, this intersection appears to be operating within acceptable safety parameters.

12th Street-Riverwalk Drive/Highway 101 SB Ramps. 12th Street-Riverwalk Drive/Highway 101 SB Ramps had the highest collision rate of any of the locations evaluated, with 2.21 c/mve. This is substantially higher than the average rate of 0.19 c/mve for an unsignalized tee intersection (though there are four legs, because the on-ramp is one-way outbound from the intersection, this location has three inbound approaches, like a tee intersection. Of the 24 collisions reported at this location, 14, or 58 percent, were broadside crashes and 13 of these appear to have involved a vehicle on the off-ramp. This location should be reviewed in detail to ascertain appropriate changes to the right-of-way assignment and configuration to mitigate the unusually high number of crashes that have been occurring.

Fortuna Boulevard/Redwood Way. Fortuna Boulevard/Redwood Way has a 0.79 c/mve rate, substantially higher than the statewide average of 0.19 c/mve for unsignalized tee intersections. The predominant type of collision at this location was broadsides, which accounted for 10 of the 21 total reported. The recent installation of a traffic signal at this location may be an appropriate measure to mitigate this collision pattern.

Kenmar Road/Highway 101 NB Ramps. Kenmar Road/Highway 101 NB Ramps had a collision rate of 0.45 c/mve, which is about 32 percent higher than the statewide average rate of 0.34 c/mve for 4-legged unsignalized intersections. Four of the 7 collisions reported at this location were rear-end crashes on the off-ramp. The design of this ramp may be reviewed to determine if it has sufficient sight distance and adequate deceleration length.

Rohnerville Road/School Street-Mill Street Rohnerville Road/School Street-Mill Street had six collisions contributing to its collision rate of 0.60 c/mve, three of which were broadsides. Among these all approaches were represented, so there was no clear pattern. Given the low number of crashes and lack of any pattern, no specific measures are suggested.

Findings

- According to the 2000 U.S. Census, the predominant mode of transportation for city residents is driving alone, with 68 percent of all commute trips being in single-occupant vehicles. Carpooling accounts for 12 percent of the trips, working at home and walking make up another three percent each, and bicycling and “other” trips comprise the last two percent.
- According to the 2000 U.S. Census, 44.4 percent of Fortuna residents also work in the city and 46.0 percent of all jobs held in Fortuna are by residents of the city of Fortuna. The other 55.6 percent of Fortuna residents work predominantly in Humboldt County. Besides residents of Fortuna, most of the jobs in Fortuna are held by residents who reside in the unincorporated areas of Humboldt County or the city of Rio Dell.
- Regional access to the City of Fortuna is provided by Highway 101, a grade-separated four-lane freeway which traverses the western edge of the city of Fortuna in a north-south alignment. There are three interchanges with Highway 101 serving the City at Main Street on the north, at 12th Street in the central part of the City, and at Kenmar Road at the south end of the city.
- The City of Fortuna’s existing adopted Level of Service (LOS) standard is contained in the 1998 General Plan Circulation Element. This current standard allows for a minimum operation of LOS D for Main Street and LOS C for all other roadways.
- 14 of 16 existing study intersections are currently operating acceptably. The exceptions are at North Fortuna Boulevard/Main Street-Rohnerville Road, which is operating unacceptably at LOS F during the evening peak hour, and Kenmar Road/U.S. 101 South Ramps, which is at LOS D during the evening peak hour.
- Although LOS F operation exists for the left-turn from westbound Rohnerville Road to southbound Fortuna Boulevard, since the intersection operates acceptably overall at LOS A and fewer than 40 vehicles are affected by the higher delays, no improvements appear to be warranted.
- Installation of a stop sign on the currently uncontrolled westbound Kenmar Road to U.S. 101 South Ramps would result in acceptable LOS B operation during both peak periods.
- The following intersections had higher accident rates than the State:
 1. 12th Street/Main Street
 2. Fortuna Boulevard/Main Street-Rohnerville Road
 3. Rohnerville Road/Newburg Road
 4. 12th Street/Newburg Road
 5. Fortuna Boulevard/Newburg Road
 6. 12th Street-Riverwalk Drive/Highway 101 SB Ramps
 7. Fortuna Boulevard/Redwood Way
 8. Kenmar Road/Highway 101 NB Ramps
 9. Rohnerville Road/School Street-Mill Street



5.3 Public Transportation

Introduction

The purpose of this section is to summarize existing information regarding the city of Fortuna's public transportation system. Public transportation is an increasing component of Fortuna's transportation network. Public transportation provides an alternative to auto travel and provides mobility options for Fortuna's youth, elderly, and mobility impaired citizens.

Key Terms

California State Transportation Development Act (TDA). The TDA provides a dedicated State funding source for use by local jurisdictions at the county level to improve existing public transportation and encourage regional public transportation coordination.

Dial-a-Ride. Dial-a-Ride is a transportation service specially designed for those who are unable to access regular fixed route service. Dial-a-ride service is available on an on-call basis.

Fixed Route Bus Service. Bus service designed to transport riders to locations within the community.

Intercity Bus Service. Bus service designed to transport riders between Fortuna and surrounding communities.

Transit Dependant. Dependency upon public or private transportation services by persons that are either unable to operate a vehicle, or do not have access to a vehicle, generally, the elderly, youth, and persons with disabilities.

Unmet Transit Needs. Each year, according to the Transportation Development Act, local transportation planning agencies are required to identify unmet transit needs. If unmet transit needs are found, a further determination must be made as to whether or not those needs are reasonable to meet before TDA funds can be allocated to non-transit uses.

Regulatory Setting

Federal and State. The Federal Transit Act, approved in 1976, is the governing Federal legislation for transit related issues. The California Transportation Plan (CTP) provides guidance on inter-regional transit issues including rail. The California Transportation Development Act provides guidance on local and regional programming of transit funds.

Regional. Regional transit service is addressed in the Humboldt County Regional Transportation Plan. The Humboldt County Association of Governments has formally pledged its support for public transportation programs, including their continued funding as a necessary public service.

Existing Conditions

Fixed Route Transit Service. Redwood Transit Service (RTS) is the principal transit service within Fortuna, providing local and intercity service. Operated by the Humboldt Transit Authority, RTS provides fixed route service along the Highway 101 corridor from Trinidad in the north to Scotia in the south, and along Highway 299 connecting Willow Creek with the Arcata Transit Center. The County of Humboldt and the Cities of Arcata, Eureka, Fortuna, Trinidad and Rio Dell contribute funds to operate Redwood Transit Service under a joint powers agreement. The RTS fleet consists of ten large transit vehicles,

and one smaller vehicle, which are all equipped with wheelchair lifts and are accessible to disabled persons. All RTS busses are also equipped with front-loading bicycle racks that accommodate two bicycles. In the event that the racks are full, bicycles are allowed inside the bus if conditions permit.

Dial-a-Ride Transit Service. Fortuna Senior Transit serves senior citizens (50 and older) and persons with disabilities within the Fortuna city limits. The service operates on a call-in basis Monday through Saturday.

Findings

- Handicap access and frontloading bicycle racks are provided on all RTS transit vehicles.
- All weather bus shelters are provided for transit riders at the following locations in Fortuna: Kenmar Road/Riverwalk Drive, Smith Lane/Fortuna Boulevard, Fortuna Boulevard/Redwood Village Shopping Center, and at N Street/11th Street.
- Redwood Transit Service (RTS) is the principal transit service within Fortuna, providing local and intercity service.
- Existing fixed route transit provides limited access to residential areas in Fortuna.
- Fortuna Senior Transit serves senior citizens (50 and older) and persons with disabilities within the Fortuna city limits.

5.4 Pedestrians

Introduction

The purpose of this section is to summarize existing information regarding the city of Fortuna's pedestrian network. A safe, convenient, comfortable, and comprehensive pedestrian network is a vital component of Fortuna's infrastructure to ensure mobility throughout the city and to ensure that Fortuna is an attractive and vibrant community.

Key Terms

Pedestrian. According to California Vehicle Code Section 467. (a), a "pedestrian" is any person who is afoot or who is using a means of conveyance propelled by human power other than a bicycle. "Pedestrian" also includes any person who is operating a self-propelled wheelchair, motorized invalid tricycle and by reason of physical disability, is otherwise unable to move about as a pedestrian, as specified in subdivision (a).

Regulatory Setting

This section provides an overview of the federal, State, and regional regulatory, policy, and planning setting relevant to pedestrian access in Fortuna.

Americans with Disabilities Act (ADA). Enacted on July 26, 1990, the ADA provides comprehensive rights and protections to individuals with disabilities in the areas of employment, public accommodations, state and local government services, and telecommunications. The goal of the ADA is to assure equality of opportunity, full participation, independent living, and economic self-sufficiency. To implement this goal, the U.S. Access Board has created accessibility guidelines for public rights-of-way. The guidelines address various issues, including roadway design practices, slope and terrain issues, and pedestrian access to streets,



sidewalks, curb ramps, street furnishings, pedestrian signals, parking, and other components of public rights-of-way.

Assembly Concurrent Resolution 211 (ACR 211) (May 2002) Assembly Concurrent Resolution acknowledges the importance of bicycling and walking to the State of California and encourages all cities and counties to “implement the policies of [Deputy Directive 64] and the United States Department of Transportation’s design guidance document on integrating bicycling and walking when building their transportation infrastructure.”

Project Development Procedures Manual (Chapter 31: Non-motorized Transportation Facilities). The manual outlines pertinent statutory requirements, planning policies, and implementing procedures regarding non-motorized transportation facilities. <http://www.dot.ca.gov/hq/oppd/pdpm/pdpm.htm>

Deputy Directive 64 (DD-64), “Accommodating Non-Motorized Travel” (March 26, 2001). The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. This includes incorporation of the best available standards in all of the Department’s practices. The Department adopts the best practice concepts in the U.S. DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure.

Director’s Policy 22 (DP-22), “Director’s Policy on Context Sensitive Solutions” (November 2001). The Department supports an approach to managing the transportation system that balances transportation needs with community goals. Solutions involve and integrate community goals in the planning, design, construction, and maintenance and operations processes, including accommodating the needs of bicyclists and pedestrians. Context Sensitive Solutions is a collaborative approach that considers the needs and concerns of all stakeholders.

Humboldt County Regional Pedestrian Needs Assessment Study Update (2003). The Regional Pedestrian Needs Assessment Study is a long-range planning document that inventories pedestrian transportation needs in Humboldt County, including the city of Fortuna. The study includes goals, policies, and objectives; documentation of existing conditions; and recommendations for physical improvements.

Existing Conditions

Pedestrian Facilities. Pedestrian facilities (sidewalks on public streets) are provided in varying coverage throughout Fortuna. While historic downtown Fortuna has nearly complete sidewalk coverage, areas outside of downtown have varying coverage and/or are missing pedestrian facilities altogether. In particular, existing and proposed subdivision developments in Fortuna’s southern and eastern quadrants are served by rural roadways that lack pedestrian infrastructure altogether. Several arterial and collector roadways such as Fortuna Boulevard, Redwood Way, Rohnerville Road, Ross Hill Road, and others have significant sidewalk gaps, driveway interruptions, missing curb cuts, and crossing facilities.

Findings

- The 2003 Humboldt County Regional Pedestrian Needs Assessment Study contains pedestrian goals, policies, and objectives along with a well developed list of recommended pedestrian facility improvement projects in Fortuna.

- While historic downtown Fortuna has a well-developed network of sidewalks, pedestrian facilities, and amenities, areas outside of downtown have varying coverage and/or are missing pedestrian facilities altogether.
- Several arterial and collector roadways such as Fortuna Boulevard, Redwood Way, Rohnerville Road, Ross Hill Road, and others have significant sidewalk gaps, driveway interruptions, missing curb cuts, and crossing facilities. These missing pedestrian amenities impede pedestrian travel to daily destinations such as shopping, work, schools, and transit.
- Limited pedestrian access across Highway 101 restricts pedestrian travel between Fortuna's east and west sides. Since several overnight lodging destinations are located west of Highway 101, this condition restricts visitor access to restaurants and services.
- Recently developed and proposed residential subdivisions lack adequate pedestrian access on the rural roadways that serve them.

5.5 Bicycles and Trails

Introduction

The purpose of this section is to summarize existing information regarding the city of Fortuna's bikeways and trails network. A comprehensive network of bikeways and trails that is safe, convenient, and accessible is an integral component of Fortuna's transportation infrastructure. Bicycles provide low-cost mobility to the non-driving public, are an excellent form of recreation, and offer potential health benefits to the entire community.

Key Terms

Bikeway. All facilities that provide primarily for bicycle travel.

Class I Bikeway (Multi-Use Path). A multi-use path provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow minimized.

Class II Bikeway (Bike Lane). A bike lane is a striped lane for one-way bike travel on a street or highway.

Class III Bikeway (Bike Route). Bike routes provide for shared roadway use with motor vehicles and pedestrian traffic (not recommended) and are identified only by signing.

Bicycle Detector Loops. Bicycle detector loops (BDLs) are sensors that activate traffic signals when a bicyclist positions him/herself where a loop detector is installed, in bicycle or vehicle travel lanes at signalized intersections.

Bicycle Parking - Bicycle parking is an integral component of a comprehensive bikeway system. In California, bicycle parking facilities are classified as follows:

Class I Bike Parking (Long Term Parking). Class I bicycle parking facilities are intended to accommodate bicycles that are expected to be parked for more than two hours. This parking is provided in a secure, weather-protected manner and location. Class I bicycle parking includes indoor spaces, bicycle lockers, bike lids, or a secure area like a 'bike corral' that may be accessed only by bicyclists.

Class II Bike Parking (Short Term Parking). Class II bicycle parking facilities are best used to accommodate visitors expected to depart within two hours. This parking is provided by bicycle racks, which provide support for the bicycle but do not have locking mechanisms.



Regulatory Setting

This section provides an overview of the federal, State, and regional regulatory, policy, and planning setting relevant to bicycle issues in Fortuna.

Federal Statutes and Policies. Federal transportation policy is to increase non-motorized transportation to at least 15 percent of all trips and to simultaneously reduce the number of non-motorized travelers killed or injured in traffic collisions by at least 10 percent (TEA-21, 1998). This policy, which was adopted in 1994 as part of the National Bicycling and Walking Study, remains a high priority for the U.S. Department of Transportation (USDOT). Federal Transportation Legislation provides the funding opportunities, planning processes, and policy language by which states and metropolitan areas can achieve these ambitious national goals.

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach. The Accommodating Bicycle and Pedestrian Travel: A Recommended Approach is a policy statement that was adopted by the U. S. Department of Transportation (USDOT) in response to TEA-21. USDOT encourages public agencies, professional organizations, advocacy groups, and any other groups involved in transportation issues to adopt this policy to further promote bicycling and the walking as viable components of the transportation system. The four directives issued in this policy statement address measures to improve bicycle and pedestrian access, convenience, and safety in transportation projects. This policy statement notes that:

"The challenge for transportation planners, highway engineers, and bicycle and pedestrian user groups, therefore is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel."

Assembly Concurrent Resolution 211 (ACR 211) (May 2002). This resolution acknowledges the importance of bicycling and walking to the State of California and encourages all cities and counties to "implement the policies of [Deputy Directive 64] and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure."

California Bicycle Transportation Act, Streets and Highways Code 890-894 (1994). The California Bicycle Transportation Act, Streets and Highways Code 890-894 is legislation that seeks "to establish a bicycle transportation system designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and to have the capacity to accommodate bicyclists of all ages and skills." A city or county may complete a bicycle transportation plan pursuant to Section 891.2 in order for their project to be considered by the Department for funding. Section 890.6 states the Department, in cooperation with county and city governments, shall establish minimum safety design criteria for the planning and construction of bikeways and roadways where bicycle travel is permitted. Section 890.8 states the Department shall establish uniform specifications and symbols for signs, markers, and traffic control devices to designate bikeways, regulate traffic, improve safety and convenience for bicyclists, and alert pedestrians and motorists of the presence of bicyclists on bikeways and on roadways where bicycle travel is permitted. And section 891 states, "All city, county, regional, and other local agencies responsible for the development or operation of bikeways or roadways where bicycle travel is permitted shall utilize all minimum safety design criteria and uniform specifications and symbols for signs, markers, and traffic control devices established pursuant to Sections 890.6 and 890.8."

Highway Design Manual, Chapter 1000, “Bikeway Planning and Design.” The Highway Design Manual, Chapter 1000, “Bikeway Planning and Design,” provides design standards and guidelines for on- and off-street bikeways. State and local transportation agencies are required to comply with Chapter 1000 mandatory standards as a minimum when implementing new bikeways. Chapter 1000 differs from the rest of the Highway Design Manual in that it also applies to facilities off the State Highway System (California Streets and Highways Code, Sections 890.8 and 891). www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm

Project Development Procedures Manual (Chapter 31: Non-motorized Transportation Facilities). The Project Development Procedures manual outlines pertinent statutory requirements, planning policies, and implementing procedures regarding non-motorized transportation facilities.

<http://www.dot.ca.gov/hq/oppd/pdpm/pdpm.htm>

Deputy Directive 64 (DD-64), “Accommodating Non-Motorized Travel” (March 26, 2001). The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. This includes incorporation of the best available standards in all of the Department’s practices. The Department adopts the best practice concepts in the US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure.

Director’s Policy 22 (DP-22), “Director’s Policy on Context Sensitive Solutions” (November 2001). This policy supports an approach to managing the transportation system that balances transportation needs with community goals. Solutions involve and integrate community goals in the planning, design, construction, and maintenance and operations processes, including accommodating the needs of bicyclists and pedestrians. Context Sensitive Solutions is a collaborative approach that considers the needs and concerns of all stakeholders.

Humboldt County Regional Bicycle Transportation Plan (2004). The Regional Bicycle Transportation Plan is a long-range planning document that provides guidance on the development of the regional bicycle transportation system including goals, policies, objectives, and recommendations for physical improvements. The Plan identifies regional bicycle routes through Fortuna.

Existing Conditions

Bicycle Facilities. Fortuna's existing bicycle transportation system consists of bike lanes on Main Street, 12th Street and Rohnerville Road, along with a limited number of bicycle racks for short term parking at elementary schools and a handful of other locations. A comprehensive network of bicycle paths, lanes, and routes (see Figure 5-5 for existing bicycle routes) along with long and short term parking supplies are needed to adequately serve Fortuna residents and to meet regional demand for bicycle access.

Findings

- The 2004 Humboldt County Association of Governments Regional Bicycle Transportation Plan meets the requirements of the Bicycle Transportation Act and contains a well developed list of recommended bikeway and bicycle support facility improvements for Fortuna.
- Existing bike lanes on Main Street and Rohnerville Road are in need of repair in order to meet Caltrans minimum standards.
- Bicycle access over and/or under Highway 101 is difficult.



- Bicycle parking is needed at community destinations including schools, shopping destinations, along Main Street, at transit stops and parks, and Redwood Memorial Hospital, among others destinations.
- Fortuna's existing bicycle transportation system consists of bike lanes on Main Street, 12th Street and Rohnerville Road, along with a limited number of bicycle racks for short term parking at elementary schools and a handful of other locations. A comprehensive network of bicycle paths, lanes, and routes along with long and short term parking supplies are needed to adequately serve Fortuna residents and to meet regional demand for bicycle access.

5.6 Aviation

Introduction

Section 5.6, Aviation, provides a discussion of the various aviation facilities near the city of Fortuna. The section includes summary reviews and evaluations of regulatory agencies, as well as the possible implications of airports on the growth and development of the city.

Key Terms

There are no key terms for this section.

Regulatory Setting

Federal Aviation Administration (FAA). The Federal Aviation Administration (FAA) is responsible for the safety of civil aviation. The Federal Aviation Act of 1958 created the agency under the name Federal Aviation Agency. The FAA adopted their present name in 1967 when they became a part of the Department of Transportation. Major roles of the FAA include:

- Regulating civil aviation to promote safety;
- Encouraging and developing civil aeronautics, including new aviation technology;
- Developing and operating a system of air traffic control and navigation for both civil and military aircraft;
- Researching and developing the National Airspace System and civil aeronautics;
- Developing and carrying out programs to control aircraft noise and other environmental effects of civil aviation; and
- Regulating U.S. commercial space transportation.

Humboldt County Aviation Advisory Committee. The Humboldt County Aviation Advisory Committee is the committee, authorized by the Humboldt County Supervisors, to advise the Humboldt County Supervisors regarding aviation matters within the county.

Existing Conditions

Rohnerville Airport. Rohnerville airport is the nearest airport to Fortuna, located just south of the city limits. The airport is situated on a bluff overlooking the Eel River. Rohnerville Airport serves as a base for aircraft-owners located in the southern Humboldt County and as a California Division of Forestry and Firefighting Air Attack Base. The airport also serves limited business and corporate aircraft. The airport has approximately 36 based aircraft with an average of 75 operations per day (<http://www.airnav.com/airport/FOT>; December 2005). Commercial flights are not run out of the Rohnerville Airport. The nearest airport with commercially operated flights is located at the Airport, approximately 30 miles north of Fortuna in McKinleyville.

Findings

- Rohnerville Airport serves limited business and corporate aircraft, with most operations carried out by local private aircraft owners.
- The nearest commercially operated airport is 30 miles north of Fortuna in McKinleyville.

6

Natural & Cultural Resources



6.1 Introduction

This chapter describes existing natural and cultural resources present in the Planning Area. Natural resources include water, biological, agricultural, scenic, and mineral/soil resources, while cultural resources includes parks, recreation, archeological, and historical resources.

Chapter 6 is divided into the following sections:

- Water Resources (Section 6.2)
- Biological Resources (Section 6.3)
- Agricultural Resources (Section 6.4)
- Mineral/Soil Resources (Section 6.5)
- Parks and Recreation (Section 6.6)
- Archeological/Historical Resources (Section 6.7)
- Cultural Resources (Section 6.8)
- Scenic Resources (Section 6.9)

6.2 Water Resources

Introduction

The city's Planning Area contains many different water resources, from the Eel River to the plethora of creeks and their surrounding watersheds. This section describes those resources from both a qualitative and a quantitative perspective. The results of this assessment may be used in planning and management decisions that will affect water resources in the Planning Area.

Key Terms

Beneficial Uses. Uses of waters of the State that may be protected against water quality degradation (e.g., domestic supply, recreation, etc.) surface water (E), groundwater (E), wetlands (P)).

Inorganic Contaminants. Salts and metals that can be naturally occurring or result from urban storm water runoff and residential uses.



Maximum Contaminant Level (MCL). The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the Public Health Goal (PHG) (or Maximum Contaminant Level Goal (MCLGs)) as is economically and technically feasible. Secondary MCLs are set to protect the odor, taste and appearance of the drinking water.

Maximum Contaminant Level Goal (MCLG). The level of a contaminant in the drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).

Maximum Residual Disinfectant Level (MRDL). The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG). The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MDRLGs are set by the USEPA.

Microbial Contaminants. Viruses and bacteria that may come from sewage treatment plants, septic systems, agriculture, livestock operations, and wildlife.

mg/L. Milligrams Per Liter.

Organic Chemical Constituents. Contaminants including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production and can also come from gas stations, urban storm water, and septic systems.

ppb. Parts per billion.

ppm. Parts per million.

pCi/L. PicoCuries per Liter.

Primary Drinking Water Standards (PDWS). MCLs for the contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.

Public Health Goal (PHG). The level of contaminant in the drinking water below which there is no known or expected risk to health. The California Environmental Protection Agency (EPA) sets the PHGs.

Radioactive Contaminants. Radioactive substances that can be naturally occurring or be the result of oil and gas production and mining activities.

Regulatory Action Level (AL). The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

Secondary Drinking Water Standards (SDWS). MCLs for the contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWS do not affect the health at the MCL levels.

Total Maximum Daily Load (TMDL). The Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards which will insure the protection of beneficial uses.

Treatment Technique (TT). A required process intended to reduce the level of a contaminant in the drinking water.

United States Environmental Protection Agency (USEPA). The federal agency charged with setting policy and guidelines, and carrying out legal mandates for the protection of natural interests in environmental resources.

Water Quality Objectives. Numeric and narrative water quality objectives that are set forth by the State Water Resources Control Board (SWRCB) and/or Regional Water Quality Control Board (RWQCB) to ensure that all designated beneficial uses for a water body are maintained and protected.

Water Quality Standards. Water quality standards include designated beneficial uses, water quality objectives, implementation of Federal and State policies for anti-degradation, and general policies for application and implementation.

Regulatory Setting

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

Lead and Copper Rule (LCR). The Lead and Copper Rule (LCR) was implemented by the USEPA in 1991 and establishes monitoring requirements and regulatory Action Level (AL) concentrations for lead and copper in potable water systems. Potable water systems that exceed the LCR must evaluate corrosion control treatment alternatives and implement and treatment system. John Carollo Engineers completed the *Lead and Copper Rule Compliance Evaluation* for the City of Fortuna in September 1994. The evaluation included a review of corrosion control alternatives for the City of Fortuna and recommended a treatment alternative to reduce copper levels in the system (John Carollo, 1994). In 2003 the City of Fortuna installed an air-stripping facility for corrosion control and in 2004, there were no violations of any USEPA or state drinking water standards, including copper corrosion violations.

Water Quality Control Plan for the North Coast Basin Region—Region 1 (Basin Plan). The Water Quality Control Plan for the North Coast Basin Region—Region 1 (Basin Plan) identifies beneficial uses and water quality objectives for receiving waters and establishes specific discharge controls for discharges to receiving waters, which are implemented through waste discharge requirements issued by the California Regional Water Quality Control Board, North Coast Region (RWQCB).

Total Maximum Daily Loads (TMDLs). Other regulatory programs that protect water quality include Total Maximum Daily Loads (TMDLs), which are established to require additional control of discharges to impaired water bodies.

Existing Conditions

Watersheds, Rivers, and Streams. The General Plan Planning Area is composed of watersheds that lie primarily within the Eel River watershed (Figure 6-1a). The two largest watersheds in the Planning Area include the Rohner Creek and Strongs Creek watersheds. The smaller watersheds in



the Planning Area include the Jameson Creek and Mill Creek watersheds, which are both tributaries of Strongs Creek; the Hillside Creek watershed, which is a tributary of Rohner Creek; and the North Fortuna drainage area, which discharges into the Eel River. Outside the Fortuna city limits, the surrounding watersheds include the Palmer and Little Palmer Creek watersheds to the north, and the Wolverton Gulch watershed to the south.

The watersheds, rivers, and streams in the General Plan Planning Area function primarily as natural resources, but also serve as storm water drainages and flood conveyance channels. The following sections provide general descriptions of each watershed drainage basin identified in the General Plan Planning Area. Chapter 7 Section 4 provides an overview of the recommended storm drainage improvements in each watershed. Chapter 8 Section 6 provides a summary of the flooding hazards in each watershed.

North Fortuna Drainage Area. The North Fortuna Drainage Area is located in the northwest section of the City of Fortuna, in an area comprised of mainly commercial and residential zoning. The North Fortuna Drainage area encompasses approximately 500 acres and drains to the southwest toward the Eel River. The North Fortuna Drainage Area is bordered by the Palmer Creek Drainage to the north and west and the Rohner Creek Drainage to the east (Winzler & Kelly, 2005).

Rohner Creek Watershed. The Rohner Creek Drainage Area is located in the northern part of the City of Fortuna, bordered by the North Fortuna Drainage Area to the west and the Hillside Creek and Strongs Creek watersheds to the east. The Rohner Creek watershed encompasses approximately 2,700 acres with the majority of the drainage basin located in undeveloped areas to the north, and only the lower southern portion of the basin located in the developed areas of the City of Fortuna. Rohner Creek is the largest tributary of Strongs Creek, joining Strongs Creek just before it discharges to the Eel River (Winzler & Kelly, 2005).

Hillside Creek Watershed. The Hillside Creek watershed encompasses approximately 420 acres and is located south and east of the Rohner Creek Drainage Area and north and west of the Strongs Creek Drainage Area. Hillside Creek is a tributary of Rohner Creek and confluences with Rohner Creek just west of Fortuna Boulevard near Alder Drive and Willow Drive (Winzler & Kelly, 2005).

Strongs Creek Watershed. The Strongs Creek Drainage Area is located in the central area of the City of Fortuna, bordered by the Rohner Creek and Hillside Creek Drainage Areas to the north and the Jameson Creek Drainage Area to the south. The Strongs Creek watershed is the largest watershed in the general Fortuna area, encompassing approximately 5,200 acres without including tributaries, and approximately 10,700 acres when tributaries are included. Tributaries to Strongs Creek include Rohner Creek, Jameson Creek, and Mill Creek (Winzler & Kelly, 2005).

Jameson Creek Watershed. The Jameson Creek Drainage Area is located in the southern part of the City of Fortuna, and is bordered by the Strongs Creek Drainage Area to the north and the Mill Creek Drainage Area to the south. The Jameson Creek watershed encompasses approximately 950 acres. Jameson Creek is a tributary to Strongs Creek (Winzler & Kelly, 2005).

Mill Creek Watershed. The Mill Creek Drainage Area is located in the southern part of the City of Fortuna, south of the Jameson Creek Drainage. The Mill Creek Drainage Area encompasses an area greater than 1,700 acres and is composed of several branches of the creek, which meet to form the main stem (Winzler & Kelly, 2005).

Water Quality

Beneficial Uses. Beneficial uses are uses of waters of the State that may be protected against water quality degradation. The Basin Plan identifies the beneficial uses for individual water bodies, groundwater, and wetlands in the North Coast Region. The city of Fortuna is located in the Ferndale Hydrologic Subarea of the Lower Eel River Hydrologic Area of the Eel River Hydrologic Unit. The beneficial uses for surface waters in the Ferndale Hydrologic Subarea are listed in Table 6-1. Existing surface water beneficial uses are indicated by the symbol "Surface Water (E)," potential surface water beneficial uses are indicated by the symbol "Surface Water (P)". Table 6-1 also addresses beneficial uses for groundwater and wetlands in the Planning Area. Existing groundwater beneficial uses are indicated by the symbol "Groundwater (E)," potential beneficial uses are indicated by the symbol "Groundwater (P)." Existing beneficial uses for freshwater wetlands are indicated by the symbol "Wetlands (E)," potential beneficial uses for wetlands are indicated by the symbol "Wetlands (P)." See Figure 6-1b for location of wetlands in the study area.



**TABLE 6-1
BENEFICIAL USES
General Plan Planning Area**

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Water use for community, military or individual water supply systems. Surface Water (E), Groundwater (E) Wetlands (P)
Agricultural Supply (AGR)	Water use for farming, horticulture or ranching. Surface Water (E), Groundwater (E) Wetlands (P)
Industrial Services Supply (IND)	Water use for industrial activities. Surface Water (E), Groundwater (E) Wetlands (P)
Industrial Process Supply (PRO)	Water use for industrial activities that depend primarily on water quality. Surface Water (P), Groundwater (P)
Groundwater Recharge (GWR)	Water use for recharge of groundwater. Surface Water (E), Wetlands (P)
Freshwater Replenishment (FRSH)	Water use for maintenance of surface waters. Surface Water (E), Wetlands (P)
Navigation (NAV)	Water use for shipping, travel or transportation. Surface Water (E), Wetlands (P)
Hydropower Generation (POW)	Water use for hydropower generation. Surface Water (E)
Contact Recreation 1 (REC1)	Water use for recreational activities involving body contact with water. Surface Water (E), Wetlands (P)
Non-Contact Recreation 2 (REC 2)	Water use for recreational activities involving proximity to water, but not bodily contact with water. Surface Water (E), Wetlands (P)
Commercial and Sport Fishing (COMM)	Water use for commercial, recreation collection of fish, shellfish, or other aquatic organisms. Surface Water (E), Wetlands (P)
Aquaculture (AQUA)	Water use for aquaculture or mariculture operations. Surface Water (P), Wetlands (P)
Warm Freshwater Habitat (WARM)	Water use that supports warm water ecosystems. Wetlands (P)
Cold Freshwater Habitat (COLD)	Water use that supports cold water ecosystems. Surface Water (E), Wetlands (P)
Wildlife Habitat (WILD)	Water use that supports terrestrial ecosystems. Surface Water (E), Wetlands (P)
Rare, Threatened, or Endangered Species (RARE)	Water use that supports necessary habitats for the survival and successful maintenance of rare threatened or endangered species. Surface Water (E), Wetlands (P)
Marine Habitat (MAR)	Water use that supports marine ecosystems. Surface Water (P)
Spawning, Reproduction and/or Early Habitat (SPWN)	Water use that supports high quality aquatic habitats suitable for reproduction and early development of fish. Surface Water (E), Wetlands (P)
Shellfish Harvesting (SHELL)	Water use that supports habitat suitable for the collection of filter-feeding shellfish. Surface Water (E), Wetlands (P)
Estuarine Habitat (EST)	Water use that supports estuarine ecosystems. Surface Water (E), Wetlands (P)
Native American Culture (CUL)	Water use that supports the cultural and/or traditional rights of indigenous people. Surface Water (E), Wetlands (P)
Flood Peak Attenuation/ Flood Water Storage (FLD)	Uses of riparian wetlands in flood plain areas and other wetlands that receive natural surface drainage and buffer its passage to receiving waters. Wetlands (P)
Wetland Habitat (WET)	Water use that supports natural and man-made wetland ecosystems. Wetlands (E)

Water Quality Enhancement (WQE)	Uses of waters, including wetlands and other waterbodies that support natural enhancement or improvement of water quality in or downstream of a waterbody. Wetlands (P)
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Source: Water Quality Control Plan for the North Coast Region (RWQCB, 2005 Beneficial Uses Amendment)

Water Quality Objectives. Numeric and narrative water quality objectives are set forth to ensure that designated beneficial uses for a water body are maintained and protected. The Water Quality Control Plan for the North Coast Region (Basin Plan) sets forth the water quality objectives for surface water and groundwater in the North Coast region. Water quality objectives in the Basin Plan include both general objectives that apply region-wide, and specific objectives that are designated for individual water bodies. Table 6-2 provides a summary of water quality objectives for inland surface waters, enclosed bays, and estuaries, and Table 6-3 provides a summary of the general water quality objectives for groundwater.

TABLE 6-2 WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS, ENCLOSED BAYS AND ESTUARIES General Plan Planning Area	
Beneficial Use	Description
Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
Taste and Odors	Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.
Floating Material	Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
Oil and Grease	Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
Biostimulatory Substances	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels.
Hydrogen Ion (pH)	The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.2 units in waters with designated marine (MAR) or saline (SAL) beneficial uses nor 0.5 units within the range specified above in fresh waters with designated COLD or WARM beneficial uses.
Dissolved Oxygen (DO)	Dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time. Waters designated WARM, MAR, or SAL, 5.0 mg/l. Waters designated COLD, 6.0 mg/l. Waters designated SPWN, 7.0 mg/l. Waters designated SPWN during critical spawning and egg incubation periods, 9.0 mg/l
Bacteria	The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following: In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State



**TABLE 6-2
WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS, ENCLOSED BAYS AND ESTUARIES
General Plan Planning Area**

	Department of Health Services)
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**TABLE 6-2
WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS, ENCLOSED BAYS AND ESTUARIES
General Plan Planning Area**

Beneficial Use	Description
Temperature	At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature. At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.
Toxicity	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
Pesticides	No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of pesticides in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Division 4, Article 4, Section 64444.5 (Table 5), and listed in Table 3-2 of the Basin Plan.
Chemical Constituents	Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Division 4, Article 4, Section 64435 (Tables 2 and 3), and Section 64444.5 (Table 5), and listed in Table 3-2 of the Basin Plan. Waters designated for use as agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.
Radioactivity	Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or indigenous aquatic life. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64443, Table 4, and as listed below: in the Water Quality Control Plan for the North Coast Basin.



**TABLE 6-3
WATER QUALITY OBJECTIVES FOR GROUNDWATERS
General Plan Planning Area**

Beneficial Use	Description
Tastes and Odors	Groundwaters shall not contain taste-or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. Numeric water quality objectives have been developed by the State Department of Health Services and U.S. EPA. These numeric objectives, as well as those available in the technical literature, are incorporated into waste discharge requirements and cleanup and abatement orders as appropriate.
Bacteria	In groundwaters used for domestic or municipal supply (MUN), the median of the most probable number of coliform organisms over any 7-day period shall be less than 1.1 MPN/100 ml, less than 1 colony/100 ml, or absent (State Department of Health Services).
Radioactivity	Groundwaters used for domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Division r, Chapter 15, Article 5, Section 64443, Table 4 and listed in Table 3-2 of this Plan.
Chemical Constituents	Groundwaters used for domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Division 4, Chapter 15, Article 4, Section 64435 Tables 2 and 3, and Section 64444.5 (Table 5) and listed in Table 32 of the Basin Plan Groundwaters used for agricultural supply (AGR) shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use.

Source: Water Quality Control Plan for the North Coast Basin Region (RWQCB, 2001).

The Basin Plan lists the specific water quality objectives that are designated for individual water bodies in the North Coast Region. Specific water quality objectives established for the Eel and Van Duzen Rivers are summarized in Table 6-4.

**TABLE 6-4
SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION
General Plan Planning Area**

Water Body	Specific Conductance		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH units)	
	90% Upper Limit	50% Upper Limit	90% Upper Limit	50% Upper Limit	Min	90% Upper Limit	50% Upper Limit	Max	Min
Eel River	375	225	275	140	7.0	7.5	10.0	8.5	6.5
Van Duzen River	375	175	200	100	7.0	7.5	10.0	8.5	6.5

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

Municipal Water Supply. Municipal water supply for the City of Fortuna originates from groundwater sources near the Eel River. The City currently operates five groundwater extraction wells at the existing Corrosion Control Facility (CCF), located on Eel River Drive between Drake Hill Road and Kenmar Road.

The City of Fortuna is required to comply with the California State Department of Health Services (CDHS) and USEPA standards for water quality. Water treatment for the municipal supply includes treating water to raise the pH and make the water less corrosive to comply with state and federal requirements for copper. As required by the state regulations for drinking water, the water is also chlorinated to prevent any bacteriological contamination (City of Fortuna, 2005).

State and federal regulations require that the each water agency provide its customers with a water quality report that shows the results of the water quality monitoring for the prior year. Water quality monitoring involves sampling municipal sources for potential pollutants and comparing sample test results with water quality standards.

The City of Fortuna publishes the consumer confidence report each year with information about the source of the water, what is in the water, and how water quality compares with state standards. The consumer confidence report typically includes results for microbiological testing, lead and copper testing, and chemical sampling. Table 6-5 provides a summary of the water quality data for the City of Fortuna municipal water supply, as compared to the primary drinking water standards. Table 6-6 provides a summary for the secondary drinking water standards. According to the 2004 consumer confidence report, during 2004, the City of Fortuna water supply system met all applicable federal and state drinking water standards during 2004, including copper corrosion (City of Fortuna, 2005).

Additional copper testing is being conducted at the CCF to ensure the new system remains effective and in compliance (City of Fortuna, 2005). Table 6-7 shows a summary of the copper and lead testing data for 2004.



**TABLE 6-5
MUNICIPAL WATER QUALITY vs. PRIMARY STANDARDS
City of Fortuna General Plan Planning Area**

Primary Drinking Water Standards					
Constituent	Year	Level Detected	MCL ¹		Notes
	Tested		(mg/L ⁽²⁾ , unless noted)		
			USEPA ³	CDHS ⁴	
Coliform	2004	1 (Total)	< 1 positive test per month ⁵		---
		0 (Fecal/E.coli)			
Total	2004	5.1 (ppb) ⁶	ND ⁷ –	0.100	Federal rule currently being implemented in California by USEPA
Trihalomethanes			130.080		
Chlorine	2004	0.5 (ppm) ⁸	MRDL ⁹ = 4.0		
Radioactivity	1999	0.88	15 (pCi/L) ¹⁰	15 (pCi/L)	
Gross Alpha					
Aluminum	1996	ND	0.5 to 2a	1	A. secondary standards
				0.2a	
Antimony	1997	ND	0.006	0.006	---
Arsenic	1996	ND	0.01	0.05	---
Asbestos	1997	ND	7.0 MFL ¹¹	7.0 MFL	---
Barium	1996	0.29	2	1	---
Beryllium	1997	ND	0.004	0.004	---
Chromium	1996	ND	0.1	0.05	---
	1996	0.13	4	2	---
Fluoride	2003	0.18	2		---
Hardness	1996	110	None	None	---
Hardness	2003	170	None	None	---
MTBE	2001	ND	---	0.005	---
Nickel	1997	---	---	0.1	---
Nitrate	2000	8.4	45	---	
	2003	2.7		---	
Nitrite (as N)	2003	2.7	(as N) ¹²	(as NO ₃) ¹³	
	2000	ND	1	1	

1. MCL: Maximum Contaminant Level
 2. mg/L: milligrams per Liter
 3. USEPA: United States Environmental Protection Agency
 4. CDHS: California State Department of Health Services
 5. <: less than (denotes a value that is "less than" the method detection limit.)
 6. ppb: parts per billion
 7. ND: Non Detected
 8. ppm: parts per million
 9. MRDL: Maximum Residual Disinfectant Level
 10. pCi/L: picoCuries per Liter
 11. MFL: Million fibers per Liter
 Source: 2004 Consumer Confidence Report, City of Fortuna, 2005

TABLE 6-6
MUNICIPAL WATER QUALITY vs. SECONDARY STANDARDS
City of Fortuna General Plan Planning Area Update

Secondary Drinking Water Standards	Year Tested	Level Detected	MCL ¹ (mg/L ⁽²⁾ , unless noted)
Color	---	ND ³	15 units
Odor	---	ND	3 units
Chloride	1996 2003	11 13	500
Foaming Agents	---	ND	0.5
Iron	1996	ND	0.3
Manganese	2000 2001	ND 33 (ppb) ⁴	0.05 50 (ppb)
Sulfate	1996 2003	18 16	500
Total Dissolved Solids	1996 2003	200 (ppm) ⁵ 210 (ppm)	1,000
Zinc	1996	ND	5

1. MCL: Maximum Contaminant Level
 2. mg/L: milligrams per Liter
 3. ND: Non Detected
 4. ppb: parts per billion
 5. ppm: parts per million
 Source: 2004 Consumer Confidence Report, City of Fortuna, 2005

TABLE 6-7
2004 TESTING DATA FOR COPPER AND LEAD
City of Fortuna General Plan Planning Area



Constituent	No. of Samples Collected	90 th Percent Level Detected	No. of Sites Exceeding Action Level	Action Level	MCLG ¹
Copper (ppm) ²	38	1.0	2	1.3	0.17
Lead (ppb) ³	38	9	0	15	2
1. MCLG: Maximum Contaminant Level Goal 2. ppm: parts per million 3. ppb: parts per billion Source: 2004 Consumer Confidence Report, City of Fortuna, 2005					

Water Source Capacity. In 1986, the City of Fortuna completed a water system hydraulic study to identify the characteristics of the existing water systems within the city and to develop a plan to make any necessary improvements. At that time, existing water systems included the City of Fortuna water system and the Campton Heights water system. The City of Fortuna purchased the Campton Heights Water System from a private party in 1985 and the systems were operated independently until 1988, when the two systems were combined into one water supply system (City of Fortuna, 1993). The 1986 study found that the Campton Heights System did not have an adequate source of supply, fire flow capacity, or pressure in part of the system, or sufficient storage capacity to meet existing demands (Winzler & Kelly, 1986).

In 2005, the City of Fortuna authorized an update of the 1986 Water System Hydraulic Study. Winzler and Kelly Consulting Engineers (Winzler & Kelly) completed the updates in September 2005. The purpose of the study was to evaluate the city’s water system and make recommendations that would improve the systems performance and allow it maintain an adequate level of service as the city continues to develop (Winzler & Kelly, 2005). The objective of the 2005 Water System Hydraulic Study update was to develop a hydraulic model of the city’s water system and use the model to develop system improvements that may be implemented at a future date (Winzler & Kelly, 2005).

The 2005 update to the hydraulic study did not include a determination of whether the total projected water supplies available during normal, single-dry, and multiple-dry water years will meet a 20-year projected water demand.

Findings

- Municipal water supply for the City of Fortuna originates from groundwater sources near the Eel River. The City currently operates five groundwater extraction wells at the existing Corrosion Control Facility (CCF), located on Eel River Drive between Drake Hill Road and Kenmar Road.
- According to the 2004 consumer confidence report, during 2004, the City of Fortuna water supply system met all applicable federal and state drinking water standards during 2004, including copper corrosion (City of Fortuna, 2005).

6.3 Biological Resources

Introduction

The City's Planning Area contains a variety of biological communities and wildlife habitats that contribute to the overall functionality of river ecosystems. This section describes biological resources in the Planning Area from both a qualitative and quantitative perspective. The results of this assessment may be used in planning and management decisions that will affect biological resources in the Planning Area.

Key Terms

Anadromous. Applied to the migratory behavior of fish that spend most of their lives at sea, but then migrate to fresh water to spawn (e.g. salmon and lamprey).

California Department of Fish and Game (CDFG). CDFG implements and oversees the Threatened and Endangered Species Program.

California Endangered Species Act (CESA) of 1984. Definitions and procedures in CESA closely parallel those of the Federal Endangered Species Act. CESA (Section 2080) prohibits "take" of any species that the State Fish and Game Commission (F&GC) determines to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Codes as "hunt, pursue, catch, capture, or kill or attempt to hunt Pursue, catch, capture or kill." CESA allows for take incidental to otherwise lawful development projects. The law is administered by the CDFG and F&GC.

California Environmental Quality Act (CEQA). A State law requiring state and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse impact, an Environmental Impact Report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project.

California Natural Diversity Database (CNDDDB). The CNDDDB is a program that inventories the status and locations of rare plant and animals in California. The CNDDDB is maintained by the CDFG.

Candidate Species (C). A plant or animal species for which the U.S. Fish and Wildlife Service (USFWS) or National Oceanic & Atmospheric Administration (NOAA) Fisheries has on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened (USFWS, 2005a). Species can also be designated as Candidate species under CESA.

Critical Habitat (CH). Specific geographic areas, whether occupied by a listed species or not, that are essential for its conservation and that have been formally designated by rule published in the federal register (USFWS, 2005a).

Endangered Species Act (ESA) of 1973, as amended. Federal legislation that is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing extinction of plants and animals. The ESA is administered by the USFWS and NOAA Fisheries, depending on the species (USFWS, 2005a).

Endangered Species. An animal or plant species in danger of extinction throughout all or a significant portion of its range (USFWS, 2005a).



Endangered. A species that is in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range

Evolutionarily Significant Unit (ESU). A Pacific salmonids stock that is substantially reproductively isolated from other stocks of the same species and which represents an important part of the evolutionary legacy of the species. Life history, ecological, genetic, and other information can be used to determine whether a stock meets these two criteria. NOAA Fisheries uses this designation (USFWS, 2005a).

National Environmental Policy Act (NEPA). An act passed in 1974 establishing federal legislation for national environmental policy, a council on environmental quality, and the requirements for environmental impact statements.

National Oceanic & Atmospheric Administration (NOAA). See description below.

Proposed for Delisting (PD). A previously listed species proposed to be delisted from the endangered and threatened species list.

Recovery Plan (RP). A document drafted by USFWS, NOAA Fisheries, or other knowledgeable individual or group, that serves as a guide for activities to be undertaken by Federal, State, or private entities in helping to recover and conserve endangered or threatened species (Section 4 of ESA).

Salmonid. A member of the family Salmonidae (i.e., trout and salmon).

Species of Special Concern (SSC). A regulatory status determined by the California Department of Fish and Game that applies to animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless are declining at a rate that could result in listing, or historically occurred in low numbers and known threats to their persistence currently exist.

Threatened Species. An animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (USFWS, 2005a).

Threatened. area species likely to become endangered within the foreseeable future (Section 4 of ESA).

United States Fish and Wildlife Service (USFWS). See description below.

Regulatory Setting

California Department of Fish and Game (CDFG). CDFG has statewide responsibility for the conservation and recovery of California's listed rare, threatened, and endangered plants and animals under the California Endangered Species Act (CESA). As a Trustee Agency of the California Environmental Quality Act (CEQA), the CDFG must be notified of projects involving fish and wildlife of the state, rare and endangered native plants, wildlife areas, and ecological reserves. Under Section 1600, CDFG regulates work that will affect wetlands resources associated with rivers, streams, and lakes.

National Oceanic and Atmospheric Administration (NOAA) Fisheries. NOAA Fisheries is responsible for administration of the Federal Endangered Species Act in reference to marine and anadromous species. NOAA Fisheries is involved when an action either involves a federal agency, federal funding, federal permitting, or federal land. NOAA Fisheries is also involved in the implementation of other important regulations, including the Fish and Wildlife Coordination Act and the National Environmental Policy Act (NEPA). Furthermore, NOAA Fisheries regulatory role includes review/comment on Section 404 permit applications, Section 7 Endangered Species consultation, and NEPA review.

United States Fish and Wildlife Service (USFWS). The USFWS is involved when an action either involves a federal agency, federal funding, federal permitting, or federal land. The USFWS is also involved in the implementation of other important regulations, including the Fish and Wildlife Coordination Act and Migratory Bird Treaty Act. Furthermore, the USFWS regulatory role includes review/comment on Section 404 permit applications, Section 7 Endangered Species consultation, and NEPA review.

National Environmental Protection Act, and NEPA. Furthermore, the USFWS regulatory role includes review/comment on Section 404 permit applications, Section 7 Endangered Species consultation, and NEPA review.

Existing Conditions

The California Natural Diversity Database (CNDDDB). The California Natural Diversity Database (CNDDDB) was queried for the following 7.5-minute U.S. Geological Survey quadrangles: Fortuna and Hydesville (Planning Area), as well as all adjoining quadrangles: Cannibal Island, Fields Landing, McWhinney Creek, Iaqua Buttes, Owl Creek, Redcrest, Scotia, Taylor Peak, Capetown, and Ferndale. The results of the CNDDDB query for wildlife species are shown in Table 6-8 along with listing status and preferred habitat. Within the 12 quadrates searched, the CNDDDB report provided the occurrences of 11 sensitive and special status avian species, 5 amphibian species, one reptile species, two fish species, and four mammal species. Of the 23 sensitive and special status wildlife species, only four species provided by the CNDDDB search are documented within the Planning Area - the coastal cutthroat trout, tricolored blackbird, red-tree vole, and Northern Spotted Owl (see Figure 6-2).

TABLE 6-8 SENSITIVE & SPECIAL STATUS SPECIES General Plan Planning Area			
Species Latin Name	Common Name	Listing Status	Preferred Habitat
AVIAN			
Accipiter cooperii	Cooper's Hawk	SSC ²	Variable habitat preference including closed forest to urban interface assuming the presence of suitable nesting trees/stand
Accipiter striatus	Sharp-shinned Hawk	SSC	Variable habitat preference including closed forest to urban interface assuming the presence of suitable nesting trees/stand
Aegialus tricolor	Tricolored Blackbird	SSC	Nesting preference variable but usually associated with emergent wetlands vegetation over water; gregarious during non-breeding season.
Ardea alba	Great egret	Sensitive Colonial Nester (Rookery)	Shallow aquatic habitat in wetlands, estuaries, and rivers, also uses open pastures and grasslands. Colonial nester in large shrubs or trees.
Ardea herodias	Great Blue Heron	Sensitive Colonial Nester (Rookery)	Shallow aquatic habitat in wetlands, estuaries, and rivers, also uses open pastures and grasslands. Colonial nester in large shrubs or trees.
Brachyramphus marmoratus	Marbled Murrelet	FT ³ /CH ⁴ /RP ⁵ SE6 SSC	Near-shore waters along coast to 40+ miles inland; nests in mature trees with old growth characteristics.



Charadrius alexandrinus nivosus	Western Snowy Plover	FT/CH/RP SSC	Sparsely vegetated beaches, along coastal strip, also inland; ground nester and gregarious in non-breeding season
Egretta thula	Snowy egret	Sensitive Colonial Nester (Rookery)	Shallow aquatic habitat in wetlands, estuaries, and rivers, also uses open pastures and grasslands. Colonial nester in large shrubs or trees.
Pandion haliaetus	Osprey	SSC	Nests near large water bodies or oceans; nest location typically associated with snags or human structures (i.e., power poles)
Nycticorax nycticorax	Black-crowned Night Heron	Sensitive Colonial Nester (Rookery)	Shallow aquatic habitat in wetlands, estuaries, and rivers, also uses open pastures and grasslands. Colonial nester in large shrubs or trees.
Strix occidentalis caurina	Northern Spotted Owl	FT/CH	Coastal to mountainous mature and old growth coniferous forests; nests in cavities or on natural platforms.

**TABLE 6-8
SENSITIVE & SPECIAL STATUS SPECIES
General Plan Planning Area**

Species Latin Name	Common Name	Listing Status	Preferred Habitat
REPTILES			
Emys (=Clemmys) marmorata marmorata	Western pond turtle	SSC	Aquatic habitat with some slow water component, basking sites are important, with suitable upland nesting sites within a few hundred meters of aquatic habitat
Eucyclogobius newberryi	Tidewater goby	FE ⁷ /PD ⁸	Brackish waters of coastal wetlands (estuaries and lagoons)
Oncorhynchus clarkii clarkii	Coastal cutthroat trout	SSC	Low gradient coastal streams, estuaries, and nearshore marine areas
MAMMAL			
Arborimus pomo	Red tree vole	SSC	Mature and other stands of mixed coniferous forests within coastal habitat (i.e., fog belt)
Corynorhinus townsendii townsendii	Townsend's big-eared bat	SSC	Undisturbed roosts, nursery and hibernaculum, uses numerous plant communities and human built structures meeting specific ambient conditions.
Martes americana humboldtensis	Humboldt Marten	SSC	Mature coniferous forests with closed canopies, abundant standing and downed woody material
Myotis yumanensis	Yuma myotis	Maternity colonies and roost sites sensitive to disturbance	Open forest and woodlands near open water habitat

Adjoining quadrangles include Cannibal Island, Fields Landing, McWhinney Creek, Laqua Buttes, Owl Creek, Redcrest, Scotia, Taylor Peak, Capetown, and Ferndale.

SSC: Species of Special Concern status applies to animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist.

FT: Federal Threatened. Threatened taxa are those likely to become endangered within the foreseeable future (Section 4 of ESA).

CH: Critical Habitat. Specific geographic areas, whether occupied by a listed species or not, that are essential for its conservation and that have been formally designate by rule published in the federal register.

RP: Recovery Plan. A document drafted by USFWS, NOAA Fisheries, or other knowledgeable individual or group, that serves as a guide for activities to be undertaken by Federal, State, or private entities in helping to recover and conserve endangered or threatened species (Section 4 of ESA).

SE: State Endangered

FE: Federal Endangered. Endangered taxa are those, which are in danger of becoming extinct within the foreseeable future throughout all or a significant portion of their range (Section 4 of ESA).

PD: Proposed for Delisting (i.e., north of Orange County).



Wildlife. The CNDDDB query provided occurrence records for four wildlife species within the Planning Area. Several additional species that are known to occur within the study boundaries are described below:

Coastal Cutthroat Trout (*Oncorhynchus clarkii clarkii*) are found in coastal streams from the Eel River to Seward in southeastern Alaska. Populations in the lower Eel River drainage (including tributaries) represent the southern extent of the species range. The coastal cutthroat is a Species of Special Concern (SSC) in California. Coastal cutthroat trout occur in Strongs Creek, North Fork Strongs Creek, and the Eel River.

Tricolored blackbird (*Aegialus tricolor*) nesting colonies are usually associated with emergent freshwater wetlands with foraging areas within relative proximity to the colony. Open pastures, grasslands, and feedlots provide suitable foraging areas. Tricolored blackbirds are nearly endemic to California and are a Species of Special Concern. A historical nesting colony is reported by the CNDDDB as occurring south of Drake Hill Road near the railroad tracks within the Planning Area.

Northern Spotted Owl (*Strix occidentalis caurina*) is listed as Threatened (FT) under the ESA and has designated Critical Habitat (CH). Most habitat studies indicate a strong association with older, more structurally diverse stands (Hunter et al. 2005). Northern Spotted Owl occurrences are in close proximity to the Planning Area. Suitable habitat within the Planning Area may be inhabited by this species.

Red tree vole (*Arborimus pomo*) is associated with both mature and immature coniferous forests. Red tree vole is a Species of Special Concern and has been documented in Wolverton Gulch. This species is likely to occur in other places within the Planning Area if suitable habitat is present.

In addition to the species reported by the CNDDDB as occurring within the Planning Area, additional special status species were identified as occurring within or immediately adjacent to the Planning Area.

Coho salmon occur in Palmer Creek, Strongs Creek, Wolverton Gulch (Jong pers com.), and Rohner Creek (FRA, 1989).

Steelhead (*Oncorhynchus mykiss*)- Northern California ESU (Evolutionary Significant Unit). Steelhead occur in Palmer Creek, Strongs Creek, an Unnamed Tributary to Strongs Creek (aka Mill Creek), North Fork Strongs Creek, Wolverton Gulch (Jong pers com.), and Rohner Creek (FRA, 1989).

Willow Flycatcher (*Empidonax traillii*) is associated with dense riparian cover along streams, rivers, and wetland habitat to early succession dense clear cuts. The Willow Flycatcher is listed as Endangered under the State Endangered Species Act. Willow Flycatchers historically occurred in Humboldt County and in the Planning Area; Willow Flycatchers appear to re-colonizing suitable habitat along the Eel River and Van Duzen (Hunter et al. 2005).

Northern red-legged frog (*Rana aurora aurora*) is a Species of Special Concern and is typically associated with slow or slack water habitats with some depth and emergent cover. Forest and riparian habitats are important upland habitat for the Northern red-legged frog. Northern red-legged frogs have been identified in Wolverton Gulch (Jong pers. com) and immediately south of the Planning Area (CNDDDB, 2005). Northern red-legged frogs are likely present in suitable habitat within the Planning Area.

Foothills yellow-legged frog (Rana boylii) is a Species of Special Concern and is associated with stream habitat with gravel and cobble substrates with slow stream margins for breeding. Yellow-legged frogs have not been identified within the Planning Area but are known to occur immediately south of the Planning Area (CNDDDB, 2005). Foothills yellow-legged frogs are likely present in suitable habitat within the Planning Area.

Western Pond Turtle (Emys (=Clemmys) marmorata marmorata) is a Species of Special Concern and associated with pond and stream systems. Slow water and basking areas as well as upland breeding sites are important for this species. Western pond turtles have not been identified in the Planning Area, but are known to occur south of the Van Duzen River near the Planning Area (CNDDDB, 2005).

Nesting locations (rookeries) for Great Blue Heron (*Ardea herodias*), Great Egret (*Casmerodius albus*), Snowy Egret (*Egretta thula*), and Black-crowned Night Heron (*Nycticornax nycticornax*) are sensitive to disturbance and could occur within the Planning Area.

Findings

- The CNDDDB report provided the occurrences of 11 sensitive and special status avian species, 5 amphibian species, one reptile species, two fish species, and four mammal species. Of the 23 sensitive and special status wildlife species, only four species provided by the CNDDDB search are documented within the Planning Area - the coastal cutthroat trout, tricolored blackbird, red-tree vole, and Northern Spotted Owl.
- Coastal cutthroat trout occur in Strongs Creek, North Fork Strongs Creek, and the Eel River. Steelhead occur in Palmer Creek, Strongs Creek, an unnamed tributary to Strongs Creek (aka Mill Creek), North Fork Strongs Creek, Woolverton Gulch, and Rohner Creek. Coho salmon occur in Palmer Creek, Strongs Creek, Woolverton Gulch, and Rohner Creek.
- The CNDDDB reports the occurrence of a historical tricolored blackbird nesting colony south of Drake Hill Road near the railroad tracks within the Planning Area.
- Northern Spotted Owl occurrences are in close proximity to the Planning Area. Suitable habitat within the Planning Area may be inhabited by this species.
- Northern red-legged frogs, foothills yellow-legged frogs, and western pond turtles are likely to occur within the Planning Area.
- The Willow Flycatcher appears to be recolonizing suitable habitat along the Eel River and Van Duzen River.
- Red tree vole is a Species of Special Concern and has been documented in Woolverton Gulch. This species is likely to occur in other places within the Planning Area if suitable habitat is present.

6.4 Agricultural Resources

Introduction

Originally, settlers came to Fortuna in search of gold. However, once mining proved to be fruitless, Eel River Valley settlers reached the rich lands and returned to the farming lifestyle they had once known; raising livestock, grains, and a variety of fruits. Lush fruit and vegetable crops were



harvested and shipped to San Francisco, and soon the dairy industry became the region's primary farming occupation. Farming practices still play a vital role in Fortuna's community today where annual events related to agriculture are celebrated including the Apple Harvest Festival, the Daffodil Show, and the Fortuna Rodeo.

This section describes the agricultural resources within the Planning Area, including discussions of agricultural land activity, local growing conditions, and current Williamson Act contracts.

Key Terms

Agricultural Preserves (Williamson Act Lands). The Williamson Act assists farmers in retaining their lands for agricultural use by providing tax incentives.

Agricultural Exclusive (AE) The General Plan designation used by both the City of Fortuna and Humboldt County to designate lands for agricultural use.

Prime Farmland. Prime farmland is land best suited to food, feed, forage, fiber, and oilseed crops. These farmlands produce the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment. Prime farmland has the best combination of location and productivity. The location is important for separation distance to reduce nuisance, and to provide an economical waste assimilation through land application of manure. The productivity element of prime farmland includes physical and chemical features with the ability to sustain long-term agricultural production, including soil quality, moisture supply, and growing season; all of which are necessary to produce high yields in perpetuity. Additionally, the land must have been used for irrigated agricultural production at least four years prior to the mapping date.

Storie Index. The Storie Index Rating (SIR) expresses the degree of suitability of a soil for general intensive agriculture. Soils are rated for quality based on a scale of 100 percent based on four factors: character of soil profile and depth, texture, slope, and a composite of other factors including nutrient level, pH, and erosion. Grade 1 soils have a composite index rating of 80 to 100, and are considered excellent. Grade 2 (60 to 80) are classified as moderately well suited for agriculture, Grade 3 (40 to 60) indicates fair suitability, and Grades 4, 5 and 6 (below 40) indicate poor suitability for agriculture.

Regulatory Setting

Federal
Farmland Protection Policy Act. The Farmland Protection Policy Act (FPPA) is intended to minimize the extent to which federal activities contribute to the unnecessary and irreversible conversion of agricultural land to nonagricultural uses. It follows that Federal programs shall be administered in a manner that, as feasible, will be compatible with state and local government and private programs and policies to protect farmland. The U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) is charged with oversight of the FPPA.

State

Farmland Mapping and Monitoring Program. The California Department of Conservation Division of Land Resource Protection (DLRP) administers the Farmland Mapping and Monitoring Program (FMMP), which evaluates the quality of farmlands and monitors the conversion of farmland throughout the State of

California. The program maintains an inventory of state agricultural land and updates its "Important Farmland Series Maps" every two years.

California Land Conservation (Williamson) Act. The California Land Conservation Act of 1965, better known as the Williamson Act, allows for the preservation of agricultural and open space lands through property tax incentives and voluntary restrictive use contracts. This program allows property owners to have their property assessed on the basis of its agricultural production rather than at the current market value. The minimum contract term is ten years, and the contract is automatically renewed annually, unless either party gives advance notice on non-renewal.

Local

Local Williamson Act Implementation. Humboldt County Board of Supervisors adopted Williamson Act guidelines on June 24, 1969. In June of 2002, the board adopted the first comprehensive update to the local guidelines since 1978 to reflect major changes to the Williamson Act. The County requires that Williamson Act lands be used for production of agricultural commodities for commercial purposes and uses compatible with agriculture. In any one year, a minimum of 50 percent of the contracted land must be under production. This allowance permits a portion of the lands to remain fallow or in crop rotation, or to address market or other conditions (e.g., drought). Additionally, the County's guidelines permit the Board to suspend the production standard for good cause, including retirement, sudden death or illness of the owner/operator.

Existing Conditions

Agricultural lands are an important natural resource in and around the city of Fortuna. Within the Fortuna Planning Area, there are several small scale agricultural practices occurring including an apple orchard, a strawberry farm, string beans, an orchid greenhouse, small row crops, hay fields, dairy and beef cattle grazing land, and some timber lands. In addition to agricultural uses, these lands also provide open space, recreational opportunities, and wildlife habitat, as well as providing residents with an aesthetically-pleasing environment.

Fortuna's annual rainfall is between 40 to 60 inches between May and June, and its growing season is approximately 300 frost-free days per year. Most of the land in agricultural production is devoted to pasture and hay crop production, and can produce good to excellent yields if properly managed. Most of the city of Fortuna is located on top of prime farmland, which under the Humboldt General Plan is defined as having a Storie Index rating of 80 to 100.

Agricultural land within the city limits is dispersed and fragmented with only three small areas zoned for agriculture. One consists of seven parcels and has an apple orchard; it is located against the east side of Highway 101, which Rohner Creek runs through. The second area is only one parcel, is located in the middle of town just south of Kenmar Road, and is partially forested. The third area is made up of 17 parcels and is located at the south west corner of the city limits. Both the second and third areas are farmed for hay feed.

The majority of the agricultural activity occurs outside of the city between the southern boundary of the city limits and southern edge of the Planning Area. Most of the agricultural production in this area is hay or cow pasture. One of the areas that have been zoned for agricultural use is located in the north eastern part of the Planning Area, but outside of the city limits. It has several fields that are being farmed, but a large portion of the land is occupied by a forest and is not suitable for cultivation. Some agricultural activities that have been progressing in recent years are grass-fed beef and organic dairies. Fortuna is home to the only



livestock auction yard in the county. This resource serves as a major draw for agricultural persons from all over the region.

Some timberlands extend into the Planning Area, and are contiguous with the larger timberland that is outside of the Planning Area's north eastern boundary. There is one fragmented parcel of timberland that is adjacent to a vacant parcel, both are wooded and within the Planning Area just east of the city limits. In the past, timber has been one of the main industries for the region, but recent closure of two local timber mills have caused over a hundred jobs to be lost

Within the Planning Area, there are four main ranches that are contracted under the Williamson Act, each containing several smaller parcels that when combined, total 492 acres. All of these lands are located outside of the city boundary in the south part of the Planning Area on land zoned as Agricultural Exclusive under the 1993 General Plan (see Figure 6-3).

According to the Humboldt County Community Development Services Department, strong timber and grazing interests have prevented most agricultural lands from being converted to other uses since 1980. This has left most of the city's agricultural lands unchanged over the past two decades. Although pressures to convert agricultural lands to different uses have remained minimal in the past, they are now surfacing with a growing demand for homes and increasing land prices.

Findings

- 492 acres of the Planning Area are under Williamson Act contract in 2005.
- There is land within the Planning Area zoned for agricultural use, but is forested and is not farmable in its current condition.
- Fortuna has the only livestock auction yard in Humboldt County.
- According to the Humboldt County Community Development Services Department, strong timber and grazing interests have prevented most agricultural lands from being converted to other uses since 1980.

6.5 Mineral/Soils and Energy Resources

Introduction

This section provides a general overview of the mineral resources within the Planning Area. Topics covered in the section include the California Surface Mining and Reclamation Act of 1975 (SMARA) and a description of all active mines within the Planning Area.

Key Terms

Idle. Idle is a term in mining meaning mining operations have stopped for at least one year by more than 90 percent of the operations previous maximum annual mineral production, with the intent to resume those surface mining operations at a future date.

Operator. An operator is any person who is engaged in surface mining operations, or who contracts with others to conduct operations on his/her behalf, except a person who is engaged in surface mining operations as an employee with wages as his/her sole compensation.

Reclamation. Reclamation is the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a suitable condition which is readily adaptable for alternate land uses and create no damage to public health or safety. The process may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures.

Stream Bed Skimming. Stream bed skimming is the excavation of sand and gravel from stream bed deposits above the mean summer water level or stream bottom, whichever is higher.

Surface mining operations. Surface mining operations are all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open pit mining of minerals naturally exposed, mining by the auger method, dredging and quarrying, or surface work incident to an underground mine. Surface mining operations include, but are not limited to, in-place distillation or retorting or leaching, the production and disposal of mining waste, prospecting and exploratory activities, borrow pitting, streambed skimming, and segregation and stockpiling of mined materials (and recovery of same).

Gravel extraction operations. Gravel extraction operations are all or any part of the process involved in the removal by any method of sand, gravel, rock, or other earthen material from streambeds or stream channel bars normally subject to inundation during winter flows.

Vested rights. Vested rights are rights granted to mining operations that were active before adoption of Surface Mining and Reclamation Act

Regulatory Setting

The Surface Mining and Reclamation Act of 1975 (SMARA) was enacted by the State of California to address the need for a continuing supply of natural resources, and to ensure that the significant adverse impacts of surface mining will be mitigated. The Department of Conservation's Office of Mine Reclamation (OMR) and the State Mining and Geology Board (SMGB) are jointly charged with ensuring proper administration of the Act's requirements. The OMR provides an ongoing technical assistance program for lead agencies and operators, maintains a database of mine locations and operational information statewide, and is responsible for compliance-related matters. The SMGB interprets the Act's provisions and also serves as a policy and appeals board. The Act's requirements apply to any entity, including government agencies, engaged in surface mining operations in California (including those on federally managed lands) which disturb more than one acre or remove more than 1,000 cubic yards of material. This includes, but is not limited to: prospecting and exploratory activities, dredging and quarrying, streambed skimming, borrow pitting, and the stockpiling of minerals.

SMARA is implemented via city and county "lead agencies" that adopt ordinances, in accordance with state policy, for land use permitting and reclamation procedures which provide the regulatory framework under which local mining and reclamation activities are conducted. The SMGB reviews the lead agency ordinances to determine whether the ordinances meet the procedures set forth under SMARA. Local governments are required to address mineral recovery activities through direct regulation of mining operations and through planning policies that synchronize the mineral resource needs of the state and regions with the maintenance of local environmental quality.



SMARA also establishes a two-step mineral lands inventory process called "classification-designation," intended to ensure that important mineral deposits are identified and protected for continued and further extraction. During the classification phase, the State Geologist prepares a geological inventory of selected important mineral commodities within the defined study region. Classification includes identifying the market area of the commodity, projecting the future needs for the commodity within the study region, and geologically classifying the lands within the Planning Area as to the presence or absence of mineral resources. The classification is based solely on geological factors and does not consider existing land uses. When the classification is completed and approved, the state board sends copies of the State Geologist's report and maps classifying the mineral lands to the affected cities and counties. Within twelve months of receiving the report, the city or county must as part of its general plan, adopt mineral resources management policies that recognize the mineral classification information, assist in the management of land uses that affect areas of regional significance, and adopt policies that emphasize the conservation and extraction of identified mineral deposits.

In addition to SMARA, *Fish and Game Code 1602* requires that any person, agency, utility, or local government affiliate, notify the department before beginning any activity that substantially obstructs or diverts the natural flow of rivers, streams, or lakes; or substantially changes or uses any material from the bed, channel, or bank of a river, stream, or lake. Most gravel mining operations require a "Streambed Alteration Agreement" before mining operations can begin.

Clean Water Act Section 404 also governs streambed dredging and is regulated by the Army Corps of Engineers. Before streambed dredging can occur, a general permit must be issued from the Army Corps of Engineers.

California Law, *Public Resources Code §2770*, and *§2774* also govern mining operations in the State of California.

A mining operation might also need to obtain a permit, agreement or authorization from one or more of the government agencies listed below:

State Agencies

- California Coastal Commission
- Department of Conservation
- Department of Forestry
- Department of Water Resources
- Regional Water Quality Control Boards
- State Lands Commission
- State Water Resources Control Board

Federal Agencies

- National Oceanic & Atmospheric Administration Fisheries
- U.S. Fish and Wildlife Service
- U.S. Forest Service

Existing Conditions

There are 93 sand and gravel, metal, stone and clay extraction sites in Humboldt County. Sand and gravel extraction constitute the major portion of the County's mining activity, both in terms of quantity of material produced and value of extracted resource. According to the County of Humboldt Extraction Review Team (CHERT), in-stream gravel and sand extraction included 680,426 cubic yards in 2000, which comprised 71 percent of the 962,826 cubic yards approved for extraction. The majority of gravel and sand extraction takes place along the Mad River (22 percent) and the Eel River-Van Duzen Rivers (76 percent).

Running along the Western boundary of the Planning Area is the Eel River. There are seven gravel extraction operations as of December 23, 2005 in the Eel River adjacent to the Planning Area.

One of the most visible gravel extraction operations is located on the Worswick Bar, more popularly known as the Fernbridge bar because of its close proximity to Fernbridge. Humboldt County owns the bar and the Humboldt County Public Works Department serves as its operator. The permit allows for the extraction of up to 200,000 cubic yards of gravel per year. However, the environmental permits issued limit the operation to 25,000 cubic yards of gravel per year. Reclamation is performed every year, once gravel extraction has ceased and before the bar is reopened to the public. Reclamation efforts involve the removal of temporary structures, the filling of holes in the gravel bar that could trap fish, and the restoration of riparian habitat. Although the bar is open to the public for a majority of the year, it is closed to public access during Snowy Plover nesting season and when the gravel extraction operation is active. The mining permit does not have an expiration date and as of December 23, 2005, the operator did not have plans to let the gravel extraction site sit idle or perform final reclamation.

Findings

- The majority of sand and gravel that is extracted from Humboldt County comes from the Eel and Van Duzen Rivers, which are east and south of the Planning Area.
- There are seven gravel extraction sites in the Eel River, adjacent to the Planning Area.

6.6 Parks & Recreation

Introduction

This section describes the City of Fortuna's existing parkland and recreational facilities and services, as well as applicable policies and plans related to park and recreation facility needs. This section also describes park and recreational facilities in the Planning Area and areas surrounding the City that may be utilized by Fortuna residents and residents of the adjacent unincorporated communities.



Key Terms

The key terms described below define different categories of parks, many of which are found in the City of Fortuna, or are located in the surrounding unincorporated areas serving the City. Since the 1993 Fortuna General Plan does not include a separate parks and recreation element, many of the identified categories of parks and recreation facilities are derived from the City of Fortuna Parks and Recreation 2004 "Community Needs Survey Report."

Mini/Pocket Park. Mini/pocket parks generally fall under the category of neighborhood-serving parks and tend to be less than five acres in size. Pocket parks in the City may sometimes be $\frac{1}{4}$ acre in size or less, and serve specific needs such as a small picnic area, or a small playground with equipment, also known as a tot-lot.

Neighborhood Parks. Neighborhood parks are relatively small park sites generally five to 10 acres in size that serve the recreational and social focus of the surrounding neighborhoods. These parks are intended to be used by residents within a half-mile radius. Park improvements are generally oriented toward the recreation needs of children and typically include walkways, a small play area, picnic areas, an unlighted sport field or courts, benches, trees, and other landscaping.

Community Parks. Community parks generally range from 10 to 60 acres in size and are typically designed for residents who live within a two to three mile radius of the park. Community parks focus on meeting neighborhood or community-based recreational needs, as well as preserving unique landscapes and open spaces. A community park might have restrooms, on-site parking, a community center, lighted sports fields or courts, or specialized facilities and structures not typically found in a neighborhood park. It may also include natural areas, such as a community forest. Some elements of a community park may be leased to community groups.

Regional Parks Regional parks are larger sites, typically 60-500 acres developed with a wide range of improvements usually not found in local neighborhood or community facilities to meet the needs of the entire City population. In addition to neighborhood and community park type improvements, regional parks may include facilities such as a golf course, a nature area, or other amenities. Some elements in the park may be leased to community groups.

Open Space. Open space areas tend to be natural, undeveloped lands set aside for environmental or limited recreation purposes. Open space areas may be valued as flora or wildlife preserves and may range in size and shape, including narrow linear spaces along streams, or railroad tracks that may be used as corridors by pedestrians or bicyclists, linking residential uses with other sectors of a city.

Park Dedication. Parks dedication refers to the turning over by an owner or developer of private land for public use, and the acceptance of land for such use by the government agency having jurisdiction over the public function for which it will be used. Dedications for road, parks, school sites, or other public uses often are made conditions for approval of a development by a city or county.

Regulatory Setting

State **The State Public Park Preservation Act.** The State Public Park Preservation Act is a key regulation that protects and preserves public parks. Under the Public Resource Code, cities and counties are not permitted to obtain real property that is used as a public park for any non-park use unless compensation or

land, or both, are provided to replace the parkland acquired. This requirement ensures that there is no net loss of parkland and facilities.

The Quimby Act. The Quimby Act passed in 1975 (California Government Code §66477), and amended in 1982, authorizes cities and counties to pass land dedication ordinances requiring developers to set aside land, cash-in-lieu of land and/or impact fees as impact mitigation for land development. The 1982 amendment (California legislation AB 1600, California Government Code §66025) intended to provide for “adequate” open space acreage, using acreage/population ratios or formulas for calculating exaction fees tied to a project’s impacts, as required by the California Environmental Quality Act (CEQA). The Quimby Act provides a means of providing parks for local communities through local land dedication ordinances with standards that require fee exactions as a condition of subdivision map approval. In 2002, the passage of AB 2936 authorized Quimby funds to be used for the planning of new parks and for community master planning purposes.

Local

General Plan. The current City of Fortuna General Plan, adopted in June 1975 and amended in July 1993, does not include a parks and recreation element. In January 2004, the City Parks and Recreation Commission initiated preparation of a Park and Recreation Element. This included a preliminary survey to identify short and long-range community recreation needs. While this survey was distributed in 2004 and 352 completed responses were received, the Park Commissioners decided to discontinue the survey and review process when the City of Fortuna commenced its current (August 2005) comprehensive General Plan Update.

In the Land Use section of the Fortuna General Plan, community design and open space policies include providing adequate open space along streams. A map of bicycle facilities included in the General Plan identifies existing and proposed bicycle routes, chiefly Class I, II, and III bike routes in the Planning Area. Identified and proposed bike routes include Rohnerville Road, School Road, Fortuna Boulevard, River Walk Drive, and Main Street.

Municipal Codes. City of Fortuna Municipal Code, Title 12 Streets, Sidewalks and Public Places, Chapter 12-24 describes the requirements and conditions governing the use of park and recreation facilities administered by the City of Fortuna.

Existing Conditions

Parks and open space areas are important elements in an urban environment. Parklands, urban parks, and open space areas contribute to the aesthetic quality and liveability of an urban area, providing residents with visual and physical open space to rest and recreate within an urban context. Parks and open space areas provide a venue for community activities, preserve natural features such as Fortuna’s river and creek system or community forest, and form a setting for cultural elements such as historic buildings or sites. Parklands and open space also help shape or define urban areas, providing visual and physical buffers between neighborhoods and cities.

Parks and Recreation Department. The City of Fortuna owns and maintains public parks, open spaces, and recreation facilities under a separate Parks and Recreation Department. The responsibilities of the Parks and Recreation Department include managing and maintaining city parks and recreational facilities, coordinating recreation programs and service club activities that take place at city parks and facilities, and planning for park and recreational facilities demand (see Figure 6-4).



The Department has three divisions: Parks, Recreation, and the Depot Museum. The Department is administered by the Director, represented by a seven member Parks and Recreation Commission, a Historical Commission, and assisted by the equivalent of approximately 10 full time positions comprising approximately two administrative staff, five maintenance workers, and part-time/seasonal staff of approximately 20-24 people which includes recreational program supervisors, leaders, and aides to run recreation programs.

Special District: Rohner Community Recreation and Park District. In the Fortuna Planning Area, an independent special district known as the Rohner Community Recreation and Park District (RCRPD) was established on June 4, 1968, and continues to the present time with the charter of providing community recreation services. Since the special district includes both the City of Fortuna and unincorporated areas surrounding the City, formation of the district required approval by LAFCo and was adopted by resolution by the Humboldt County Board of Supervisors. Due to the shared jurisdictions, the RCRPD comprises a five-member Board of Directors, with two Board members appointed by Humboldt County Board of Supervisors and three members appointed by the City of Fortuna.

The special district oversees annual funds of approximately \$9,000 that are levied from property taxes. These funds are used to offset recreation programs to the community offered by the Parks and Recreation Department, including service to residents in the unincorporated Fortuna area (John Crotty, Parks Director).

Commissions. The City of Fortuna has a Parks and Recreation Commission currently with seven Commissioners (in the future with five members) that are appointed by the Mayor for a four-year term. The Parks and Recreation Commission assists the Director and staff of the Park and Recreation Department with planning and management issues regarding parks facilities in the City. The Director also works with the Historical Commission, a five-member board appointed by the Mayor for four-year terms, whose charter is to work with the curator on issues concerning with the Depot Museum at Rohner Park.

Parks. The two urban community parks located within the city limits of Fortuna are Rohner Park and Newburg Park. The City owns, maintains, and operates these parks, which provide multi-use recreational activities and host community-based or special events. These parks provide a strong community focus for Fortuna residents and visitors.

Rohner Park. Rohner Park is a community park located in the center of Fortuna's downtown district, with strong historic and cultural associations with the community of Fortuna. Rohner Park was established in 1907 when Mary Rohner sold 20 acres of land to the City, and succeeding generations of the Rohner family have added parcels of land to the park, in 1921 and 1938. The community forest, a two-acre tract of second growth forest along Rohner Creek, was deeded to the City in 1940 and forms part of the park. The community forest, which has hiking trails, is managed and maintained by the Parks Department.

Rohner Park is a 55-acre multi-use park with structures and recreational facilities and is a hub of community activities. The park contains a number of facilities including the Depot Museum, Fireman's Pavilion, Park office, Rodeo Arena, three Little League baseball fields, batting cages, a recreation softball field, an outdoor basketball court, seven horseshoe pits, a volleyball court, a pistol range, a cook shack, a deep pit barbecue, two playgrounds, a large picnic area, several smaller picnic areas, two public restrooms, and parking. The Parks and Recreation Department coordinates the reservations, leasing, and maintenance of the park facilities. Special events are also held in Rohner Park and include Art & Wine in the Park, Fortuna Rodeo, Redwood Autorama, and the Apple Harvest. From the first of June through September, park facilities are regularly rented out or used by the City for special events.

The Fireman's Pavilion, a large hall constructed in the 1930s, is used for a range of activities and as a meeting place for leisure classes and clubs and organizations. Activities at the Pavilion include: rollerskating; basketball; private parties and special events; classes and programs, such as dance and art; after-school programs; holiday recreation programs; and day camps during school vacation periods. The Depot Museum is a former railroad depot that was relocated in 1975 from its berth along the railroad at Seventh Street to Rohner Park as part of a bicentennial project. The Museum is used as a local history museum and is staffed by a part-time museum curator, assisted by volunteers (the Historical Commissioners), and managed as a division of the Parks and Recreation Department. Museum hours are Thursday – Sunday, noon - 4:30 pm from September through May, and open daily noon - 4:30 pm from June through August.

Newburg Park. Newburg Park is a 20-acre community park located on the corner of Rohnerville and Newburg Roads. It was established in 1979 when the City of Fortuna purchased 18 acres of pastureland and created the park. Recreational facilities in Newburg Park include two hardball fields, three softball diamonds, one regulation soccer field, seven additional soccer fields of varying sizes, a picnic area, a playground, an all weather walking path, public restrooms, and parking. Newburg Park is a large expanse of unobstructed open space that is also used as a location for non-contact sport recreation and activities, including, but not limited to, flying kites and model airplanes, informal ball practice, walking, and running.

Local School Grounds. In the Community Needs Survey, local school grounds were identified as community parks due to the size criteria and that they contained landscaped areas and recreational facilities and equipment. Many of the public schools in the Planning Area, such as Fortuna Middle School, South Fortuna Elementary, Ambrosini School, and Toddy Thomas Schools have playing and recreational facilities with a combination of indoor basketball courts, outdoor basketball hoops, hardball courts, outdoor playgrounds, and soccer fields. Some schools have a running track. Fortuna Union High, also classified as community park, has a wide range of sporting and recreational facilities that include six regulation tennis courts, a softball field, a practice football field, a regulation football/soccer field, two indoor basketball courts, six outdoor basketball hoops, and an all weather running track. Fortuna Union High, given its central location in town, wide array of facilities, and high school sporting teams, serves as a recreation hub for the community.

Neighborhood Parks. The City of Fortuna does not own or maintain any neighborhood parks. In the Community Needs Survey, local school playing fields and playgrounds were classified as both community and neighborhood parks due to their size, location, and equipment and facilities provided.

Mini/Pocket Parks. There are two mini/pocket parks in Fortuna. The Chamber Park, approximately 2,500 square feet, is located between the Chamber of Commerce building and the Fortuna Library. This park has a picnic table, drinking fountain, and small garden. The second park is located near the River Lodge. This small park area, Walk and Overlook Park, is approximately 4,000 square feet in size, is situated on the levee overlooking the Eel River and contains a small drought-resistant garden area and a picnic table.

Community Partnerships. The Parks and Recreation Department has a shared agreement with Fortuna high school and elementary schools to use gym and school field facilities for community soccer, basketball, and football programs with reciprocal use rights for school teams to use Rohner and Newburg Parks for certain track and athletic events. This partnership allows the community to maximize use of available parks and facilities.

Application of the Quimby Act. The City of Fortuna does not currently have a land dedication ordinance requiring developers to provide parkland or exaction fees to provide for new community parklands and master planning. The Parks and Recreation Department's 2004 Community Needs Survey identifies under Policy A an implementation measure that states:



A fee schedule or Parkland dedication pursuant to the Quimby Act shall be used to provide or improve parks and recreation facilities.

Given the City's projected population growth, and anticipated increased potential for future residential subdivision and development within the City over the next 25 years, community demand for additional parks and recreational facilities would correspondingly be expected to increase, particularly in the under 18 and over 64 age groups.

Open Space. Open space areas within the City of Fortuna city limits are limited due to buildout within the city and consist primarily of privately-owned undeveloped land and some isolated agricultural parcels within the City. Other open spaces in the Planning Area include the riparian areas along streams and creeks; vacant lots; building setback areas, particularly in commercial areas such as the front setback of the Veteran's building; playing fields at local schools; agricultural fields; hillsides and bluffs; undeveloped or vacant commercial or industrial lands, including the former PALCO mill site; railroad tracks and land along Highway 10; agricultural lands near the Rohnerville Airport; along the Eel River; and the fields south of Fortuna along the Van Duzen River.

Bikeways. A Bike Facilities Plan is included in the General Plan, which identifies existing and proposed bicycle routes, chiefly Class I, II, and III bike routes in the Fortuna Planning Area. No constructed Class I (separated) bikeways are provided in Fortuna. No parkways or connecting linear parks have been developed in Fortuna.

Community and Recreational Facilities. The City of Fortuna and Parks and Recreation Department manages a range of recreation facilities and programs in the community. The Department administers the following city-owned facilities: the Fortuna Depot Museum; the Fireman's Pavilion; sporting and community activities; events at Rohner Park, the Monday Club, and the River Lodge meeting/conference facility; and a range of year-round and seasonal programs for individuals, clubs, and organizations.

A diverse array of clubs and organizations, leisure classes, and recreational activities and opportunities are listed with the Parks and Recreation Department and take place on city-owned property. Some of these include adult sporting clubs, Fortuna Little League, soccer and baseball clubs and leagues, campfire kids, art or craft groups, 4-H, martial arts, sign language classes, and self-help groups.

River Lodge. River Lodge, a meeting/conference facility of approximately 13,000 square feet of meeting spaces, is located on the east bank of the Eel River and west of Highway 101. It has spectacular panoramic views of the Eel River, valley, agricultural fields, and coastal mountain range. The City of Fortuna owns, operates, and maintains the conference facility, which is rented out for community meetings, events, and private functions. The River Lodge has one full-time staff coordinator and eight part-time employees all whom are city employees. The River Lodge Walk and Overlook Park is used as a walking trail and gathering space for the community and tourists. The River Walk pathway runs along the levee on east side of the Eel River and provides outstanding views and vistas of the river, agricultural fields and pastoral setting framed by coastal hills. The River Lodge, Riverwalk, and Walk and Overlook Park are important scenic and recreational resources for city residents.

The Monday Club. The Monday Club is a non-profit corporation that works under contract with the City to perform economic development work, business promotion, and community event support. The organization is located inside the Monday Club building, (named for one of the previous owners, the Fortuna Monday Club, a women's organization founded in the 1920s) and the building is owned by the City of Fortuna and

administered through the Parks and Recreation Department. The staff of River Lodge conference center oversees the day-to-day booking at the Monday Club. Other organizations have buildings that are reserved for meetings and special events, and that are also rented to community groups and clubs. These include the Veteran's Memorial Hall and Fortuna Grange, which are managed by their organizations.



Private Recreational Facilities. Fortuna has several recreation facilities and resources that are privately-owned and operated. These include a country club with an 18-hole golf course; three privately-owned gyms/exercise facilities; Fortuna senior services offering recreational opportunities, such as weekly dances and games; and service and sporting clubs listed with the Parks and Recreation Department. Fortuna Physical Therapy, located next to Newburg Park, has a small swimming pool and exercise equipment. In Scotia, the Scotia gym is a multi-sport facility with basketball court, exercise room, racketball court, and a swimming pool. Fortuna has no public swimming pool facilities.

Findings

- The City does not have a land dedication ordinance. Under Policy A of the 2004 Community Needs Study, Implementation Measure #3 states that a fee schedule or parkland dedication pursuant to the Quimby Act shall be used to provide or improve parks and recreation facilities
- There is a lack of smaller-scale parks, such as pocket parks or neighborhood parks in residential neighborhoods in Fortuna to service neighborhood-level park user needs. A pocket or neighborhood park is an identified need in the Campton Heights neighborhood to serve residents in this area.
- The 2004 Community Needs Survey identified a list of recreational suggestions or needs for the community. Key needs identified included: a community swimming pool; skate park, teen center, a lake for fishing; bike and pedestrian lanes; senior activities; a series of mini parks or green areas; fitness and hiking trails; a park in Campton Heights area, land for parks to relieve use on existing parks, historic home tour, and more sporting fields.

6.7 Cultural/Historical Resources

Introduction

This section describes the City's cultural, historical, architectural, and archaeological heritage and regulations that impact the preservation of these resources.

Key Terms

There are no key terms identified for Section 6.7.

Regulatory Setting

State ***The California Register of Historical Resources.*** The State Historical Resources Commission has designed this program for use by state and local agencies, private groups and citizens to identify, evaluate, register and protect California's historical resources. The Register is the authoritative guide to the state's significant historical and archeological resources. The California Register program encourages public recognition and protection of resources of architectural, historical, archeological and cultural significance, identifies historical resources for state and local planning purposes, determines eligibility for state historic preservation grant funding and affords certain protections under the California Environmental Quality Act.

The California Register includes resources of local, regional, state or national significance and automatically includes all resources listed on the National Register of Historical Places.

State Historical Building Code (SHBC). One of California's most valuable tools for the preservation of historic resources is the California Historical Building Code. While the California Building Code (CBC, section 3403.5) makes provisions for the special treatment of qualified historic buildings, the SHBC codifies this protection under statutory law (Health and Safety Code of 18950, et.seq.) as well as regulation (Part 8 of the Title 24, California Code of Regulations). The SHBC governs all other statutes or regulations as they may apply to qualified historical buildings (H&S 19956).

The SHBC provides reasonable alternatives in situations where strict compliance with established statutes or regulations would impair the integrity or significance of an historic resource or jeopardize its economic viability. The SHBC offers a framework within which solutions may be custom tailored to the specific problems related to the historic resource.

A "qualified historical building" is defined as any building, group of buildings, district, site or object, which is listed by any level of government as having historic importance. This also includes those resources listed in the State of California's inventory of historical resources, and given any level of significance other than "not eligible". Also included are ships and railroad rolling stock of historical significance.

California Environmental Quality Act (CEQA). The California Environmental Quality Act (CEQA) is intended to evaluate and mitigate the effects a proposed project will have on the environment. In addition to natural resources, CEQA considers impacts on historic and cultural resources. To determine if a project will have significant impacts on historic resources, CEQA applies a two-part test; the resource must be "historically significant" and the project would cause "substantial adverse change" to the resource (Bass et al 1999).

In order to qualify as "historically significant," a resource must meet one of three qualifications before it can be listed in, or eligible for, the California Register or Historical Resources. In order to evaluate a historic resource under CEQA, it is necessary to determine if it is listed, or eligible for listing, in the California Register of Historical Resources. The California Register recognizes properties that meet at least one of the following eligibility criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California, or the United States; or
- It is associated with the lives of persons important to local, California, or national history; or
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (California Office of Historic Preservation Technical Assistance Series #6).

In addition to meeting one of these criteria, the resource must possess integrity. Resources that possess integrity "retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance" (California Office of Historic Preservation, Technical Assistance Series #6).

A property can also be considered historically significant if it is listed in a local register of historic resources, or if it has been identified as important in a cultural resources survey. Finally, it can be considered significant if the Lead Agency responsible for CEQA review determines it to be so.



The California Public Resources Code, Section 21083.2 (c) protects native American burials, skeletal remains and associated grave goods regardless of their antiquity and provides for the sensitive treatment and disposition of human remains. CEQA also requires proper coordination with the County Coroner and appropriate Native American group upon accidental discovery of remains and grave goods.

Mills Act Property Tax Abatement Program. The Mills Act is a state sponsored legislation that grants local governments the authority to participate in a locally based preservation incentive program. A city may create a Mills Act program by adopting an ordinance that meets State established program standards. Private property owners receive property tax relief in exchange for agreeing to preserve, rehabilitate and maintain their historic properties for a specified period. A Mills Act contract is for an initial period of ten years and may be passed on to subsequent property owners. Both residential and income producing properties are eligible. Rehabilitation projects must comply with the Secretary of the Interior's Standards for Rehabilitation.

California State Codes Relating to Mills Act Program

California Government Code, Article 12, Sections 50280 - 50290

§50280. Restriction of property use. Upon the application of an owner or the agent of an owner of any qualified historical property, as defined in Section 50280.1, the legislative body of a city, county, or city and county may contract with the owner or agent to restrict the use of the property in a manner which the legislative body deems reasonable to carry out the purposes of this article and of Article 1.9 (commencing with Section 439) of Chapter 3 of Part 2 of Division 1 of the Revenue and Taxation Code. The contract shall meet the requirements of Sections 50281 and 50282.

§50280.1. Qualified historic property. "Qualified historical property" for purposes of this article, means privately owned property which is not exempt from property taxation and which meets either of the following: (a) Listed in the National Register of Historic Places or located in a registered historic district, as defined in Section 1.191-2(b) of Title 26 of the Code of Federal Regulations. (b) Listed in any state, city, county, or city and county official register of historical or architecturally significant sites, places, or landmarks.

§50281. Required contract provision.

Any contract entered into under this article shall contain the following provisions:

- a. The term of the contract shall be for a minimum period of 10 years.
- b. Where applicable, the contract shall provide the following:
 - (1) For the preservation of the qualified historical property and, when necessary, to restore and rehabilitate the property to conform to the rules and regulations of the Office of Historic Preservation of the Department of Parks and Recreation, the United States Secretary of the Interior's Standards for Rehabilitation, and the State Historical Building Code.
 - (2) For the periodic examinations of the interior and exterior of the premises by the assessor, the Department of Parks and Recreation, and the State Board of Equalization as may be necessary to determine the owner's compliance with the contract.

- (3) For it to be binding upon, and inure to the benefit of, all successors in interest of the owner. A successor in interest shall have the same rights and obligations under the contract as the original owner who entered into the contract.
- c. The owner or agent of an owner shall provide written notice of the contract to the Office of Historic Preservation within six months of entering into the contract.

§50281.1. Fees. The legislative body entering into a contract described in this article may require that the property owner, as a condition to entering into the contract, pay a fee not to exceed the reasonable cost of administering this program.

§50282. Renewal. (a) Each contract shall provide that on the anniversary date of the contract or such other annual date as is specified in the contract, a year shall be added automatically to the initial term of the contract unless notice of nonrenewal is given as provided in this 7 10/28/99 section. If the property owner or the legislative body desires in any year not to renew the contract, that party shall serve written notice of nonrenewal of the contract on the other party in advance of the annual renewal date of the contract. Unless the notice is served by the owner at least 90 days prior to the renewal date or by the legislative body at least 60 days prior to the renewal date, one year shall automatically be added to the term of the contract.

Federal

National Historic Preservation Act. Preserving important historic properties as reflections of our American heritage became a national policy through passage of the Antiquities Act of 1906, the Historic Sites Act of 1935, and the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470) (NHPA). In part, the NHPA instructed the Federal Government to assist local governments to expand and accelerate their historic preservation programs and activities. Since enactment of the NHPA, the historic preservation expertise and activities of local governments have significantly increased.

National Register of Historic Places. The NHPA established the National Register of Historic Places to recognize resources that are significant to the local, state or national history and heritage of the United States. The National Register of Historic Place: (16 U.S.C. 470a, 36 C.F.R. Parts 60, 63) is the official inventory of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, and culture which is maintained by the Secretary of the Interior under the authority of the Historic Sites Act of 1935 (16 U.S.C. 461-467 (1935) (amended)) and the National Historic Preservation Act of 1966 (16 U.S.C. 470 (1966) (amended)).

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and at least one the following criteria:

- Are associated with events that have made a significant contribution to the broad patterns of our history; or;
- Are associated with the lives of persons significant in our past; or;
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or;
- Have yielded or may be likely to yield, information important in prehistory or history.



Section 106

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Established by the National Historic Preservation Act in 1966, the ACHP is an independent Federal agency that promotes the preservation, enhancement, and productive use of the nation's historic resources. It serves as the primary advisory agency for the president and congress on historic preservation policy.

The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP. The regulations also place major emphasis on consultation with Indian tribes and Native Hawaiian organizations, in keeping with the 1992 amendments to NHPA. Consultation with an Indian tribe must respect tribal sovereignty and the government-to-government relationship between the Federal Government and Indian tribes.

The responsible Federal agency first determines whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. If so, it must identify the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) to consult with during the process. It should also plan to involve the public, and identify other potential consulting parties. If it determines that it has no undertaking, or that its undertaking is a type of activity that has no potential to affect historic properties, the agency has no further Section 106 obligations.

Department of Transportation Section 4f. Section 4(f) of the Department of Transportation Act of 1966 stipulated that the Federal Highway Administration (FHWA) and other DOT agencies such as the Federal Transit Administration, or the Coast Guard, cannot approve the use of land from a significant publicly owned public park, recreation area, wildlife or waterfowl refuge, or any significant historic site unless the following conditions apply:

- There is no feasible and prudent alternative to the use of land.
- The action includes all possible planning to minimize harm to the property resulting from use.
- This law does not apply to private individuals or institutions. It may apply to governmental entities that have a proprietary interest in lands, such as drainage or wetlands easements.

Americans with Disabilities Act (ADA). The ADA requires that new buildings and facilities and altered portions of existing buildings and facilities be made accessible for persons with disabilities. The ADA (provides for alternative minimum accessibility standards if making a "qualified historic building" accessible would threaten or destroy the historic significance of that building. If the lead agency or responsible party believes that full compliance with ADA would threaten or destroy the integrity of the historic resource they may contact the Advisory Council on Historic Preservation regarding a federally sponsored project, or the State Historic Building Code Board and the State Office of Historic Preservation regarding a project undertaken under state or local sponsorship.

The Secretary of the Interior's Standards for the Treatment of Historic Properties. The Secretary of the Interior is responsible for establishing professional standards and providing advice on the preservation of cultural resources listed in, or eligible for listing in, the National Register of Historic Places. The Secretary of the Interior's Standards for Historic Preservation Projects were developed in 1976. They consisted of sets of

standards for the acquisition, protection, stabilization, preservation, rehabilitation, restoration, and reconstruction of historic buildings. Since their publication, the Secretary's Standards have been used by State Historic Preservation Officers and the National Park Service to ensure that projects receiving federal money or tax benefits were reviewed in a consistent manner nationwide. In California, the Standards are referenced in the State Historic Building Code and in CEQA.

In 1992, the Standards were revised so that they could be applied to all historic resource types included in the National Register of Historic Places—buildings, structures, sites, objects, districts, and landscapes. *The Secretary of the Interior's Standards for the Treatment of Historic Properties* addresses four treatments: preservation, rehabilitation, restoration, and reconstruction. The *Guidelines for the Treatment of Cultural Landscapes* illustrate how to apply these four treatments to cultural landscapes in a way that meets the Standards. *The Secretary of the Interior's Standards for the treatment of Historic properties*, revised in 1992, were codified as 36 CFR Part 68 in the 1995.

Certified Local Government. In recognition of the need to involve local governments in historic preservation, the 1980 amendments to the NHPA provided a specific role for local governments in the national program by establishing the Certified Local Government (CLG) program. A CLG is a local government whose local historic preservation program has been certified pursuant to Section 101 (c) of the NHPA. Any local government is eligible to apply for certification, with the exception of regional commissions and councils of government. A local government is any general purpose political subdivision of California such as a city, county, or city/county government. Once certified, a local government must be included in the process of nominating properties to the National Register of Historic Places and will be eligible to apply to the state for a share of the state's annual Historic Preservation Fund (HPF) allocation. In California, the CLG program is administered by the California State Office of Historic Preservation.

Existing Conditions

Precontact Indigenous Period. Before settlement by Euro-Americans in the 1850s, the Northwest coast of California was occupied by cultures of the Algonquian and the Athabaskan linguistic groups. The California Athabascans were descendants of peoples who had immigrated into the territory during the distant past. Within this language group were four distinct dialects: the Tolowa of the Smith River; the Hupa group, which includes the Hupa on the Trinity River, the Chilula of lower Redwood Creek, and Whilkut of the middle Mad River and upper Redwood Creek; the Mattole on the Bear River and Mattole River; and the southern group on the Eel River.

The southern group exhibited some characteristics of the northwest culture of the northern peoples and also some of the Central California culture. They were hill people who wintered in permanent homes along the river and moved to the hills during the summer to hunt and gather. At the time of Euro American contact in the area now known as Humboldt Bay, they were divided into three principal groups: the Patawat lived along the lower Mad River; the Wiki on Humboldt Bay; and the Wiyot along the lower Eel River. The term "Wiyot" is now commonly applied to all peoples within this group. (City of Eureka: 1997) (Department of Water Resources, Northern District: 1976) (Eder: 1963)

At the time of first contact the Wiyot population was somewhere between 1,000 to 3,300, almost exclusively in villages along the protected shores of Humboldt Bay and near the mouths of the Eel and Mad Rivers. Villages consisted of rectangular dwellings and a sweathouse of split redwood planks, tied together, with low pitched gable roofs supported by large beams and stone stoop across the front. The door was a round hole, eighteen inches in diameter, located near a corner. A sweathouse was used by Wiyot men for sleeping,



gambling, and ceremony. (Loud: 1918) The Wiyot used the ocean very little for either food or travel. Major settlements were generally located on still water where redwood dugout canoes could be used. The canoe, made from a log hollowed by fire, provided access to aquatic food sources and was the preferred method of travel to sites around Humboldt Bay. Wiyot material culture was diverse and sophisticated and they hunted and gathered a wide variety of plant and animal resources that enabled them to live in fairly settled communities within their territory. Mollusks, sea lions, and stranded whales were among the ocean resources utilized by the Wiyot, while deer, elk, and acorns constituted the more important land resources. (City of Eureka: 1997)

Wiyot fishing technology was elaborate and included the use of fishing weirs, single pointed harpoons, basketry traps, acute angle hooks, double toggle harpoons, fixed nets, lifting nets, scoop nets, lures, and torches (Loud: 1918). Because of this technology, the Wiyot were able to maximize the aquatic resources available and maintain one of the highest population densities in prehistoric northern California. (City of Eureka: 1997).

The Lassik and the Nongatl lived within the drainage of the Van Duzen Basin, the area now crossed by Highway 36. The Nongatl occupied the drainage of Yager Creek and the Van Duzen River while the Lassik inhabited an area extending from the Eel River at its junction with the South Fork and east to the head of the Mad River and adjacent drainage of the Van Duzen.

The territories of these groups were outside of the more densely populated settlements around Humboldt Bay. They often suffered at the hands of self-reliant but prejudiced settlers and were within range of the slave traffic in Indian children that was conducted by both Europeans and Americans in the Sacramento River Valley and in what is now known as Sonoma and Mendocino counties. (Department of Water Resources, Northern District: 1976)

The indigenous peoples in all of these territories established trade routes with a number of their neighboring groups in order to obtain materials not available locally. In turn, they provided dugout canoes and various foods to the Mattole to the south in exchange for medicinal tobacco, Haliotis shells, and other regional foods. They supplied white deerskins to the Yurok and received iris fiber rope. The Wiyot also exported Olivella shells to the inland groups and dentalium beads to the Sinkyone. (City of Eureka: 1997) Most of the archaeological sites on record in the Humboldt Bay area at the Northwest Information Center were listed initially by Llewellyn Loud in his *Ethnogeography and Archaeology of Wiyot Territory*, published in 1918. Loud documented 172 sites within Wiyot territory. The upper Eel River and the Van Duzen River were Athabascan, while village at the mouth of the Van Duzen may have been Wiyot.

The calm waters of the sloughs, South Bay and mouth of the Eel would have provided transportation as well as access to seasonal fishing, hunting and gathering sites. The annual salmon and steelhead runs on the Eel, Elk, and Mad Rivers and the major creeks were a major food source. (Loud: 1918) Enough fish could be obtained to provision a village over the winter, when other foods were scarce. (Eder: 1963) The availability of a wide range of sources of subsistence allowed for the creation of a rich material culture.

Despite dredging, dike construction, and a century of sediment from logging operations, some of this early cultural landscape survives today because until recently, it was deemed unfit for agriculture or development. Many significant prehistoric and historic archaeological sites have been disturbed or destroyed by construction work associated with the development of communities around Humboldt Bay, as forests were cleared and areas converted to farming. Village sites and cemeteries have been obliterated during the

construction of public and private developments. The most likely locations for unrecorded sites lie in the vicinities of recorded sites, but it is possible that significant resources could occur anywhere.

Established trails around the Bay marshes and mudflats followed the shoreline and ridge tops, and were subsequently used by Euro-Americans settlers for wagon roads, rail lines, and improved for permanent roads. (Department of Water Resources: 1976) These trails were incorporated into sections of Myrtle Avenue and Old Arcata Road, the Rohnerville Road and later into Highway 101 and Highway 36, along with railroad lines. Archaeological sites have been identified within the present boundaries of the City, including several in Rohnerville. Areas of sensitivity include Palmer Creek and Strong's Creek. The Rohnerville Rancheria was established as a tribal trust patent in an area that historically may have included aboriginal trails.

Settlement Period 1849-1870. Europeans explored the northern California coastline before any land expeditions entered the territory, beginning with the Spanish. Bruno Heceta and Juan Francisco de Bodega y Cuadra at Trinidad landed in 1775, followed in 1793 by the English explorer George Vancouver. An American, Captain Jonathan Winship, who was commissioned the Russian-American Company in 1806 to undertake a sea otter expedition along the Northern California coast, brought the first ship into Humboldt Bay (City of Eureka: 1997) (Department of Water Resources, Northern District: 1976) (Eder: 1963). In November 1849 a party of seven men, led by Dr. Josiah Gregg, left the mining district on the Trinity River near Weaverville on an overland journey in search of Trinidad Bay. Gregg's intent was to locate a coastal port for supplying the needs of the northern mining camps, which then relied on supplies moving up the Sacramento River Valley. After an arduous journey of 99 days, the party reached the coast near Little River and eventually the shores of Humboldt Bay, where they spent Christmas 1849. Their establishment of a land route from the mining district to the coast led to the development of Humboldt Bay as a major supply center. (Coy: 1929)

Wiyot contacts with white explorers and fur trappers prior to the California gold rush changed the character of northwestern California forever and led to the decimation and displacement of the Wiyot in the short course of 15 years. From 1850 to 1865, the territory of the Wiyot became the center for the largest concentration of Euro Americans in California north of San Francisco.

This was caused by the use of Humboldt Bay first as a shipping point to the Northern Mines, followed by the establishment of a redwood timber industry shortly thereafter, and the homesteading of the Eel River and Arcata Bottoms. (Coy: 1929) (Eder: 1963)

The region's early economy was established and sustained for nearly a century by the natural resources of the region. Logging, milling, shipbuilding, farming, fishing, packing and freighting, and the attendant commercial enterprises resulted in the establishment of communities that were designed to support various industries-logging company towns, and mill camps, farming communities, stage and trail stops, and shipbuilding villages. Some of these communities grew into urban centers and seats of government, while others disappeared as the resource and/or activity with which they were associated declined or changed.

While the first colonists were entrepreneurs hoping to take advantage of the lucrative trade with the Northern Mines, after a few years in the gold fields or on pack mules many of them turned to more secure occupations. At the conclusion of the Mexican War in 1848, land in the new territories was opened to settlement. As early as 1854, the Humboldt Times reported that companies were forming to catch and process salmon on the Eel River for export, an industry that would become important in later years (Genzoli: 1953).

The mining district along the Trinity and Klamath Rivers had been established by the State Legislature as Trinity County in 1850, though under the jurisdiction of Shasta County. By 1853, the population around



Humboldt Bay had grown sufficiently so that the western portion was then designated as Humboldt County. The largest towns in the region were Eureka, Union (Arcata), and Bucksport, which were all located on Humboldt Bay. The entire region within the drainage of the Eel River was identified as the Eel River Township (Coy: 1929).

While existing Spanish and Mexican land grants led to legal disputes in other parts of California, colonists here found only Indian territorial claims to contend with in this region. Many colonists filed under the act of 1853, and later the Homestead Act of 1862 awarded land free of charge to legitimate settlers after 5 years of residence on their claim. (City of Eureka: 1997) (Coy: 1929) (Department of Water Resources, Northern District: 1976) During the period prior to the establishment of the Humboldt Land Office in 1858, there was no way to secure full title nor to verify accurate boundary lines because there had been no government survey. It was not uncommon in the settlement of the western United States for the 160 acre limitation to be evaded by having friends or relatives file claims and eventually selling or turning them over to a major landowner.

The first settlers to the Eel River arrived around 1850, settling on lands between the Van Duzen River and Yager Creek near the site of the town of Hydesville. The major settlements at that time were Eureka, Union, and Bucksport. Most of the areas adjacent to Eureka and Bucksport were forested, and the town of Union (Arcata) was surrounded by marshes and not available for farming until the introduction of dikes and levees. In contrast, the landscape along the Eel River and the Van Duzen River was composed of raised tables and bluffs, with open grasslands ringed by forests that had been maintained by the indigenous peoples of the region. (Coy: 1929) (Eder: 1963)

The Eel River was not navigable by ships of any size, so the existing Indian trails become important roads connecting points south and east to Humboldt Bay. Large marshes forced the construction of wagon routes higher on the hillsides. (Coy: 1929) (Eder: 1963) George Gibbs was with the expedition of Reddick McKee, Indian Agent out of Eureka, in September, 1851 when they found settlers:

"About a mile out (meaning from their camp near the mouth of the Van Duzen) the road ascended a high table prairie, exceedingly fertile, watered with springs, and well timbered. Here quite a settlement had been made; a number of houses built, or in the course of construction, and a considerable quantity of land enclosed, and under cultivation... Some six miles from our starting place, we again struck the river, and followed it down, encamping a short distance off, upon a small branch, which we named Communion Creek...Several of the neighboring settlers visited the camp soon after our arrival, and we learned that there were, including those on the south side of the river, about thirty." (Van Kirk: 1977)

Expansion of Settlements, Conflict and War 1852-1874. Within a few years the Gold Rush boom had subsided, and agricultural settlements were beginning to spread out over the open lands around Humboldt Bay and into the interior prairies and coastal valleys. The Eel River Valley was then characterized by small scattered settlements with larger communities near present day Hydesville, Rohnerville, and Fortuna.

Many of the former gold miners had originally been from farming communities and according to the 1860 census of the Eel River Township, of the 201 people listing occupations, 82 percent listed rancher, stock raiser, farmer or farm laborer. Among the earliest settlers were Captain Cornelius Wasgatt, who arrived in 1851 and established a dairy near Alton. Dr. Theodore Felt, a native of Massachusetts and the only doctor in the County outside of Eureka, in 1851 raised horses and cattle near Goose Prairie (Hydesville). The Sweasey family of England arrived on the first wagons brought overland in 1856, became prominent businessmen, and ran the Eureka and Hydesville Stage Line and were the founders of the Humboldt County Bank. Joel

Burnell, a native of New York, became a dairy and butter producer near Hydesville and then a Methodist preacher.

The Cooper family, five brothers and two sisters originally from England via New Brunswick, established a lumber mill, flour mill and dairy on Yager Creek above Hydesville in 1852. These were the first mills of their kind south of Eureka. William Olmstead, from New York, arrived in 1850 as a miner and eventually became successful in the cattle business and owned a major portion of the land upon which the town of Hydesville was built. Robert Porter, from Virginia, settled in Hydesville as a merchant in 1868, and with partners Joseph Russ and Hanson owned the Fort Baker Sheep Ranch, which was the largest sheep ranch in the county. Samuel Strong, from Ohio, settled in Rohnerville around 1853. He served on the Board of the Humboldt Agricultural Society that formed in Hydesville in 1860, and later operated Strong's Station on the overland stage route near Carlotta. In 1858, John Hyde built the first hotel and lends his name to the town (Hydesville) which is established on his land, in what was known as Goose Prairie and is now known as Hydesville. (Coy: 1929) (McHenry 1987) (Genzoli: 1953) (Van Kirk: 1977)

In 1856, Swiss immigrant Henry Rohner constructed the first store in the community of Eel River (Rohnerville). Rohner had been a typesetter for the Humboldt Times and gave up his job to start the first store in the area. He soon partnered with Joseph Feiganbaum, a Bavarian immigrant and for a few years Rohner and Feiganbaum was the only store in the area. Travel was difficult, since roads were poor. A few farmers along the Eel River built ferries and charged small fees to carry people, animals or freight. Some sections were crossed by wagon or horseback when the rivers were low, but everything stopped while logs floated downstream until they cleared the area. Among the most reliable crossings was the ferry run by John East at East Ferry Road and Drake Hill Road near Rohnerville, and that of George Singley at Singley's Crossing, in the vicinity of present day Fernbridge. The Eel River was too shallow for commercial shipping lines so ferries and rafts carried travelers and agricultural produce across the river and to the nearest shipping point at Hookton, below Table Bluff. Until the construction of permanent bridges, floods carrying large downed logs often washed out both ferries and temporary bridges. (Coy: 1929) (Genzoli: 1953) (Van Kirk: 1977)

By the winter of 1852, there had been only 23 settlers from Yager Creek to the mouth of the Eel River. In 1860 there were enough families in the region that the first Rohnerville School was constructed near the store. The Hydesville School District was established in 1859 and the first school building was constructed. It survives today, incorporated into the market and post office in Hydesville. The Eel River Races, the first in the county, were held at Dr. Theodore Dwight Felt's field in Hydesville in 1859, with five horses entered. At that time the total population of the Eel River Valley was 416. Local businesses included F.D. Ketchum's wagon and carriage shop, a livery stable, the Pine Hotel, and the Cooper Mills on Yager Creek. Wells Fargo and Co. and postal service were established in 1861, and residents then had their own newspaper, *The Home Journal*. (Department of Water Resources:1976) (McCormick: 1999) (Van Kirk: 1977)

Located at the junction of the wagon road from Eureka, with trails leading to the Bald Hills, Trinity and Mendocino Counties, Hydesville was the population center of the region by 1860. As the shipping center for agricultural products going to the Trinity mining district it handled a greater volume of goods than Rohnerville. It was the embarkation point for overland connections to San Francisco, and the point at which exports from the interior were packed into wagons for shipment out of Hookton. The Main Street was 102 feet wide to enable pack trains and horse stages to be turned, loaded and unloaded into wagons. According to accounts at the time, trade was so intensive from the Bald Hills area that as many as 100 pack mules arrived, were unloaded, repacked, and sent back out on any given day (Coy: 1929) (McHenry 1987).



In 1862, major land holdings in modern day Rohnerville belonged to six men: A.P. Campton, a farmer from Ohio; Joseph Feiganbaum, business partner of Henry Rohner; Jacob O. Showers, farmer from Ohio; Eureka merchant William McNamera, who later sold his holdings to Showers; Benjamin F. Jameson, a farmer from Kentucky; and Walter Van Dyke, a future state senator who sold his land to Irish immigrant James Degnan in 1863. The store was prosperous, and in 1862 Henry Rohner purchased land north of Rohnerville for a farm from Andrew and Jacob Starr after selling his share of the business.

Territorial Conflict. Despite the favorable opinion of individual settlers toward the local Indian population, the Europeans and Euro-American colonists who came into Humboldt County in this early period were not known for their tolerance toward cultures other than their own. Many of them also came from regions where Indians were feared and hated due to earlier conflicts. Soon after the first white settlements were established on Humboldt Bay, the Indian populations were decimated by Euro-American violence and by introduced diseases. Those who did not die from these causes were displaced from their villages and driven to distant reservations or marginal lands (City of Eureka: 1997) (Coy: 1929) (Department of Water Resources: 1976).

Rapid settlement within the entire region led to warfare with the local Indian populations that escalated around 1861. Primarily hunter-gatherers, native populations were pushed out of the tidelands, riversides and prairies where they had harvested their foods and materials, and soon their survival was compromised. Settlers grazed stock on the prairies, and also exploited local fish and wildlife for market, which increased the competition for natural resources. The network of trails, which had allowed the redistribution of raw materials and food supplies between Indian communities, were now controlled by merchants and miners. (Department of Water Resources:1976) Though settlers complained that large numbers of cattle were being killed, reports at that time indicate that these were sometimes exaggerated:

Their cattle and horse, which had grazed in the mountains and mountain gorges weeks and months unseen and unheard of, were collected and losses found much less—yea, very much less, perhaps two-thirds less—than reckoned or anticipated. Captain Charles Lovell, Fort Humboldt, March 23, 1861, War of the Rebellion (Department of Water Resources:1976).

There were reports of burning, looting, and killings during this period, so some settlers left their homesteads for the shelter of a nearby town. The Cooper Mill on Yager Creek was burned and looted and was soon abandoned. Fort Humboldt was a support post for troops engaged in other areas, and this period also saw the beginning of the Civil War, so military forces were already stretched. Volunteer militias from the community took the law into their own hands (Department of Water Resources, Northern District: 1976).

There was also an element in the local population that believed in a policy of extermination. On February 26, 1860, coordinated attacks were launched on Indian villages on the South Spit and on Indian Island, resulting in the deaths of over 100 people, mostly women and children. Military reports at the time indicated that the organizers and participants were from the Eel River and Van Duzen River areas. This event was denounced by some of the local press and in other parts of California, while others called for the military to round up the Indians in order to protect them from further violence. (Department of Water Resources:1976)

During the summer of 1862, Fort Humboldt reported that they had taken over 1,000 prisoners. Some individuals also came in on their own, hoping for protection from the military. Others feared the capture and enslavement of their women and children, a practice which was not uncommon during the Spanish and Mexican period and was facilitated by an 1860 California law which allowed for indenturing of Indian adults and children. (Coy: 1929) Within the Wiyot territory around Humboldt Bay, more recent population studies

calculate a total of 3,300 people prior to contact. An estimated population of 2,000 in the Van Duzen Basin and South Fork of the Eel dropped to 100 by 1910. By the winter of 1864-1865, the Indian population had been largely removed from most settlement areas (Van Kirk: 1977) (Coy: 1929).

Growth of Settlements and Characteristic Cultural Landscapes. Most settlements within the region were laid out on a rectangular grid pattern, with a central main street, and oriented to major roads or trails. Large lots were divided as the family grew, with newer homes or auxiliary structures added each time. For this reason, older family homes and commercial structures, a modest cottage and the home of a prosperous merchant, may be located on adjacent parcels within the same neighborhood. Apartments to accommodate the business owner's family, a meeting hall or rental rooms were often located above a storefront. Urban homesteads of the earlier era might include a pump house, barns and other outbuildings, orchards, gardens or a horse pasture on a large lot.

Communities grew by "Additions", as large tracts of land were incorporated within its boundaries. Adjoining tracts were laid out by developers even though street alignments might not exactly match. The grid of streets planned on paper had to adapt to the natural curve of hills, streams and marshes, and to contend with the numerous gulches and river crossings by wooden bridges and board walkways (Sanborn: Fortuna-1889, 1911; Hydesville-1931; Rohnerville-1889, 1931) (HB: 1913).

Despite some economic setbacks, the decade between 1860 and 1870 saw the development of major industries and growth of the communities of Springville, Rohnerville and Hydesville. The Indian Wars, along with a gold strike in Nevada, had led to a temporary decline in population during this period. A financial depression, resulting from the costs associated with the Civil War, had also affected communities far from the major conflicts (Coy: 1929) (Farrar: 1950) (Van Kirk: 1977).

The lumber industry was now expanding from the readily accessible timber lands near Humboldt Bay into the adjoining river valleys. Railroads would eventually transform the lumber industry by providing a means to reach inland forests and to ship logs into the Bay for processing without relying on the seasonal freshets and rains that scoured the stream beds. At this time, iron was expensive and machine parts not readily available, so that plank roads and rails were often used with oxen, horse, or mules instead of engines (Mengel: 1974). In 1873, a railroad track was constructed by M.C. Heney from Southport to Table Bluff, and from there to Wait's Slough to serve the Eel River Valley (WCS: 11 June 1973). This was the first commercial railroad in the County, but proved unsuccessful when high tides and heavy seas at this location tore out the planking and rails (HCHS: Southport Landing). Both William Carson and John Vance acquired timber lands in the Eel River watersheds. Vance was interested in extending his railroad into the Valley in order to reduce transportation costs. Other local landowners did not agree that this was necessary at that time-or that they should help finance it. In 1868, a bond issue to finance a railroad from Eureka to Singley's Ferry was defeated by a vote of 899 to 143. With this defeat, the Vance Lumber Company moved its operations to Freshwater Creek (Farrar: 1950).

The growing dairy industry was attracted to the Eel River bottom, with its abundant water supplies and pastures. Dykes were created to provide beds for the logging railroads that were laid across the marshes and wetlands, and to provide additional farmland without the labor required to clear forests. Eel River butter and cheese were sold in the mining districts, as well as being shipped to San Francisco. Swine could be fed on dairy byproducts, and provided another source of income (Farrar: 1950).

Upland prairies were soon devoted to stock raising. Though cattle had been brought in with the first settlers, sheep were introduced during the 1860s. Where there had been only 14 sheep in the county and no wool production in 1860, the U.S. Census reported 12,660 sheep in 1870, with 186,038 sheep and 647,492



pounds of wool in 1880. Salmon Brown, son of John Brown of Harper's Ferry notoriety, arrived in Rohnerville with his stepmother and half sisters and became a noted sheep rancher around 1870 (Van Kirk: 1977). While other types of produce were becoming important in farming areas around the Bay, fruit and berries had taken the lead in the Fortuna-Rohnerville area. All farms of substantial size had established orchards at least for domestic use, and an increasing number were planting apples and peaches since these could be canned, dried or sold as fresh fruit. Hydesville hosted the District agricultural fairs in 1861 and 1862, and in 1863 it was moved to Rohnerville where it remained until 1899.

With rising prosperity locally and relative economic stability in the region, community social events were becoming popular. The Eel River Jockey Club was established in 1866 on the north side of Campton's Lane on eight acres with a one-mile oval track. Local horse breeders welcomed the opportunity to show off their stock and several eventually went on to national distinction. Races were now regularly scheduled and attracted both spectators and participants from throughout Northern California. The first fair sponsored by the County Agricultural Society was held in 1867 in the new facilities, with grandstands, a reviewing stand, paddocks, a dance floor and an exhibit pavilion. In addition to produce exhibits, home arts and crafts were entered into the competition. The harness races were always the biggest feature of the fair, and the whole event opened with a parade down the main street in Rohnerville (Van Kirk: 1977).

Samuel Strong purchased a corner lot in Rohnerville in 1869 in order to construct a public hall, which served as a skating pavilion, meeting hall, hosted social dances, concerts, school programs and church meetings. Theodore Dwight Felt MD, moved to Rohnerville from Hydesville in 1879, purchasing a ranch with mineral springs where he constructs a resort. Felt Springs soon becomes a popular destination with a three story hotel and guest cabins. The mineral water is bottled and offered for sale. Like his contemporary Dr. Jonathan Clark, the Chief Surgeon at Fort Humboldt, Dr. Felt liked to raise and race horses in his free time and was a supporter of the Eel River Jockey Club.

Clubs and fraternal associations were established for both men and women. The Monday Club, a women's cultural association was organized in 1866 in Springville, and affiliated with the federation of women's clubs in 1908. They would later become important supporters of public works projects: Hydesville Lodge No. 250, IOOF, and Hydesville Encampment No. 59, IOOF, were both founded on Sept. 1, 1876.

In 1869, the Rohnerville Mill, owned by Martin and Look, supplied most of the lumber required for local construction and exported lumber to San Francisco via the shipping port at Hookton. Among the new buildings constructed in 1870 was the Second Congregational Church in Hydesville, which is still in use as a church.

St. Joseph's College, a Catholic boarding school in Rohnerville, was completed in the fall of 1871, at a cost of \$16,000. The school offered a classical, scientific or commercial track to young men and attracted students from throughout California. Founder, Father Patrick Henneberry, had established the school in an effort to raise money to support a local novitiate or seminary. Unsuccessful in his attempts to raise funds, the school closed in 1877, reopened briefly in 1894, and was eventually demolished in 1921 (Van Kirk: 1977). This site is near the present day Rohnerville Airport.

In 1873, the Rohnerville Elementary School District was formed from the Eel River School District. The first school in Rohnerville had been constructed in 1860, and had also served as a church. By 1870 Rohnerville was a thriving town of 250 residents, with three church buildings and three fraternal halls. The Martin and Kellogg Mill was the only industry in the town, with twenty three employees, milling lumber during the summer and grinding flour and feed during the winter. Although Henry Rohner had sold out his interest in

the store in 1861, local residents had continued to think of the store and post office as "Rohners". So when an official name for the town was selected in 1874, it was not surprising that residents selected "Rohnerville" (Farrar: 1950).

From "Springville" to Fortuna 1874-1906. The economy of the region was increasingly dominated by lumber interests, which had been spurred by the population and building boom in California during the Gold Rush era. New markets were being developed domestically and abroad. The tidewater mills, which had depended on a seasonal supply of logs floated downriver during high water, had been superseded by large mills which operated year round on a steady supply of logs from their own landholdings.

Between 1883 and 1899 there were several technological improvements in the lumber industry. The railroad opened up new markets and previously inaccessible timberland. Crosscut saws, donkey engines, and high-lead yarding increased log production. National, rather than state and local investors dominated the industry. Mechanization increasingly replaced ox and horse logging. Sawmills turned to steam, and soon after to electricity. Real estate investment and speculation produced a land boom in the 1890s. Towns were founded by lumber and rail interests, with temporary lumber settlements along railroad lines. Labor shortages drew immigrants from northern Europe, the Maritime Provinces, and workers from New England and the South to supplement American workers (Coy: 1929).

Land transportation had improved little since the earliest settlers had arrived, depending largely on the existing Indian trails. Roads were focused on pack train trails to the Northern Mines, and travel between the two largest towns of Eureka and Arcata was faster and more reliable by ship than by the poor road system. While railroads had been in use since 1853, they were designed and constructed by lumber companies to service logging operations and passengers were largely incidental. Residents had long sought an alternative on road north to Eureka which crossed over Humboldt Hill due to the extensive wetlands in the area, and was considered too steep. A new route, which skirted the Hill, was completed in 1873.

Hydesville was the third largest city in Humboldt County at that time. That year, Bullard and Williams had begun operating a stage line between Eureka and Hydesville three times a week, an 11 hour trip. The renamed Eureka and Hydesville stage line was taken over by Tom Sweasey in 1878. He had also purchased the Hydesville Hotel and operated it as the Pioneer Hotel. The stage made daily trips, with a fare of \$1.50 from Eureka to Rohnerville. (McHenry: 1987)

On October 12, 1874, the Springville Mill Company was founded by partners Henry Rohner, Henry Alex. Mason, M. Nicholas Weber, and George Francis Gushaw:

"The co-partnership shall be for the erection of a steam saw and grist mill upon the lands of either said Rohner or of said Gushaw in the Township aforesaid and at a place to be called Springville, and when erected, shall be for the manufacture of lumber and grinding of grain therein, and in such other business as such mills are usually employed, including therein the purchasing or other procurement of timber to be sawed and of grain to be ground to be used therein. (Genzoli: 1953)"

The Mill was located at the end of present day 2nd Street, and the company property included timber holdings, a mill site and water rights. Springville was envisioned as a company town, with the company providing the first water system from the springs nearby that provided the name of the town. This was a boom period in the lumber industry, with total production up by nearly 60 percent over the previous year. The Springville Mill produced 1,250,000 board feet in its first three months, while the Martin, Kellogg, and Company Mill in Rohnerville produced 926,000 board feet during the entire year of 1875 (Coy: 1929).



Since 1870, George Francis Gushaw had been acquiring property in and around the mill settlement, including two homesteads of 160 acres each. On May 5, 1875, Gushaw filed a plan for the town of Springville, with sixteen lots on two blocks adjacent to Main Street. The first residence was said to have been located at the corner of what is now First and Main streets (McCormick: 1999).

The following year, on May 24, 1876, a town post office was established with Captain S.G. Steele as postmaster and located at his hotel, at the corner of Main and First Streets. Since there was already a town of Springville in Ventura County, the State of California officially recorded the name as the Slide Post Office. Before the establishment of any settlement, the area was known for large slides on the hill at the north end of the present town. While they welcomed postal service, the residents of Springville were not happy that their mail had to be addressed to the town of "Slide" (Genzoli: 1953).

The town grew in 1876 with Wesley Underwood's first addition and Gushaw's addition to Springville, expanding the core of downtown Springfield. William MCKinney constructed a new hotel downtown, naming it the Star Hotel in honor of brothers Andrew and Richard Starr who were once owners of all of the land upon which the town was constructed.

In 1877, Rohner's added 24 lots and constructed the Methodist Church and parsonage. Samuel Strong, born in Ohio, came to Humboldt County in 1853 and farmed near Rohnerville, serving as vice president of the Humboldt County Agricultural Society in 1860. In 1877, Strong purchased a 426 acre farm adjacent to the overland stage route where he established the first fishing and hunting resort in the area at Strong's Station.

This was a period of major growth for the small community, with Fortuna benefitting both from its central location and from the success of agricultural production in the surrounding communities. At this time, Humboldt County produced nearly one third of the oats grown in the state, centered around the grain fields of Hydesville and Rohnerville. Rohnerville became more prominent as the site of the annual agricultural fair for the Ninth District Agricultural Association, composed of Del Norte, Humboldt and Mendocino counties, from 1863 to 1899. The town's first newspaper, the Rohnerville Herald, was founded in 1881.

The State Legislature had authorized a county bond for the construction of a road north from Round Valley Road in 1874, known as the Overland Route, which was finally completed by 1880. The Humboldt-Mendocino Stage Company established a line to carry mail and passengers from Hydesville to Ukiah, and Hydesville became a busy way station for changing horses and a stopover for passengers traveling north. The Company soon established a lstage line carrying mail and passengers to Cloverdale where it connected with the train to San Francisco, a trip of three and one half days. (McHenry: 1987) Most travelers to Humboldt County still avoided the overland route and came into the area by ocean steamer. They would disembark on the Eureka waterfront, and then travel by stage to outlying designations.

Among the arrivals in 1875 was the family of Franz Freidenbach, who had traveled by train to San Francisco. They had lost their luggage on the train and were befriended by a storekeeper in Springville who sent them north. Using the proceeds from the sale of their home in Missouri they constructed a new home in town in 1881, which stands today at 518 Main Street. Freidenbach was one of the founders of Fortuna Milling Company, and was on the board of the Fortuna Building & Loan and the Elementary School Board (Depot Museum: 1975) (McCormick: 1999).

That winter, the Eel River flooded several times and storms washed out all of the bridges between Hydesville and southeast to Blocksburg, except for those on the Van Duzen River and Mill Creek. Farms along the Eel River were damaged, while some farmlands were destroyed. Railroads were becoming increasingly important

as the timber line moved inland and mills found moving logs downstream economically unreliable. In 1882 the Eel River and Eureka Railroad was organized in order to bring logs into mills and shipping docks along Humboldt Bay. Using Chinese labor, the twenty five miles of track were laid and a 2000 foot tunnel was dug through Table Bluff. (Farrar: 1950) Although mule trains and wagons would continue to traverse inland routes, especially to the Northern Mines, rail lines increasingly carried passengers and agricultural products from communities around the Bay (Coy: 1929) (Eder: 1963).

In 1884, the Eel River and Eureka Railroad bypassed Rohnerville and located a depot in Springville, which terminated at the Burnell Station (Alton) about one mile from Hydesville. The 25 mile journey from Eureka now took less than three hours, making the long stage trip unnecessary for both local manufacturers and travelers. Prior to the completion of the Table Bluff Tunnel in 1884, southern Humboldt had no rail connection to the north end of the county. When the tunnel opened to rail traffic, other mills south of the tunnel built connecting rail lines since they were now assured of rail access to the shipping docks. Although a local stage was always available for the short ride into either town, a centrally located station in Fortuna provided one more incentive to the growth of the town.

By 1885, daily stage service was available between Ferndale and Rohnerville, with wharves at both Table Bluff and Hookton serving as local shipping outlets for farmers and dairymen as well as mill operators. The citizens of Rohnerville constructed a new Town Hall in 1885, raising funds by issuing 100 shares at \$10 each. This building stood until 1977 when it was destroyed in a wind storm (Van Kirk: 1977). South of Fortuna, at Alton, the Pacific Lumber Company railroad joined the Eel River and Eureka Railroad. This was now part of a regional networks of rail lines which traveled north through the Table Bluff tunnel to join the Milford Land and Lumber.

Company Line at Salmon Creek. The Newburg Lumber Company was organized in 1883 by brothers Euphronius and H.D. Cousins, Charles H. Heney of New Brunswick and E.J. Dodge of New Hampshire. The name comes from Newburg, New Hampshire, the former home of Dodge. Located northwest of the city in a basin surrounded by mountains, there are few settlers and the only other industry is the Springville Mill. The company builds boarding houses, and later worker cabins and family cottages to attract employees to the new company town. The Springville Mill was sold to Wyman Murphy of Santa Rosa, and then Swortzel and Williams of Fortuna and began operating as the Humboldt Milling Company.

Although a petition had been submitted to the state legislature in 1884, the name of Fortuna was not formally adopted by the local Post Office until June 17, 1888. Accounts differed on who coined the name Fortuna, a variation on the word "Fortune," and it has been attributed to both then recent arrival Jack Hosier, and to Reverend W.A. Gardner. (ERVA) Reverend W.A. Gardner had arrived in California in 1886 as State Evangelist for the Christian Church and in 1888 was the founder of the Christian Church in the town of Fortuna. He purchased a homestead of 160 acres from Gushaw on Christian Ridge overlooking the town, adding 52 lots in Gardner's addition to Springville on March 20, 1888. In 1884, Gushaw and Underwood each file Second Additions to the Town of Springville and, with the Western Addition in 1888, expanded the town's boundaries.

Between 1892 and 1904, six more tracts were added to Fortuna. As a writer for the Eel River Valley Advance pointed out:

"There seems to be a general lack of knowledge of names of streets, outside of the important business one-Main Street. The writer has found in several instances that east and west streets are often interrupted in their career as between Spring Street on the west and First street on the east. This, in a measure, has



been occasioned by the location of additions without regard to streets as originally established. (ERVA: 1896)"

Fortuna now reported a population of 700, with 100 more employed in the mill at Newburg. The town was now on its way to becoming a regional manufacturing center. On February 3, 1889, James W. Rowley and sons established a mill to manufacture shingles, and later turned to producing fruit and fish boxes. A new railroad depot was constructed in downtown Fortuna in 1891 and the first fruit cannery in the county was opened in 1892. The following year, the Slide School District was renamed the Fortuna School District. The Newburg Lumber Company was now known as the Eel River Valley Lumber Company and was one of the largest lumber manufacturers in Humboldt County (Eddy: 1893) (McCormick: 1999).

Orchard fruits were being planted throughout the County but marketing was limited by transportation and processing. Prunes, plums, peaches, and apples were growing near Rohnerville and along the Van Duzen River, with cherries around Hydesville, and berries near Rohnerville, along the Van Duzen and Yager Creek. Four of the first five nurseries in the county were in the Eel River Valley (Eddy:1893) while the Humboldt Nurseries, established by George E. Stewart on Strong's creek south of Fortuna, shipped his plants from the railroad station located south of his property (Farrar:1950). Local nurseries reported the highest demand for apple and prune trees. Fresh apples were shipped to San Francisco. Clendenens Cider Works is a unique remnant of this period, with its operating cider press, orchard and farm buildings a living heritage (Thompson: 1895).

Hopes were high when the Humboldt Improvement and Canning Company opened a cannery in 1892, and the Fortuna Fruit Evaporator opened in 1894. Both operations required a reliable supply of fruit and market demand, along with cheap labor; however, by 1896 neither plant was in operation. The fish cannery operation in Port Kenyon had suffered without the cheap labor of the Chinese, but local business men had remained optimistic even when they faced a shortage of willing workers (Farrar: 1950).

The Rohnerville School District constructed a new two story Rohnerville School in 1889 and a grammar school building was constructed by the Fortuna School District in 1891. Rohnerville now had a population of around 550 and was considered the center for hay and grain production east of the Eel River. Among other industries it has two shingle mills, a tannery, two nurseries near the railroad line, and the newly constructed Thompson Brick Yard. (Farrar: 1950) (Thompson: 1895).

More wetlands were being drained around Humboldt Bay in an effort to create more agricultural lands, and dykes were constructed upon which to establish railroad beds. The diking of North Bay was completed by 1884 and, as the forests nearest the Bay were cut and milled, the land was soon converted to agriculture. On the South Bay and Eel River, diking continued as the railroad lines expanded around the rim of Humboldt Bay (Eder: 1963). Drain tile, used by farmers for draining marshlands, was manufactured locally at the brick and tile yard in Rohnerville (Eddy: 1993) (Farrar: 1950).

Along the Eel River, the salmon fishing industry provided a steady income for a small number of ethnic communities and a few local Native American people. Of the 400 fishermen employed in 1893 throughout Humboldt County, 27 percent were Portuguese, about 24 percent were Italian immigrants, 13 percent were Swedish and less than 1 percent Native American. Fish were shipped out fresh in boxes dried, or smoked and salted, rather than canned. The export of 1600 boxes and barrels of fish over a six month period in 1982 is still no match for the more than 11,000 boxes of apples, 409,000 pounds of butter or 191,000 pounds of wool shipped out that same year (Eddy: 1993).

In 1891, a disastrous fire in Rohnerville destroyed eight buildings, among them the offices of the Rohnerville Herald newspaper. When a fire in 1902 destroyed thousands of dollars of property in downtown Fortuna, including the Cousins Building and the Swett Building, public concern prompted the creation of a volunteer fire department. The town provided some funds, and the fire department raised money at annual dances for equipment and improvements (HB: 1913) (McCormick: 1999).

One of the advantages of the town site was the abundance of water from local springs. The Fortuna Water Company was organized in 1903, with one of its chief aims to provide a reliable water supply for firefighters. The first water system had been established by Henry Rohner in 1887, with two reservoirs constructed on the hillside behind his home capturing a water supply from three nearby springs.

The second water system was established by Rev. W.A. Gardner in 1888, with water supplied from springs in the Gushaw addition. The Humboldt Times reported in 1905 that the new water system "marks an epoch in the growth of the sunny little spot in the Eel River Valley." The article pointed to the construction of forty new structures and improvements in the town, including a number of homes, warehouses and commercial buildings (Genzoli: 1966).

In 1904, the Fortuna Volunteer Fire Department was organized, with equipment funded by the City and by funds raised at the first Fireman's Ball. E.C. Clendenen begins soliciting pledges from nearby communities to secure a large fire engine that could benefit other towns nearby. The Department was housed in a two-story building, with some used equipment and a new engine that had been purchased in San Francisco. A second company was formed in 1911, which necessitated enlarging their original building. (HB:1913) (McCormick: 1999) Fire hydrants had been installed on some streets and the fire chief reported that wiring outside of the business establishments was exposed and could be dangerous. The Fire Department adopted creative methods to raise funds, including a monthly picture show. When the Rohner Park Pavilion was gutted by fire during the 1920s, the Volunteer Fire Department established a committee to raise funds. They had already provided a ball park, and installed a floor in the old pavilion at their own expense and would remain active supporters of civic improvements at the Park (McCormick: 1999).

As was common in this region, the County Road (Rohnerville Road) was lined with a boardwalk that extended from Fortuna to Rohnerville. The boardwalk was approximately three feet wide from Rohnerville to Jameson Creek, and six feet wide from the creek into Fortuna. Very few streets were paved at that time in any community, and concrete sidewalks were unusual even in larger cities like Eureka. (Huffman: 1970) While residents might have complained about loose boards or splinters, board walkways and board roads were still an improvement over the earlier roads of split logs.

Fortuna was still an unincorporated community in 1906. Although the decision had been placed before the voters several times the measure had not gained the required majority. The measure finally passed on February 16, 1906, and incorporation was recorded by the legislature on February 20, 1906, with the boundaries of the Fortuna Volunteer Fire District accepted as the boundaries of the new city.

The election had also established a temporary board of trustees to serve, organize, and conduct business and committees were soon established and chaired by the trustees. The job of developing formal codes, ordinances and regulations was assigned to the permanent board or city council. Among those selected as trustees were: R.R.Smith, E.P. Newell, E.W. Haight, Dr. J.A. Lane, C.A. Friedenbach. Emma Lane was elected treasurer, Judge William Doherty, City Clerk; Ray Davidson, Marshal, and H.P. Davis night watchman (HB:1913).



1906-1945 Creating the “Garden City of the Redwood Empire”. Transportation within the region and connections to markets elsewhere had become a concern to businesses and local residents. From the earliest settlements, residents had relied on oceangoing steamers to connect them to San Francisco, since the overland stage available only during the dry summer months. The dominant lumber industry maintained their own fleet of ships, and in 1893 35 percent of this shipping fleet was constructed in Humboldt County and carried about 35 percent of the outgoing tonnage. The shipping industry was now engaged in an international trade, with major trade at that time reported with Australia, Hawaii, Chile, Mexico, and New South Wales. (Eddy: 1893)

The Eel River Valley Lumber Company, like the other major companies in the region had established an office in San Francisco which traded across the country and in international markets. When Company president E.J. Dodge died in 1911, Mrs. Dodge became president of the Company. In 1914, the company name was changed to the E.J. Dodge Lumber Company as the Dodge family gained controlling interest. (McCormick: 1999)

Several events occurred at that time would have a long term impact on the lumber industry. The completion of the Fern Bridge, over the Eel River, in 1911 was a major accomplishment for the County and for the first time created a permanent link between communities on both sides of the Eel River. Residents had been petitioning the County Board of Supervisors for a permanent bridge for more than 10 years, with the most frequently mentioned site at Fern Bridge, also known as Singley’s, Grieg’s or Weott. In 1908, Fortuna businessmen had contributed to a temporary free bridge at the McDonald Crossing in order to bring residents of the Eel River Bottom into Fortuna to do their shopping. (HB:1913) The following year, residents saw fences swept away and acres of fields covered with silt or eroded in a massive flood with recovery slowed by limited access.

With County approval, formal planning had begun in 1909. John. B. Leonard, engineer of both Fern bridge and two others constructed on Highway 36, had recommended the use of reinforced concrete. An innovative plan drawn up by county surveyor George W. Connors, incorporated multiple arches. An estimated 1,500 people attended the dedication and official parade across the bridge. At that time it was the world’s longest concrete arch bridge and is today one of only two still in use in the world. (McCormick: 1999) The Fernbridge was listed as National Register of Historic Places in 1987.

On October 14, 1914 a golden spike was driven at Cain rock to mark the completion of the Northwestern Pacific Railroad and a direct connection to the rest of California and all points east. The opening of the Panama Canal facilitated international trade, and the advent of World War I increased demand for both raw materials and ships. Humboldt Bay had two well established shipyards, so crews worked overtime to supply mills and manufacturers. At the end of the War, in 1918, lumber was still in great demand to rebuild war torn homes and industries.

While a network of roads and paved highways was being extended throughout California, in Humboldt County most of the local roads outside of major cities at this time were still composed of dirt or gravel. Dirt roads were oiled during the dry season to reduce dust and gravel roads were resurfaced periodically making road repairs a year round task. Many early roads in outlying areas had been constructed and maintained by Chinese workers, hired by property owner. After they were expelled around 1885, residents often complained about the lack of maintenance. (Coy: 1929) (Eddy: 1893)

The section of Highway 101 through Fortuna had been completed in 1921. Burlap bags of cement had arrived by train and wagons of local gravel were used to pave the road. At that time, Main Street was the

State Highway so these transportation improvements facilitated a prominent role for the City of Fortuna in the development of the region. In 1926, the *Redwood Highway* linking Humboldt County through Interstate 101 was finally completed and the relative isolation of this region was ended. (McCormick: 1999) (Genzoli: 1953) (Eder: 1963)

The 1911 Sanborn maps list several prominent businesses including the Eel River Valley Lumber Mill at Newburg, Humboldt Milling Company, the Newell and McIntyre Shingle Mill, Williams Shingle Mill, the Lane House and the Star Hotel, Fortuna Merchandising Company warehouse, Fortuna Bottling Works, and the Fortuna Steam Laundry. (Sanborn: Fortuna 1911). Fortuna Bottling Works and the Fortuna Steam Laundry were new types of businesses for the region. J.W. Monroe had been the distributor of Dr. Felt's Mineral Water and had begun manufacturing a variety of products from the "Apple District," such as vinegars, ciders, jelly and carbonated beverages for domestic use and for export. The Fortuna Steam Laundry was founded by L.H. Campbell, who had run similar businesses in his home state of Maine, and offered pick up and delivery service in their own wagons from Ferndale to Alton and also serviced the railroad lines in the South Bay (Thompson: 1895).

The Eel River Nursery, was established in 1910 and located on the County Road (Rohnerville Road) on a ten acre tract. A. Johanson, advertised that he offered two hundred varieties of roses and twenty of lilacs, with 30,000 fruit trees ready for market. Johanson was originally from England, and had been a foreman in the Landscape Department of the St. Louis Exposition of 1903 (HB:1913).

Merchants in Eureka refused to pay a rate which made local fruit production economically viable, so growers relied on the domestic export market. The fruit industry was heavily dependent on transportation, and the costs of shipping fruit by steamship was rising. Another problem was the cost of heavy duty fruit boxes needed for shipment. In 1903, local growers met at the Maccabees Hall in Fortuna to discuss forming a grower's association but decided instead to form a union that would be open to anyone. (Farrar: 1950)) In 1912, a growers association was finally formed and that year local apples were exhibited at the California Apple Show in Watsonville. They were awarded several large silver trophies, nine gold medals and thirteen blue ribbons with some of the finest apples advertised as grown in the Rohnerville District (HB:1913).

The Humboldt Beacon special edition in 1913 noted that 74 homes in Fortuna had been erected through the financial aid furnished by the Fortuna Building and Loan Association. The Building and Loan had been incorporated in 1889, while the Bank of Fortuna was established in 1905. The architectural firm of Ackerman and Reese advertised their services in the Beacon, and several of the homes that they had designed and constructed were featured in the publication.

One of the difficulties encountered by residents was the proliferation of street names as new tracts were developed in the town. This meant that the same street might have a different name one block away. That same issue of the Beacon announced that renaming of the streets had been undertaken by the Fortuna Women's Civic Club, which had purchased metal signs that were hung on the buildings at various intersections along Main Street. All streets running north and south were given numerical names and streets running east and west were given alphabetical names. The starting point was the railroad depot, the designated location now identified as the intersection of "A" and First Streets.

The Fortuna Women's Civic Club was organized in 1911 to promote civic improvement in Fortuna. Among their first projects was the placement of hitching posts at the railroad depot, the planting of trees in the free market place, and the promotion of community clean up days. Their support for a modern sewer system included paying for a preliminary survey, the final survey, and hosting a public meeting. They circulated petitions to bring the issue to a vote and then helped voters to the polls (HB:1913).



Bars and gambling houses had been a typical part of early settlements when other options were unavailable. As communities grew fraternal associations became very important, providing social outlets and a sense of community to people far from familiar surroundings and promoting civic projects including the establishment and maintenance of local cemeteries, which was an important responsibility in the absence of church yards or municipal facilities. The Onward Lodge Oddfellows of Springville acquired land near Newburg for a cemetery sometime during the 1870s, establishing sections for members of local lodges with plots offered for sale to the public. Formerly, all burials had been in Rohnerville cemeteries, known today as the Sunrise Cemetery. It had also served the company town of Newburg and today is the only local cemetery with a complete record of burials. The Oddfellows lodges of both Hydesville and Rohnerville had also established cemeteries in their communities. Many of these early fraternal halls continue to exist today, though now converted to other uses. Fortuna Camp No. 450 Woodmen of the World was promoted as fraternal organization for the working man, or the man with a limited income. Like a mutual aid society it provided a life insurance policy at a low rate, and in 1913 offered a weekly stipend for sick or disabled workers. Local lodges and fraternal organizations often held patriotic events, encampments and picnics in nearby woods (ERVA: 1896) (HB:1913).

Sporting events at the time included football and baseball. By 1903 the Humboldt Times reported that "baseball is the proper thing for women," reporting that Fortuna women and girls had been playing baseball in the evenings and that mixed groups of 10 to 50 men and women played organized games during the day. Baseball was very popular throughout the county, with a county league and an industrial league for workers on company teams. (Farrar: 1950) A few parks and resorts were established on private property that attracted visitors from nearby towns who arrived by rail or stage. Campton Park had been developed by John Vance, on land leased from the Campton Ranch in an effort to promote excursions on his rail line. It was located on a bluff above the Rohnerville Station, near present day Newburg Park and included a playground and picnic area, ball field and dance floor (Farrar: 1950).

Carson Woods, owned by the Carson Lumber company was a dense redwood forest of 2,200 acres located north of Rohner Park. The Fortuna Board of Trade, predecessor to the Chamber of Commerce, and the Federated Women's Clubs of Humboldt County both had advocated the preservation of these woods around 1916. The donation of nearly 300 acres of virgin redwoods at Dyerville Flat for a state park in 1925 had relieved the company of any further public pressure toward preservation (McCormick: 1999).

The earliest parks in Fortuna were simply picnic grounds without any facilities, including Rohner's Gulch and "Picnic Gulch" along present day Home Avenue. In 1893, the Fortuna Park Association was organized and funds were raised to lease a 12 acre section south of the railroad depot from Henry Rohner. It was flooded many times and was abandoned when the five year lease ran out due to severe erosion that washed away most of the park. (Farrar: 1950) In 1907, Henry Rohner's widow, Mary Rohner, sold 20 acres adjacent to the family farm to the City for the new Rohner Park. This wooded area had formerly been known as Forest Park. In 1921, the family sold an additional 19.5 acres to the City and in 1938, daughter Elizabeth Rohner Barcus donated 13.25 acres with the stipulation that the park name was not to change. A two acre tract along Rohner Creek was deeded to the city in 1940 for a community forest (McCormick: 1999).

The first pavilion in Rohner Park was destroyed by a fire around 1920, a setback for the many fraternal, labor and community organizations that had held events there. The Fortuna Fire Department, which held annual dances in the Park, soon formed a committee to build a new pavilion. Plans were soon made for a larger building that could accommodate a thousand guests. Businessmen joined with the fire department and other local residents signed notes to provide funds, however, the construction was set back by the Great

Depression, as companies that may have contributed supplies were closed and many residents were out of work.

The Park continued to have a Boy Scout Cabin, and a baseball diamond that had been constructed around 1921. When the Redwood Highway was completed in 1926, an auto camp was constructed in the Park by the Volunteer Fire Department. Auto courts were still uncommon along the new highway and eight cabins provided shelter and running water to accommodate the new automobile tourists.

With assistance from Works Progress Administration (WPA), the Pavilion was finally completed in 1934 and the firemen held a gala dance in the new facility. In 1938, a federal grant to rehabilitate the rodeo grounds was matched by City and County funds, and by WPA labor. Improvements to the park grounds included a new softball diamond, bleachers and grandstand, and childrens playground. The Fire Department contributed a new barbecue area, outdoor fireplace, and playground in 1940 in an area known as Campfire Hill. A cross was constructed in 1941 for Easter services, and later moved to private property. In 1941, voters also approved a special tax to support improvements to Rohner Park for landscaping and playgrounds (McCormick: 1999).

The country was beginning to emerge from the Great Depression by 1939 and the city began to describe itself as a trading and recreation center. Fortunans pointed with pride to a number of improvements in the "Garden Spot of the Redwood Empire." The Fortuna Theater had been constructed around 1938, and boasted a seating capacity of 900. The water system had been purchased by the city in 1938, and within a year had made major improvements including a new reservoir, pumps, hydrants, and meters. Several new buildings were completed that winter at Fortuna High School, including a new cafeteria, music classrooms, a farm mechanics shop and bus garage with space for industrial arts classes. The elementary school was housed in two buildings, with upper grades in the building constructed in 1896 and lower grades in a new school that had been completed in 1930. One of the important annual events at the school was the annual wildflower show held in conjunction with public school week (Humboldt Times: 1939).

For the lumber industry, the last decade of this period was marked by both the effects of technological innovation and of heavy timber depletion in preceding era. The scale of logging operations diminished as trucks and crawler tractors came into widespread use, although an upswing occurred during World War II. As operations shifted from older areas of once heavily forested land, insolvency as a result of the Depression and depleted timber brought a period of conspicuous economic failures throughout Northern California (Wettenburger: 1924).

When the Great Depression began, many local logging companies were forced to reduce hours or to close temporarily. Logging for the E.J. Dodge Company stopped in 1930 and the company closed permanently in 1931. In 1943, the mill was finally dismantled and the railroad lines removed.

Not all misfortune could be attributed to the Great Depression. On July 4, 1940, a fire started in the old Rohner Grange Hall. Before crews were able to extinguish the blaze it had destroyed the Hall and the Hotel and damaged the butcher shop and several other buildings on the main street. The only insured building was the Grange Hall, and losses were estimated in excess of \$6,000. (Nash: 1992) A new Hall was later constructed in the same location.

As virgin private timber disappeared, the National Forests (earlier called Forest Reserves) were opened to commercial logging under the regulation of the U.S. Forest Service. Some private lumber companies openly endorsed "conservation," establishing tree farms and adopting sustained yield management for the little remaining private old growth timber. Other companies began to look ahead, developing new products and



finding opportunities in the emerging wood products industry (Mengel: 1974). The Fortuna Ranger Unit, now called the California Department of Forestry and Fire Protection, established an office in Fortuna in 1942. These structures were listed on the California Register of Historic Resources in 1996.

A Growing Regional Commercial Center 1946-1965

In 1940, Fortuna had reached a population of 1,413 and grew slowly for the next decade. Lumber workers were considered essential to the war effort and, while mill workers were discouraged from relocating, many young people enlisted while others went to work in the defense industries located in larger urban areas. After World War II, the region shared in the economic recovery that affected the entire nation. Between 1950 and 1962, Fortuna experienced a period of major growth and the population more than doubled, from 1,762 to 4,000 residents for a growth rate of 227%. This was larger than that experienced by Humboldt County as a whole, which grew by 150% during that same time. Major projects included Campton Heights, developed by the Wood family from the old Campton Ranch, Arnold Manor, and the Southern Addition in 1946.

During this period lumber was no longer the only product of the forest. While the decline in the amount of old growth redwood timber played a role in the declining importance of lumber, there were other factors including the rapid growth of lumber substitutes, such as steel, aluminum and plastics, and a decrease in the demand for lumber in construction.

Wood products such as artificial boards, and bonded peeled and chipped wood, now competed with lumber. Large diameter logs, once fuel for the headsaw, were higher in value when peeled for plywood. Decreasing the amount of waste in the field and in the mill was cost effective. Pulp and paper industries could use a greater share of by-passed and second growth forest species.

In 1963, the five largest manufacturing firms in Fortuna were the Fairhurst Lumber Company, Fortuna Veneer Company, Fortuna Wood Products, Crown Redwood Company and Vaughan Lumber Company. These companies produced a number of wood products, from lumber to veneers. With nearly 600 workers, they were the largest employment sector in the local economy. The next largest sector was Trade, with 81 employees, Redwood Memorial Hospital contributed 40 employees, and Government Services contributed another 27 employees in the California Division of Forestry regional office. (Humboldt County Board of Trade: 1963)

The Fortuna Rodeo had been suspended during World War II and was welcomed by the community when it resumed in 1946. Rohner Park had continued to be a popular venue for family and community events and the next two decades saw several improvements. The Little League Field was constructed in 1962 and a lath house in 1967. In 1975, the Fortuna Centennial Committee received funding to move the Fortuna Depot into the Park to serve as the municipal museum. The Depot Museum was expanded when a replica of the original freight building was added. In 1981 a community center was added to Rohner Park, and new recreational facilities were added to the newly developing areas of the City, including Newburg Park.

One of the most popular traditions in the City continues to be the annual Fortuna Rodeo, which began as the Humboldt County Stockmen and Merchants Association picnic in Rohner Park. In 1921 the event had grown to the point that the group joined the Rodeo Association of America, and the rodeo grounds became an established part of the Park. Over the years, the Rodeo Association has contributed to improvements to the rodeo grounds as well as the other facilities in the Park. The event attracted more than 6,000 people for an array of special events in 1921, with the theme of "Roaring Camp Days," and Fortuna became a typical frontier town for a week. In 1953, the rodeo and parade were part of the Diamond Jubilee celebration of the

first settlers. An estimated 10,000 people lined the streets for the parade and more than 1,000 participated in the bands, floats, vehicles, and marchers in western garb.

In 1957, the sisters of St. Joseph of Orange opened the first community hospital in Fortuna, Redwood Memorial Hospital. Prior to this time Dr. H.W. Comfort had operated a nursing home, primarily for maternity patients. Those with more serious injuries were removed to the hospital facilities in Scotia. The annexation of Rohnerville formally united two communities who had long shared a common history.

Architectural Styles and Representative Types

Settlement-Period to City Incorporation. Vernacular architecture of this period may be expressed in classic front-gables, hall-and parlors, "I" houses, and pyramidal one- and two-story houses. Late nineteenth century Victorian era residences include small cottages as well as architect-designed custom homes. The presence of an architectural and construction firm in the area contributed to the number of fine homes to be found in the city (HB:1913).

Early Modern Architecture. These homes include stucco cottages, Craftsman bungalows, Mediterranean types, and revival styles. Despite the region's renown for Victorian architecture, local Craftsman-period homes were outstanding. The style was considered particularly suited to the region and provided an opportunity for local builders and lumber companies to showcase the region's timber resources.

Post War Modern. Post-war housing, constructed in the late 1940s and throughout the 1950's, occurred as both infill and in tracts. Infill can be found as single houses on a street of older houses, but is also found as rows along one side of a block or both sides. *Post-War Tracts* have retained their architectural integrity within a unified setting, while they may cover one to several blocks; they are characterized by groupings of buildings of similar style and age, and the absence of other architectural styles. An occasional older house may be present in the tract, perhaps from the original earlier farmstead that occupied the land. These may have associated service areas or businesses, small shopping centers, schools, parks and playgrounds.

Commercial & Industrial. Warehouses and industrial structures and transportation and utility systems, are often overlooked for their historic\architectural values. These can include small shops and local industries, the local waterworks, historic transportation corridors, as well as industrial complexes that may have been major employers within the region. Small commercial structures are often found located in neighborhood settings where they developed earlier to provide local services.

Downtown Commercial centers are often a virtual catalogue of local development with new facades on old storefronts, major infill, streetscapes with period signage or monuments, adaptive use and development projects from the earliest period to the present. Together, these buildings, structures, and objects represent the social and economic history of the community.

Agricultural Landscapes. While major agricultural complexes may have been converted to other purposes, agricultural streetscapes and landscapes provide a pleasing visible transition between sections of town. This includes smaller communities that have been annexed into the City as well as areas within the City that have remained in agricultural zoning. Old neighborhoods in formerly rural areas may retain remnants of their agricultural roots in outbuildings, barns and water towers, orchards, vineyards. Sometimes these are large features, such as fields and pastures, forested slopes and hillsides, marshes or waterways that enhance the setting and help to establish the character of distinct neighborhoods.

Service, Social & Recreational Facilities. Scattered structures that serve social needs, though sometimes no longer in use for their original purpose, may have architectural and\or historic value. These would include



schools, churches, fraternal and social halls, firehouses, and services such as neighborhood markets. These structures contribute to the historic context and social cohesion of their neighborhoods.

Table 6-9 starting on the following page, lists potential historical resources (45 years or older) in the project area. The potential historic resources are organized by similar use, such as schools, churches, and residences. The name, location, and any supplementary notes are provided for each potential historic resource.

**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
Cemeteries				
Sunrise Cemetery	Newburg Rd.	Fortuna	Newburg Cemetery; deeded to Onward Lodge Number 380 IOOF, by F.J. Nowlin in the 1870s, recorded April 2, 1895, complete record of burials, cemetery railroad/cable car.	Newburg
Old Rohnerville Cemetery		Fortuna		Rohnerville
Rohnerville Catholic Cemetery	Rohnerville Rd.	Fortuna		Rohnerville
Masons and IOOF Cemetery	Rohnerville Rd.	Fortuna		Rohnerville
International Order of Odd Fellows Cemetery	A St.	Hydesville		Hydesville
Town Cemetery		Hydesville		Hydesville
Business Districts/Businesses				
Main Street				
Fortuna Theater				
Bowman's Drugs				
Fraternal Halls				
Masonic Hall	Main at 10 th			
Monday Club	7 th and Main			
Odd Fellows Lodge	1502 Rohnerville Rd.			
Rohner Grange	Rohnerville Rd.			



**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
Veterans Building	Main Street		1930	County owned
Churches				
Campton Heights Baptist Church	1655 Cecil Ave.	Fortuna		
First Baptist Church of Fortuna	1976 Scenic Dr.	Fortuna	Eastlake	
St. Joseph Church of Fortuna	14 th and N Streets	Fortuna		Also Convent and Rectory at same location
St. Francis Episcopal Church	16 th and L Streets	Fortuna		
Hydesville Community Church	3296 State Highway 36	Hydesville		
Wood Street Chapel-Foursquare Church	1649 Wood	Fortuna		
Christ Lutheran Church-ELCA	2132 Smith Lane	Fortuna		
Fortuna Missionary Baptist Church	1253 L St.	Fortuna		
Fortuna Seventh Day Adventist Church	2301 Rohnerville Rd.	Fortuna		
Fortuna United Methodist Church	922 N St.	Fortuna		1898

**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
Calvary Chapel of Fortuna	9 th & O Street	Fortuna	Gothic	
Schools				
Fortuna High School			Damon Gym, Art Bldg., Theater Building. Maintenance Bldg.,	
Toddy Thomas Elementary School	Thomas Street			First Building 1949, second wing 1953, third wing 1955
Town School	8 th Street			Prior to 1937
Adventist Junior Academy	Ross Hill Rd.			
Roads, Trails, Highways				
Highway 36				Graveled Road until 1950s
Rohnerville Road				
Parks				
Main Street				County Road, then Highway 101 until 1950s
Rohner Park				First site, near RR depot, flooded several times before 1900; park at present site in 1907. First pavilion late 1800s, 1920s razed by fire, Second pavilion not built right away due to Depression; Boy Scout troop in 1911, first in County, cabin in park; Baseball diamond 1921; auto camp before the Depression, eight cabins; Auditorium completed in 1934-WPA; Rodeo grounds repaired, new softball diamond, WPA bleachers, grandstand, playground 1938-WPA; Firemen built firepit, fireplace, barbecue 1949; 1942 playground moved downhill; 1941 cross built on hill; little league field 1962, lath house 1967; Depot moved in 1975-dedicated 1976; Community center finished 1981; brick fireplace 1986, addition; 1988 Rodeo Assn and city construct new playground after storm destruction; 1990 reconstruction of pavilion.



**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
Agricultural Landscapes				
Clendenin Apple Orchards	96 12 th Street	Fortuna		
Industrial Landscapes				
Rohnerville Airport				Associated with John Joseph Montgomery, circa 1893. County owned, purchased circa 1937.
Residential				
	510 15 th Street	Fortuna		ND Queen Anne
	814 O Street	Fortuna		ND Stick
	884 8 th Street	Fortuna		ND Queen Anne
	812 O Street	Fortuna		ND Stick
	945 6 th Street	Fortuna		ND Queen Anne
	968 9 th Street	Fortuna		ND Queen Anne
	856 8 TH Street	Fortuna		ND Queen Anne
	136 Main Street	Fortuna		ND Italianate
	822 O Street	Fortuna		1880 Stick
	1350 L Street	Fortuna		ND Hipped Cottage
	557 13 th Street	Fortuna		ND 2 ½ Story Gambrel Cottage
	1357 Main Street	Fortuna		ND Greek Revival
	1449 Main Street	Fortuna		1905 Greek Revival
	2020 Main Street	Fortuna		1914
	2054 Main	Fortuna		1906

**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
	Street			
	524 Main Street	Fortuna		Circa 1890
	1058 Main Street	Fortuna	Formerly Star Hotel	1877
McIntyre-Jewell House	O Street	Fortuna		1902 Colonial Revival
	806 13 th Street	Fortuna	Constructed by E.W. Haight	Circa 1905
	1523 Main Street	Fortuna		1919 Craftsman
	2443 Rohnerville Road	Rohnerville		1911
Jasper House	105 Main Street	Rohnerville		1930 English Bungalow
George Allen House	3292 Trinity Avenue	Rohnerville	Rohnerville Historic District	Circa 1877 Upright and cottage
Parsons-Nesbit house	1311 Brown Street	Rohnerville	Rohnerville Historic District	Circa 1875 Upright and Wing
Matthew Perrott House	2000 S. Main Street	Rohnerville	Rohnerville Historic District	Circa 1865 Gable and Wing
Reynolds House	1584 Webber Street	Rohnerville	Rohnerville Historic District	Circa 1879 Gable and Wing
Coates House	1395 Brown Street	Rohnerville	Rohnerville Historic District	1875 1 story Gable and Wing
Wheat House	Main Street	Rohnerville	Rohnerville Historic District	Circa 1875 1 story Gable and Wing
Johnson-Fielder	1360 Webber	Rohnerville	Rohnerville Historic District	Circa 1876 1 story Gable and Wing



**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
House	Street			
George Stone House	1308 Brown Street	Rohnerville	Rohnerville Historic District	Circa 1876 1 story Gable and Wing
French House	1657 Main Street	Rohnerville	Rohnerville Historic District	Circa 1888 1 story Gable and Wing
Whitmore-Oliver House	School Street	Rohnerville	Rohnerville Historic District	Circa 1866 Cape Cod
Whitmore-Perrott House	3520 School Street	Rohnerville	Rohnerville Historic District	Circa 1873 Cape Cod
Reynolds-Ackerson House	3252 Trinity Avenue	Rohnerville	Rohnerville Historic District	Circa 1874 Cape Cod
Simonds-Callihan-Wendt House	Trinity Avenue	Rohnerville	Rohnerville Historic District	Circa 1872 Front Facing Gable
William Campton House	3181 West College Avenue	Rohnerville	Rohnerville Historic District	Circa 1875 Front Facing Gable
Elizabeth Wright House	1398 Main Street	Rohnerville	Rohnerville Historic District	Circa 1896 1-story Hip Roof Box
	3510 Trinity Avenue	Rohnerville	Rohnerville Historic District	Circa 1903 1-story Hip Roof Box
	3542 Trinity Avenue	Rohnerville	Rohnerville Historic District	Circa 1903 1-story Hip Roof Box
McNeill House	1413 Main Street	Rohnerville	Rohnerville Historic District	Circa 1915 1-story Hip Roof Box
Bernard Degnan House	1730 Rohnerville Road	Rohnerville	Rohnerville Historic District	Circa 1910 1 ½ story Gabled Cottage
Rooney House	3427 Drake	Rohnerville	Rohnerville Historic District	1897 2 story Hipped Cottage

**TABLE 6-9
POTENTIAL HISTORICAL RESOURCES IN PROJECT AREA-45 YEARS OR OLDER
City of Fortuna**

Name	Address	City	Note	Association
	Hill Road			
Lewis Nason House	3607 School Street	Rohnerville	Rohnerville Historic District	Circa 1910 Bungalow
Gundlach-Etheridge House	3354 Church Street	Rohnerville	Rohnerville Historic District	Circa 1910 1 ½ story Gabled Cottage
George Patmore House	3619 School Street	Rohnerville	Rohnerville Historic District	Prior to 1889 1-story Gabled Cottage
Gibson Blaney House	3310 School Street	Rohnerville	Rohnerville Historic District	Circa 1875 1-story Intersecting Gables
Stone-Lehman House	1376 Brown Street	Rohnerville	Rohnerville Historic District	Circa 1875 1 ½ story Intersecting Gable (T)



Findings

[Findings to be added]

6.8 Scenic Resources

Introduction

This section describes the scenic resources within the Planning Area including natural and urban visual landmarks, vistas, and corridors. Field surveys and applicable plans and reports related to scenic resources have been used to identify these scenic resources.

Key Terms

Recreational River. Recreational rivers refer to those rivers or sections of rivers that are readily accessible by road or railroad that may have some development along their shorelines, and that may have undergone some impoundments or diversion in the past.

Scenic Resources. Scenic resources include land areas, landforms, or elements of the natural or manmade landscape that are of visual or scenic significance and importance.

Scenic Road or Highway. A scenic road or highway is defined as a roadway that in addition to its transportation function, provide opportunities for the enjoyment of natural and scenic resources (p.8-2, Hum. Co. GP Update Natural Resources and Hazards).

Regulatory Setting

Federal
Wild and Scenic Rivers Act. Portions of the 494 mile long Eel River were designated in 1981 under the Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) as "wild", "scenic", and "recreational" river areas. The Federal Wild and Scenic Rivers Act provides for federal protection of designated rivers and their river environs for present and future public use. The upper and middle reaches of the Eel River are designated as Wild River Areas and Scenic River Areas. The reach of the Eel River that is designated as a Recreational River Area extends from the Van Duzen River from Dinsmore Bridge to the Eel River confluence, and includes the portion of the Eel River that runs through and forms the western boundary of the Fortuna Planning Area.

State

California Wild and Scenic Rivers System. The Eel River is also part of the California Wild and Scenic Rivers System. Public Resources Code Section 5093.50 et seq. includes the Eel River as a designated river. Management of the Eel River is listed as Six Rivers and Mendocino National Forests, Bureau of Land Management (BLM), Hoopa Valley Indian Reservation, and the California Resources Agency. The section of Eel River that runs through the Planning Area is managed by the California Resources Agency.

California Scenic Highway Program. The California Scenic Highway Program was established in 1963 in the State legislature, through Senate Bill 1467, to which Section 260 et seq. to the Streets and Highway Code was added. Section 260 of the California Streets And Highways Code aims to:

"...establish the State's responsibility for the protection and enhancement of California's natural scenic beauty by identifying those portions of the state highway system which, together with the adjacent scenic corridors, require special scenic conservation treatment."

The California Streets and Highways Code (referred hereto as the Highways Code) sets out qualifications for Scenic Highway designation. This includes a program to protect the scenic corridor and compliance with minimum standards, specified under Section 261 of the Highways Code, for scenic highway corridor protection. Highway Code Sections 263.1 to 263.8 lists highways that are either eligible for designation as state scenic highways or have been officially designated.

Highway 101 and Highway 36 are locally designated scenic highways (Humboldt County). They received this designation as the highways offer direct views to areas of natural beauty, scenic resources, landmarks, or areas of historic or cultural interest.

Although several scenic highways are eligible for designation, no Humboldt County highways are "officially designated" as State Scenic Highways. Among the highways "eligible for official designation" include: Route 36 from Route 101 near Fortuna to the Trinity County line, and; Route 101 for the entire length of Humboldt County, including the section of highway that passes through the City of Fortuna Planning Area.

Local

General Plan. The City of Fortuna 1993 General Plan does not contain design guidelines, landmark building designation listings, or urban conservation zones to protect manmade resources. Similarly, there are no development standards, design guidelines, subdivision design guidelines pertaining to the protection of scenic corridors or viewsheds, provisions for creating greenbelts, or buffers, or other visual scenic ordinances to protect natural scenic resources.

In the 1993 General Plan, the goal under the Community Design and Open Space, Land Use section is to "improve the attractiveness of Fortuna as a place to live and do business"(p.24 1993 General Plan). Policies to further this goal include: preserving older structures which give character to Fortuna; providing adequate open space along streams; promoting environmentally sensitive development that protects the foothill-valley character on the north and east side of the city; and limiting construction on hillsides to preserve existing landforms and vegetation. The residential development goals and policies of the Land Use section state that the foothills on the north and east side of Fortuna are suitable only for low-density residential development. These goals and policies, when used in conjunction with the Zoning Ordinance and development standards, are the available tools for protecting scenic resources in Fortuna.



Existing Conditions

Scenic Resources. Visual resources contribute to the identity and integrity of a locality, whether it be an urban or natural environment or combination of both. The City of Fortuna has a mix and diversity of physical landforms and cultural and urban elements that contribute to a sense of place and quality of life valued by its residents. The scenic resources described below include natural elements of the physical landscape, and urban or manmade elements of the city.

The city is located on the Eel River valley at the foothills of a low coastal range, with diverse topography, views, elevations, and terrain. Natural scenic resources include forested hillsides and bluffs framing the city to the north and east; the Eel River to the west with wide expanses of agricultural lands of the Eel River bottoms further west; and the elevation of the Rohnerville Plateau and bluffs to the south, bounded by river plains to the south, and views of the Van Duzen River, its confluence with the Eel River to the south, and long-range views to coastal ranges south and west of the Planning Area.

Scenic Roads. A number of local roadways in Fortuna and from county roads in the Planning Area offer scenic views. These local scenic roads include Riverwalk Drive adjacent to the Eel River, Main Street in the vicinity of the downtown business district, Carson Woods Road to the north of Rohner Park and along Rohner Creek, Hillside Drive, Newburg Road to east, Rohnerville Road, parts of Drake Hill Road, Mill Street to the golf course, and Loop Road, in the vicinity of where Newburg and Loop Roads tie in to Newburg Park.

Natural Elements

City Streams. Several minor tributaries to the Eel River flow throughout the city. These small tributaries include: Palmer Creek to the north, Rohner Creek, which passes under Main Street and extends along and defines the western edge of Rohner Park; Strongs Creek; Jameson Creek; and Mill Creek. Wolverton Gulch, which feeds into the Van Duzen River, lies at the south east corner of the Fortuna Planning Area. Many of these watercourses have riparian corridors lined with trees and vegetation that provide a natural visual quality to land within the city's urban area and beyond to the unincorporated areas.

Eel River. The Eel River forms the west edge of the city. It is a broad, braided river with wide expanses of gravel beds on either side of the main river channel and is bounded on both sides by river bank levees to protect adjacent floodplains. The river meanders through the gravel beds during low-flow periods of summer and fall, but periodically rises to the full extent of the river banks and levees during high-flows, particularly during winter storm events and early spring. West of the river levees are flat agricultural fields located in the river floodplain, which is framed to the south and west by hills in the coastal range.

In Fortuna, the main access point to the Eel River is from the River Walk. This is a pedestrian walkway located on the top of the levee along the east bank of the river. The Eel River and environs, when viewed from the vantage of the River Walk and River Lodge, is an area of high scenic quality with wide, sweeping vistas of the river, river valley, agricultural fields, and surrounding coastal range.

Forested Hillsides, Bluffs, and Timberlands. The forested hillsides, bluffs, and timberlands to the north and east form very distinctive visual features and "edges" in the Planning Area. The forested hillsides and timberlands provide a scenic backdrop to Fortuna that is characteristic of the visual landscape in much of Humboldt County, a mix of undeveloped timberlands and low coastal ranges of hills, ridges and bluffs intersected by streams and by local roads that provide access to farms and low-density housing estates located further inland.

While the hillsides and timberlands provide visual enclosure to Fortuna, development limitations in these areas, such as slope and resource protections, serve to limit and concentrate development within the flatter

river valley and plateau lands within the city. Close-up, mid-range and distant daytime views of the hills and bluffs to the north and east of Fortuna are contributing elements to the scenic landscape character of the city. The forested hillsides and preservation of views to these scenic resources provide a physical connection for the resident to their natural environment. Views and proximity to scenic resources such as these are quality of life issues for residents choosing to live in a particular community, such as Fortuna.

At night, undeveloped hillsides and forests surrounding Fortuna provide another important visual and scenic resource associated with a rural city: the darkness and quiet of adjacent forestlands. The nighttime view of dark ridgelines contributes to the visual quality of the city. Byproducts of encroaching residential development into hillsides include noise and nighttime illumination, which alters views and experiences of natural resources. The value of nighttime views to undeveloped dark hillsides is a visual and scenic resource for Fortuna.

Foothills serve as a transition area between the more densely developed urban center of Fortuna and the rural farmlands inland. Encroachment of residential development into the foothills and on hilltops to the east and south east of Fortuna has occurred. Development of several large residences sited prominently on cleared ridgelines to the east and southeast overlooking Fortuna have altered the scenic and visual aesthetic quality of adjacent hillsides and bluffs, and changed the visual relationship of natural landforms with its physical surroundings. The foothills, ridges, and bluffs and vegetation are important scenic resources. Identification of these scenic natural resources, and views and viewsheds, are important to retaining the integrity of the scenic resources.

Rohnerville Plateau. The Rohnerville Plateau and bluff/escarpment to the south, between the City and the Van Duzen river, are one of the Planning Area's more distinctive natural landforms. The plateau is relatively flat, having been formed by uplifting of the Van Duzen River terrace. The plateau has been developed with the Rohnerville Airport, pockets of industrial development and agricultural land surround the airport. Rohnerville and Airport roads provide vehicular access through the area and form man-made boundaries within the plateau. Views to the south from the southern bluffs overlook the Van Duzen River valley and agricultural lands. The plateau edge and bluff face form a strong visual feature, contrasting the flat bluff with the lower elevation open agricultural lands along the Van Duzen River to the south.

Agricultural lands. Agricultural lands within the Fortuna Planning Area to the south and west are key scenic resources as they provide rural character, visual open space and form a pastoral setting for the city. The flat agricultural plains extending north of the Van Duzen River to Highway 36 and along the east of the Eel River, and further west, are part of the broader river valley floodplain. While there are limited areas of agricultural lands within the Fortuna city limits, agricultural lands to the south of the Planning Area around Highway 36 and the Van Duzen River valley are important to Fortuna as a southern visual gateway and setting to the city when traveling north on Highway 101. Views of the agricultural valleys of the Van Duzen and to the Eel Rivers from Highway 36 and Highway 101 south of Fortuna are expansive.

The Eel River is not as consistently visible from Highway 101 as from higher elevations to the north and east, due to visual obstructions to the west from roadside development and levees constructed along the Eel River. Views to the Eel River from the River Lodge and the levee provide expansive, long-range views to the south and further west to the agricultural lands and low coastal ranges beyond the Planning Area. These views are important scenic assets to the residents and visitors of Fortuna. The views from River Lodge, being the same elevation as the top of the levees, are public visual resources to the city of Fortuna that, prior to its development, were not available to the community and its visitors.



Open Space. Open space areas in the city of Fortuna include two city park (Rohner Park and Newburg Park) vacant lots, the River Walk and Eel River environs, agricultural lands, school playing fields, forested hillsides, bluffs, and riparian areas along creeks. Areas of open space in the city also include spaces formed by building setback areas, such as the front garden area of the Veteran’s building on Main Street. Open space provides visual relief and space in urban areas, and provides views and vistas for residents, as well as for motorists, bicyclists, and pedestrians.

The city of Fortuna has approximately 75 acres of designated parkland including community parks and pocket parks, which is largely distributed in central downtown Fortuna. In addition to city parks, Fortuna school playing fields are used as parks and function as community open space.

New residential subdivisions and housing developments to the south and east of the city have not included parkland, trails, or areas of open space, with an identified lack of neighborhood parks in the Campton Heights neighborhood. The development of wider sidewalks, median strips in residential areas and protection of riparian areas along streams are a potential source of future open space. Vacant land, such as the former PALCO Mill site, is a potential source of future open space for the community.

Urban Elements. Urban or man-made elements include buildings and structures, historic buildings and landmarks, highways and scenic roads, and neighborhoods having a particular scenic quality that may be considered scenic resources.

Buildings and Structures. Fortuna’s downtown Main Street commercial center is a community asset, with an aesthetic quality that is enhanced by commercial buildings that form an intact and integrated commercial streetscape with pedestrian-friendly streets and sidewalk improvements. The length of the Main Street commercial precinct is appropriate in scale and size to the community it serves. The predominance of locally-owned businesses contributes to the character of Main Street.

The city of Fortuna has a strong historical identity and associations with lumber and agricultural industries, and this history is reflected in the development of many of the city’s buildings and provision of community facilities. The PALCO lumber mill, which closed in 2004, was the dominant industrial property in the city, surrounded by residential subdivisions of houses for mill workers. The housing type in Fortuna has historically been comprised of predominately single-family residences.

Areas of historic residential and commercial buildings located within the first two blocks of Main Street, particularly to the north of Main Street, have important historic character and associations to the early development of Fortuna. Public buildings such as the Veteran’s Hall point to the diversity and richness of community clubs and organizations that have existed for decades in the city and are important community resources and visual landmarks. Rohner Park is a key community and scenic resource that provides respite within the city but has many historic associations. It is a community hub and landmark property in Fortuna.

Findings

- The Eel River is part of the California Wild and Scenic Rivers System.
- Highway 101 and State Route Highway 36 are designated scenic highways by Humboldt County.
- Although several scenic highways are eligible for designation, no Humboldt County highways are “officially designated” as State Scenic Highways. The highways “eligible for official designation” include Highway 36 from Highway 101 near Fortuna to the Trinity County line, and Highway 101 for

the entire length of Humboldt County, including the section of highway that passes through the City of Fortuna Planning Area.

- There are no development standards, design guidelines, subdivision design guidelines pertaining to the protection of scenic corridors or viewsheds, provisions for creation of greenbelts or buffers or other visual scenic ordinances to protect natural scenic resources.
- The city is located on the Eel River valley at the foothills of a low coastal range, with diverse topography, views, elevations, and terrain. Natural scenic resources include forested hillsides and bluffs framing the city to the north and east; the Eel River to the west with wide expanses of agricultural lands of the Eel River bottoms further west; and the elevation of the Rohnerville Plateau and bluffs to the south, bounded by river plains to the south, and views of the Van Duzen River, its confluence with the Eel River to the south, and long-range views to coastal ranges south and west of the Planning Area.
- A number of local roadways in Fortuna in the Planning Area offer scenic views. These local scenic roads include Riverwalk Drive adjacent to the Eel River, Main Street in the vicinity of the downtown business district, Carson Woods Road to the north of Rohner Park and along Rohner Creek, Hillside Drive, Newburg Road to east, Rohnerville Road, portions of Drake Hill Road, Mill Street to the golf course, and Loop Road, in the vicinity to where Newburg and Loop Roads tie in to Newburg Park.



7

Public Facilities & Services

7.1 Introduction

Development is dependent on a complicated network of public facilities and services. Each type of service has a unique set of constraints and must adapt to growth and change differently. This chapter describes the various facilities/systems and their capacities, as well as service levels for various city services.

This chapter is divided into the following discussions:

- Water Supply and Distribution (Section 7.2)
- Wastewater Collection and Treatment (Section 7.3)
- Stormwater Drainage (Section 7.4)
- Solid Waste (Section 7.5)
- Gas and Electric Service (Section 7.6)
- Communication Systems (Section 7.7)
- Law Enforcement (Section 7.8)
- Fire Protection (Section 7.9)
- School Facilities (Section 7.10)
- Libraries (Section 7.11)

7.2 Water Supply and Distribution

Introduction

This section summarizes existing information on the water supply, storage, treatment and distribution system within the Fortuna Planning Area.



Key Terms

CDHS. California State Department of Health Services

CO₂. Carbon Dioxide

ft (msl). feet above mean sea level

gpm. gallons per minute

HP. Horsepower

kW. kilowatt

LSI. Langlier Saturation Index

Maximum Contaminant Level (MCL). The highest level of a contaminant that is allowed in the drinking water.

Maximum Contaminant Level Goal (MCLG). The level of a contaminant in the drinking water below which there is no known or expected risk to health.

Maximum Residual Disinfectant Level (MRDL). The level of a disinfectant added for water treatment, below which there is no known or expected risk to health. MRDLs are set by the U.S. Environmental Protection Agency.

mg/L. milligrams per Liter

ND. Not detectable at the testing limit

ng/L. nanograms per Liter

pCi/L. picocuries per Liter (a measure of radiation)

ppb. parts per billion or micrograms per Liter (ug/L)

ppm. parts per million or mg/L

ppt. parts per trillion or ng/L

psi. pounds per square inch

Primary Drinking Water Standards (PDWS). MCLs for the contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.

PRV. Pressure Reducing Valve

Public Health Goal (PHG). The level of a contaminant in the drinking water below which there is no known expected risk to health. The California Environmental Protection Agency sets PHGs.

Regulatory Action Level (AL). The concentration of a contaminant, which if exceeded, triggers treatment, or other requirements that a water system must follow.

Secondary Drinking Water Standards (SDWS). MCLs for contaminants that affect taste, odor, or appearance of the drinking water.

(TDS). total dissolved solids

Treatment Technique (TT). A required process intended to reduce the level of a contaminant in the drinking water.

ug/L. micrograms per Liter

USEPA. United States Environmental Protection Agency

Variations and Exemptions. Department permission to exceed an MCL or not comply with a treatment technique under certain conditions.

WTP. Water Treatment Plant

WWTP. Wastewater Treatment Plant

Regulatory Setting

The city of Fortuna's water distribution system and water treatment plant fall under the jurisdiction of the California Environmental Protection Agency (CALEPA) and the California Department of Health Services (CDHS).

Existing Conditions

Distribution System. The city currently (January 2006) has 4,238 water service connections located in the water service area that service 5,229 units. Ninety percent of the units are residential, while ten percent are commercial service connections (See Figure 7-1). The service area, for the most part, consists of level topography and has an elevation range of 40 to 80 feet. The northern and eastern portions of the service area are more hilly and steep with elevations ranging from 80 to 400 feet (Winzler & Kelly, 2005).

Five wells located provide water for the city. Water is pumped from the wells to a 120,000 gallon wet well. A booster station, containing three 100 horsepower (HP) pumps, pumps the water into the distribution system. The distribution system is divided into eight pressure zones within the city and composed of a series of pumps, water tanks, reservoirs, and hydropneumatic tanks (Winzler & Kelly, 2005). Table 7-1 shows the various water pumping and storage facilities for the city's water system. The combined storage capacity of the distribution system is approximately 7.3 million gallons (not including the Penn Street Station) (John Carollo Engineers, 1994). Figure 7-1 taken from the *2005 Water System Hydraulic Study*, shows the components and capacities of the water distribution system for each zone.



TABLE 7-1 WATER SYSTEM PUMPING AND STORAGE City of Fortuna		
Zone	Pumping/Storage Facility	Power/Capacity
1	Corrosion Control Facility	3 x 100 HP* pumps
1	Stewart Reservoirs	2 x 500,000 gallon
1	Stewart Pump Station	2 x 5 HP pumps
2	Vancil Reservoir	500,000 gallon
3	Vancil Pump Station & Hydropneumatic Tanks	2 x 5 HP domestic pumps 1 x 30 HP fire pump 2 x 650 gallon
4	Underhill Pump Station	2 x 5 HP pumps
4	Hillside Reservoir	250,000 gallon
5	Home Avenue Pump Station	2 x 7.5 HP
5	Holman Elevated Tank	36,000 gallon
6	Kenmar Pump Station	2 x 50 HP pumps 1 x 30 HP pump
6	Campton Heights Reservoir	1,000,000 gallon
7	Drake Hill Pump Station & Hydropneumatic Tanks	2 x 20 HP domestic pumps 1 x 30 HP fire pump 2 x 650 gallon
8	Senneca Pump Station & Hydropneumatic Tanks	2 x 5 HP domestic pumps 1 x 75 HP fire pump 2 x 400 gallon
*: HP: Horsepower Source: Winzler & Kelly Water System Hydraulic Study, 2005.		

The water distribution system contains new and old components. The older section of the system is constructed of asbestos-cement pipe and cast-iron pipe. This older section is located north of Kenmar Road and is between 40 and 75 years old. The oldest section of pipe is located between 7th and 12th Streets and L and P Streets. Newest sections of pipe are located in the Hilltop Reservoir area and Riverwalk Drive. Other sections of original water main have been replaced with polyvinyl chloride pipe in the past 20 years (Winzler & Kelly, 2005). The city has problems with corrosion in the parts of the distribution system that are constructed of steel pipe. Many sections of this pipe have failed, especially in the Campton Heights area, which is predominately steel pipe. Corrosion problems are caused by the city's groundwater, which contains carbon dioxide (CO₂) and is highly corrosive. There is also excessive household copper corrosion, evidenced by bluish/greenish water stains on plumbing fixtures (John Carollo Engineers, 1994).

According to the 2005 hydraulic study, many of the improvements recommended by the 1986 hydraulic study have been completed. However, the updated 2005 study has made further recommendations for the system. Some of the improvements recommended by the 2005 hydraulic study are as follows:

- At the corrosion control facility, run two pumps in parallel at all times to prevent the cavitation that occurs when only one pump is run;
- At the Vancil Pump Station, run two pumps in parallel, with pumps turning on at a pressure of 50 pounds per square inch (psi) and off at a pressure of 65 psi;

- Install a new hydropneumatic system at the Home Avenue Pump Station and demolish the Holman Tank;
- Replace the liner in the five million gallon Vancil Reservoir;
- Replace the 100-year-old rectangular tank and increase the capacity of the 75-year-old round tank at the Stewart Reservoir Site;
- A new 200,000-gallon water tank is recommended for the Future Loop Road Development;
- Construct a 250,000-gallon reservoir in the South Fortuna Development Area;
- Install a new 150,000-gallon tank in the future Campton Heights development area and a new pump station at the Campton Heights Reservoir;
- Replace centrifugal pumps with vertical turbine pumps at the corrosion control facility;
- Upsize existing 5-HP pumps at the Stewart Pump Station; and
- Install new booster station at the Loop Road Development.

According to the 2005 hydraulics study, there are areas where fire flow capacities need to be improved for the city. The fire flow capacities can be improved by upgrading either pipes or reservoirs. Some recommended areas to be improved include the area around 14th Street, an area between 9th Street from P Street to Christian Ridge Road, a new fire hydrant at the Wastewater Treatment Plant (WWTP) (currently (January 2006) no fire hydrants located there), and an area on Mill Street east of Jones.

The eight pressure zones within the city were determined by hydraulic grades of the system. Hydraulic grades were determined assuming no water flows in the system and the zones refer to areas where there are uniform hydraulic grades. Each pressure zone consists of connecting pipes and reservoirs. In general, the pressure zones do not contain booster pump stations or valves that regulate water flow or pressure. Each pressure zone is separated by a pressure reducing valve (PRV). Booster pumps are stationed between pressure zones to boost pressure in the zone or pump water to a different zone. The following list describes the locations of the eight pressure zones of the city:

- Zone One is located between the downtown area and Kenmar Road.
- Zone Two is located east of the Vancil Reservoir and northeast of Rohnerville Road.
- Zone Three is on Vancil Street north of the Stewart Reservoirs.
- Zone Four is in the northeastern section of the water system.
- Zone Five is the northwestern section of the city, and is served by Holman Tank. Zone Six is in the southern section of the city, located between Kenmar Road, Drake Hill Road, and Rohnerville Road.
- Zone Seven encompasses the most southern section of the city.
- Zone Eight serves the Forest Hills Subdivision, west of Rohnerville Road and north of the Campton Heights Reservoir.

Table 7-2, taken from the 2005 water system hydraulic study, describes the hydraulic grade and area for each pressure zone.



TABLE 7-2 WATER SYSTEM PRESSURE ZONES City of Fortuna			
Zone	Service Area	Served By	Hydraulic Grade (ft-msl)*
1	Kenmar Rd north to P St.	Stewart Reservoirs	226
2	Vancil southeast to Franklin Ave	Vancil Reservoir	298
3	Vancil Area	Vancil Pump Station	450
4	Hillside Area	Hillside Reservoir	398
5	Holman Way and Home Ave	Hollman Tank	424
6	Kenmar Rd to Drake Hill Rd	Campton Heights Reservoir	365
7	South of Drake Hill Rd	Drake Hill Pump Station	600
8	Forest Hills Subdivision	Senneca Pump Station	475
*: ft-msl: feet above mean sea level (Source: Winzler & Kelly, Water System Hydraulic Study, 2005)			

Water Treatment Plant. The city’s five wells on Eel River Drive between Drake Hill Road and Kenmar Road produced more than 519 million gallons of drinking water in 2004. This water is directed to the corrosion control facility to be treated for corrosiveness. The corrosion control facility is located at the city water wells, on the east side of Eel River Drive, a half mile south of Kenmar Road (Corrosion Control Project, 2005).

In June 1991, monitoring requirements were established for lead and copper in drinking water by the United States Environmental Protection Agency (USEPA). The established action levels were 0.015 milligrams per liter (mg/L) for lead and 1.3 milligrams per liter for copper (John Carollo Engineers, 1994). While the city did not exceed action levels for lead in 2001, action levels for copper were exceeded in previous years. From 1992 to 2001, ten percent of the samples taken were over the 1,300 parts per billion (ppb) maximum limit of the action levels set the by the USEPA for copper. This caused the CDHS to direct the City to correct the copper corrosion problem.

A 1994 study determined that the groundwater corrosiveness is caused by naturally occurring carbon dioxide (CO₂) (John Carollo Engineers, 1994). CO₂ in the groundwater lowers the pH below 6.5, causing corrosive conditions.

John Carollo Engineers established water quality parameters for the city’s groundwater supply in 1994. The water has a moderate hardness (140-160 mg/L as calcium carbonate [CaCO₃]), moderate alkalinity (120-147 mg/L as CaCO₃), and low total dissolved solids (TDS). Low pH and other parameters may contribute to the four types of copper corrosion: uniform corrosion, cold water pitting, hot water pitting, and soft water pitting. The City’s groundwater supply also contains iron and manganese. The 1994 study determined that the city’s groundwater has a Langlier Saturation Index (LSI) of -1.56, a highly negative LSI value is an indicator of aggressive corrosive water (John Carollo Engineers, 1994).

The City decided not to implement either of the consultant’s alternatives and chose instead a less expensive, partial alternative. The partial alternative included adding blended poly-orthophosphate without pH adjustment to the groundwater. However, this partial alternative did not solve the corrosive water problems and in 2002 the City opened up bidding for the construction of an air-stripping facility. The air-stripping facility removes CO₂ from the groundwater by blowing air through the water and then pumping the water

back into the system. The water's pH is raised by a full pH unit and prevents the chemical reaction that causes pipe corrosion (City of Fortuna, 2001). The air-stripping facility was completed in 2003 (City of Fortuna, February 2005).

The corrosion control facility will have the following items constructed to improve water treatment: a pump station, generator building, and chlorine building. Eight-inch pipes will run from each well, 12-inch pipes will run to the aerators, and there will be one-inch discharge pipes at the facility. The pump station will contain three Berkeley Pumps. The pumps will be able to produce 950 gallons per minute (gpm). The generator building will contain a 150-kilowatt (kW) Cummings diesel backup generator set with a connection to the TESCO manual transfer switch. The new aerators for the facility will be supplied by the Layne Christensen Company. They will be induced draft aerators (Corrosion Control Project, 2005).

Water is treated for pH levels and corrosiveness to comply with State and Federal requirements for copper. The water is aerated to remove CO₂ gas, which is naturally dissolved in the water, and to make the water less acidic. The water is also chlorinated to prevent contamination by bacteria. Due to the treatment process used in the city, calcium carbonate is present in the drinking water. Calcium carbonate is used to coat the water pipes and prevent corrosion.

In 2001, the Layne Christensen Company conducted a pilot study to confirm that aeration is an effective method to raise the pH of the city's groundwater. Twenty-four test conditions were determined and selected to match full scale loading rates in standard aerator equipment sizes. The test runs helped to determine the proper equipment to use in the corrosion control facility. Table 7-3 shows the initial and future water flow rates and characteristics of the full-scale design recommended for aeration treatment at the corrosion control facility.



TABLE 7-3 INITIAL AND FUTURE WATER FLOW RATES AND CHARACTERISTICS OF LAYNE AERATORS City of Fortuna	
Design Effluent Water Characteristics at Future Water Flow Rate (1,500 gpm/aerator)	
Initial Water Flow Rate	1,460 gpm ¹
Future Water Flow Rate	3,000 gpm
Aerator Recommendation	2 Layne Christensen Model IDA-102.14 piped in parallel
Design Liquid Loading Rate Initial	20.2 gpm/sq.ft. ⁽²⁾ (flow through one tower)
Design Liquid Loading Rate Future	20.8 gpm/sq.ft. (flow split through 2 towers)
Influent Water Characteristics	
pH	7
Temperature	18 °C ³
Alkalinity (Total)	175 mg/L ⁴
Saturation Index	-0.63
Calcium Carbonate Precipitation Potential	-39.25 mg/L
Free CO ₂ ⁵	35 mg/L
pH	7.67
Temperature	18°C
Alkalinity (Total)	175 mg/L
Saturation Index	0.04
Calcium Carbonate Precipitation Potential	1.13 mg/L
Free CO ₂	7.37 mg/L
pH	7.65
Temperature	18 °C
Alkalinity (Total)	175 mg/L
Saturation Index	0.02
Calcium Carbonate Precipitation Potential	0.39 mg/L
Free CO ₂	7.86 mg/L
<p><i>gpm: gallons per minute</i> <i>sq.ft: square foot</i> <i>°C: degrees Centigrade</i> <i>mg/L: milligrams per Liter</i> <i>CO₂: Carbon Dioxide</i> <i>Source: Layne Christensen Company, Water Treatment Division, Aeration Pilot Study Report, 2001</i></p>	

In 2004, there were no violations of any USEPA or state drinking water standards, including copper corrosion violations. Copper testing is ongoing to determine the effectiveness of the treatment system and to comply with state and federal regulations. Ongoing copper testing ensures that the facility remains in compliance with regulations (Consumer Confidence Report, 2005).

Findings

- The City has a reduced copper corrosion-testing program due to the naturally occurring copper in the City's groundwater.
- As of 2004, 85 percent to 90 percent of water system improvements recommended by the 1986 *Water System Hydraulic Study* (Winzler & Kelly) have been completed.
- Many sections of steel water pipe have failed, especially in the Campton Heights area.
- There is excessive household copper corrosion, evidenced by bluish/greenish water and stains on plumbing fixtures.
- The city has problems with corrosion in the parts of the distribution system that are constructed of steel pipe. Many sections of this pipe have failed, especially in the Campton Heights area, which is predominately steel pipe. Corrosion problems are caused by the city's groundwater, which contains carbon dioxide (CO₂) and is highly corrosive. There is also excessive household copper corrosion, evidenced by bluish/greenish water stains on plumbing fixtures (John Carollo Engineers, 1994).
- According to the 2005 hydraulics study, there are areas where fire flow capacities need to be improved for the city. The fire flow capacities can be improved by upgrading pipes and reservoirs.
- While the city did not exceed action levels for lead in 2001, action levels for copper were exceeded in previous years. This caused the CDHS to direct the City to correct the copper corrosion problem.
- Groundwater corrosiveness is caused by naturally occurring carbon dioxide (CO₂) which lowers the pH below 6.5, causing corrosive conditions.
- The city's groundwater has a moderate hardness (140-160 mg/L as Calcium Carbonate [CaCO₃]), moderate alkalinity (120-147 mg/L as CaCO₃), and low total dissolved solids (TDS). The City's groundwater also contains iron and manganese.
- Water is treated for pH levels and corrosiveness to comply with state and federal requirements for copper. In 2004 and 2005, there were no violations of any USEPA or state drinking water standards, including copper corrosion violations.

7.3 Wastewater Collection and Treatment

Introduction

This section describes the existing wastewater collection and treatment system within the Fortuna Planning Area. This section describes the system's deficiencies and identifies the improvements that are being considered or undertaken to remedy the problem.

Key Terms

CCC: California Conservation Corps

I/I. Infiltration and Inflow

mg/L. milligrams per Liter

MGD. million gallons per day

ng/Li. nanograms per Liter



NPDES. National Pollution Discharge Elimination System

pCi/L. picocuries per liter (a measure of radiation)

ppb. parts per billion or micrograms per Liter (ug/L)

ppm. parts per million or mg/L

ppt. parts per trillion or nanograms per Liter (ng/L)

RWQCB. Regional Water Quality Control Board, North Coast Region

ug/L. micrograms per Liter

WWTP. Wastewater Treatment Plant

Regulatory Setting

The City of Fortuna's wastewater collection system and Wastewater Treatment Plant (WWTP) fall under the jurisdiction of the California Regional Water Quality Control Board, North Coast Region (RWQCB). Discharges of the Wastewater Treatment Plant must meet the requirements of the Plant's National Pollution Discharge Elimination System (NPDES) permit, which is required by the RWQCB. The City operates under NPDES permit number CA0022730.

Existing Conditions

Collection System. The City currently (December 2005) serves 5,229 units. Ninety percent of the units are residential, while ten percent are commercial. The City maintains approximately 40 miles of sewer pipe (gov.sunnyfortuna.com/public_works/index, Dec 2005) and a wastewater treatment plant, which treats between one million gallons per day (MGD) during dry weather and up to five MGD during wet weather (RWQCB, NPDES permit no. CA0022730). There are two main lines entering the WWTP, one of which is a 15-inch line located at Loni Drive. This main line collects from two gravity lines that collect from the northern half of Fortuna Boulevard, which feed into a ten-inch gravity line at the intersection of Newburg Road. The ten-inch line, which feeds from the north, collects into the 12-inch main line located on 12th Street. The second main line that enters the WWTP is a 12-inch force main. This force main ties into another force main originating from the California Conservation Corps (CCC) wet well pump station on Alamar Way. The force mains flow north along Dinsmore Drive to the WWTP.

There are eight pump stations in the collection system. The Strongs Creek Pump Station and the CCC Wet Well Pump Station. The Strongs Creek Pump Station is located on Fortuna Boulevard consisting of two 4" and 2 8" pumps working together. Each system consists of one four-inch pump and one eight-inch pump. The four-inch pump provides the majority of the pumping capacity for average daily flow conditions, and the eight-inch pump provides additional pumping capacity for peak flow conditions. Under present conditions (January 2006), the pumping and transmission system seems able to handle both average daily flows and peak flows (SHN 2004).

There are old gravity lines located along Newburg Road that are not suitable for handling new or increased flows. The 12- and 15-inch sewer lines located at 12th Street and Loni Drive, respectively, have flat grades. There is seasonal Infiltration and Inflow (I/I) in the existing 15-inch sewer main.

Wastewater Treatment Plant. Fortuna's current (January 2006) WWTP, located at 180 Dinsmore Drive just west of Highway 101, was constructed during the 1970s; however, there are still remnants of the original plant that was constructed in the early 1950s (City of Fortuna EIR, 1995). The plant has a wet weather

capacity of 1.2 MGD. Wet weather capacity of the plant is achieved by routing excess inflow to adjacent storage ponds. However, the adjacent storage ponds only have a one- to two-day capacity during wet weather and they need approximately one week of dry weather to recover.

Construction of the City's proposed wastewater treatment plant is currently (December 2005) underway to expand the plant and will likely be completed in 2007. The expansion of the plant will increase the capacity up to 1.5 MGD (SHN, 2004). The improvements include upgrading the existing plant and adding new unit operations. A new anaerobic digester with cogeneration, a compost facility, and odor control biofilters are part of the improvement plan. Hydraulic capacity will be increased with the addition of a new secondary clarifier and river discharge pipe. A new operations building and grit handling/headworks system are also planned (City of Fortuna, February 2005).

Wastewater, during average flows, is treated to secondary treatment standards using an activated sludge process. Primary treatment consists of sedimentation and aerobic sludge digestion. Secondary treatment is carried out during the winter by three aeration basins followed by three rectangular sedimentation basins with conventional chain and flight sludge conveyors, and finally, chlorine disinfection. Chlorine disinfection is carried out in two chlorine contact tanks (City of Fortuna EIR, 1995). The effluent from the secondary clarifier is chlorinated and dechlorinated before being discharged into the Eel River at the confluence with Strongs Creek.

There are three discharge locations for effluent from the plant. The first discharge location is SN001 located at 40° 35' 34" latitude and 124° 09' 30" Longitude and the second location, SN002, is located approximately 20 feet downstream from SN001 (SHN, 2004).

When wet weather flows exceed the three MGD for long periods, effluent is treated to meet standards for waste stabilization ponds and chlorinated and dechlorinated before being discharged to location SN002 (SHN, 2004). The City was served with a cease and desist order in 1997 for the plant. At that time, high flows in Strongs Creek had backed up discharge through SN002, causing damage to the chlorine contact chamber. In effect, discharge through SN002 was inadequately treated. To resolve the issue, the City constructed a new chlorine contact chamber for the storm flow discharge (SN002) site and the cease and desist order was rescinded (RWQCB, 1997).

In 2004, the treatment plant had three violations. All three violations were chlorine limit violations, with one maximum and two minimum values that violated the permit level. Sewer overflows that occurred in the system were caused by high flows and collection system stoppages (City of Fortuna, February 2005).

Findings

- The WWTP had three discharge violations in 2004, all of which were chlorine discharge violations.
- The existing WWTP cannot adequately handle heavy storm flows.
- Old gravity lines located along Newburg Road are not suitable for handling new or increased flows.
- Sewer overflows, caused by high flows and collection system stoppages, have occurred.
- Upgrades to the WWTP will likely be completed in 2007.



7.4 Stormwater Drainage

Introduction

This section describes the existing stormwater drainage system within the Fortuna Planning Area. This section also describes the existing drainage areas and their associated recommended storm drain improvement projects.

Key Terms

Best Management Practices (BMPs). Best Management Practices (BMPs) are defined as any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces pollution.

CMP. Corrugated Metal Pipe

FMC. Fortuna Municipal Code

General Construction Permit. The General Construction Permit is an NPDES general permit for stormwater discharges associated with construction activities. The permit regulates discharges from construction projects that disturb one or more acres of soil or projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. The permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that identifies the Best Management Practices (BMPs) that will be used to protect stormwater runoff at the construction site.

General Industrial Permit. The General Industrial Permit is an NPDES general permit for stormwater discharges associated with industrial activities. The permit regulates discharges associated with 10 broad categories of industrial activities. The permit requires implementation of management measures that will achieve the performance standard of best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT). The permit also requires the development of a Stormwater Pollution Prevention Plan (SWPPP) and monitoring program for facilities covered under the permit.

General Municipal Permit. The General Municipal Permit is an NPDES permit for stormwater discharges from small municipal separate storm sewer systems (MS4s). The permit requires dischargers to develop and implement a Stormwater Management Program (SWMP) with the goal of reducing discharges to the Maximum Extent Practicable (MEP).

Municipal Separate Storm Sewer Systems (MS4s). Municipal separate storm sewer systems (MS4s) include conveyance systems that are designed or used for collecting and conveying stormwater; they do not include combined sewers and or parts of a publicly owned treatment works (POTW).

NPDES Program. The National Pollution Discharge Elimination System (NPDES) program is the national program for administering and regulating Sections 307, 318, 402, and 405 of the Clean Water Act. The NPDES Program requires all facilities that discharge pollutants from any point source into waters of the U.S. to obtain a permit for the discharge.

Stormwater Pollution Prevention Plan (SWPPP). A SWPPP is a written plan that addresses the implementation of BMPs at a site and provides guidelines for reducing pollutants in stormwater discharges from a site.

RCP. Reinforced Concrete Pipe

RWQCB. Regional Water Quality Control Boards

SWRCB. California (State) Water Resources Control Board

USEPA. United States Environmental Protection Agency

Regulatory Setting

Clean Water Act. In 1972, the Federal Water Pollution Control Act, also referred to as the Clean Water Act (CWA), was amended to establish that the discharge of pollutants to Waters of the United States was effectively prohibited unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which established a framework for regulating municipal, industrial, and construction stormwater discharges under the NPDES program. In 1990, the U.S. Environmental Protection Agency (USEPA) published final regulations that established application requirements for stormwater permits for Phase I Municipal Separate Storm Sewer Systems (MS4s), certain industrial facilities, and construction sites greater than five acres in size. In 1999, the USEPA published final regulations that established additional application requirements for stormwater permits for Phase II MS4s and small construction sites between one and five acres in size.

State Water Resources Control Board. Under the federal regulations, two options are allowed for permitting stormwater discharges—individual and general permits. In California, the State Water Resources Control Board (SWRCB) elected to adopt general permits for municipalities, industrial facilities, and construction activities. The SWRCB also elected to have the nine Regional Water Quality Control Boards (RWQCB) in California provide local regulatory oversight of the NPDES general permit requirements.



Regional Water Quality Control Board. The Region 1 North Coast RWQCB regulates three general NPDES permits in the Planning Area. These general permits include the General Municipal Permit (Water Quality Order 2003-005-DWQ, NPDES General Permit No. CAS000004); the General Industrial Permit (Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001); and the General Construction Permit (Water Quality Order No. 99-08-DWQ, NPDES General Permit No. CAS000002).

Fortuna Municipal Code. The Fortuna Municipal Code (FMC) currently addresses storm drainage in Chapter 13.80 of Title 13, Utilities. The FMC references Ordinance 93-583 for stormwater drainage. The purpose of the stormwater provisions included in the FMC is to provide for the maximum possible beneficial public use of the city's storm drainage facilities, through the adequate regulation of use, construction and maintenance; to provide for equitable distribution of the city's cost; and to provide procedures for complying with the requirements placed upon the city by other regulatory agencies (FMC 13.80.010). Stormwater drainage facilities in this chapter are defined as the system of ditches, pipes, and catch basins, owned and/or operated by the city, which carries stormwater and surface water or groundwater and drainage, but excludes sewage and polluted industrial waste.

Section 13.80.100 of the FMC currently (January 2006) addresses discharges prohibited in the stormwater drainage system. Prohibited discharges include the willful or negligent disposal of petroleum products, pesticides, fertilizers, household or industrial chemicals, industrial process wastewater, domestic sewage, animal wastes, or other pollutants into the city's storm drainage facilities (FMC 13.80.100).

Appendix A of the Fortuna Stormwater Management Plan (SWMP) provides a summary of proposed changes and additions to Fortuna's Storm Drainage Ordinance (City of Fortuna, 2005). The proposed changes and additions include modifying section 13.80.100 and adding sections 13.80.110 through 13.80.220. Section 13.80.100 would be modified to prohibit the discharge of non-stormwater discharges to storm drains, unless the discharge is in compliance with a National Pollutant Discharge Elimination (NPDES) permit issued for the discharge. Some exceptions would be allowed to the discharge prohibition, for common activities that are properly managed (i.e., lawn irrigation, individual car washing, etc). Proposed added sections in the FMC would include provisions for discharges to the storm drainage system and are as follows:

Section 13.80.110 Discharge in violation of permit.

Section 13.80.120 Illicit discharge and illicit connections.

Section 13.80.130 Reductions of pollutants in runoff.

Section 13.80.140 Watercourse Protection.

Section 13.80.150 Violations constitute a public nuisance, abatement, and restoration.

Section 13.80.160 Violations; misdemeanors or infractions; punishment.

Section 13.80.170 Violations; civil action for enforcement.

Section 13.80.180 Violations; administrative enforcement action.

Section 13.80.190 Remedies not exclusive.

Section 13.80.200 Authority to arrest and issue citations.

Section 13.80.210 Coordination with other programs.

Section 13.80.220 Supersession.

Existing Conditions

S **stormwater Permit Compliance.** The City of Fortuna is working with the Region 1 North Coast RWQCB on implementing a Phase II NPDES stormwater management program that meets the requirements of the Phase II NPDES General Municipal Permit. Under the Phase II Municipal Permit, operators of small MS4s are required to implement a storm management program that contains six minimum control measures. These minimum control measures include:

- public education and outreach;
- public involvement/participation;
- illicit discharge detection and elimination;
- construction site stormwater runoff control;
- post construction stormwater management in new development and redevelopment; and
- pollution prevention/good housekeeping for municipal operations.

The program requires operators to develop Best Management Practices (BMPs) to meet the specific goals of each minimum control measure. The City of Fortuna has developed a Stormwater Management Program that outlines the six minimum required control measures and the corresponding BMPs to be implemented over the five-year program.

The City of Fortuna Stormwater Management Program is available online at the following web address: www.waterboards.ca.gov/stormwtr/docs/fortuna_swmp.pdf

Several individual industrial sites located in the Planning Area are covered under the General Industrial Stormwater Program. The online industrial permit database was queried to identify the industrial sites in the Planning Area; these sites include the following facilities:

- PALCO Fortuna Mill Site (1440 Newburg Rd)
- Eel River Sawmills (Half Mile Ne ERS Mill A)
- Eel River Disposal (965 Riverwalk Dr)
- Hansen Truck Stop (2404 Sandy Prairie Rd)
- Mercer Fraser Plant A (81 Riverwalk Dr)
- Eel River Lumber Products (1053 Northwestern Ave)
- Alton Processing Plant (Fowler Lane)
- PALCO Leland Rock Site (56157 U.S. Highway 101)
- Mercer Fraser Company (200 Dinsmore Dr)

The General Construction Permit requires stormwater runoff control for construction activities conducted on construction sites greater than five acres in size, and small construction activities. Small construction activities are defined as clearing, grading, or excavating activities that result in land disturbance between one and five acres, or activities that result in soil disturbances of less than one acre but are part of a larger common plan of development that encompasses one or more acres of soil disturbance. Compliance with the general permit during construction activities requires the following:



- developing and implementing a Stormwater Pollution Prevention Plan (SWPPP) that specifies BMPs for preventing pollutants from contacting with stormwater and controlling erosion during construction activities;
- eliminating or reducing non-stormwater discharges to storm drainage systems or other waters of the U.S.; and
- conducting BMP inspections.

The monitoring and reporting requirements for the general construction permit also include sampling and analysis requirements for direct discharges of sediment to waters impaired due to sediment, and for pollutants that are not visually detectable in runoff that could cause or contribute to an exceedance of water quality objectives. Although discharges from construction activities are regulated under the General Construction Permit, the City of Fortuna is responsible for implementing construction site runoff control and post-construction stormwater management as part of the Municipal Permit conditions.

Storm Drainage System. Storm drainage master planning for the City of Fortuna started with a storm drainage report for the Rohner Creek, Hillside Creek, Jameson Creek, and Strongs Creek drainages, completed by the County of Humboldt in 1976. The City updated the storm drainage report in 1982, and at that time adopted a master drainage plan for the entire City consisting of a number of improvement projects as outlined in the 1982 report. To help fund the recommended improvement projects, in 1984 the City adopted an ordinance that required the payment of a drainage fee for all new development when a building permit was issued. In 1985, the City also adopted an ordinance that required either the payment of a fee for small subdivisions or the construction of downstream drainage improvements for large subdivisions (City of Fortuna, 1993).

In anticipation of the 2005 Fortuna General Plan Update, the City authorized the most recent update to the Storm Drain Master Plan in 2005. Winzler & Kelly Consulting Engineers (Winzler & Kelly) completed the updates to the Storm Drain Master Plan in July 2005.

The 2005 Storm Drain Master Plan is organized according to the six major natural drainages located within the city limits. These drainages include the North Fortuna Drainage; Rohner Creek Drainage; Hillside Creek Drainage; Strongs Creek Drainage; Jameson Creek Drainage; and Mill Creek Drainage. The 2005 Storm Drain Master Plan provides a detailed overview of the existing major storm drain facilities within each drainage basin, and provides recommendations for improving identified deficiencies in the city's storm drain system.

According to the 2005 Storm Drain Master Plan, the majority of the storm drain system within the city limits consists primarily of reinforced concrete pipe (RCP) and corrugated metal pipe (CMP) storm drains. There are also box culverts and cross drains at intersections. In the rural areas surrounding the city, the storm drainage system consists largely of roadside ditches and culverts. The storm drains and drainage ditches convey runoff to the natural drainages within the city limits, which ultimately discharge to the Eel River (Winzler & Kelly, 2005).

The hydraulic analyses provided in the 2005 Storm Drain Master Plan identified 79 drainage structures within the City of Fortuna that were considered deficient (i.e., undersized for the 25-year design flow). The identified deficiencies were combined into 55 recommended improvement projects with an estimated total implementation cost of approximately \$14,787,000 (Winzler & Kelly, 2005).

The following sections provide an overview of the recommended improvement projects within each of the six identified drainage basins within the city limits. The 2005 Storm Drain Master Plan provides a more detailed discussion and descriptions of the recommended improvements projects are (Winzler & Kelly, 2005).

North Fortuna Drainage Area. The North Fortuna Drainage Area is located in the northwest section of the city of Fortuna, in an area zoned primarily for commercial and residential uses. Table 7-4 lists recommended drainage improvements in the North Fortuna Drainage Area.

TABLE 7-4			
RECOMMENDED STORM DRAIN IMPROVEMENT PROJECTS IN THE NORTH FORTUNA DRAINAGE AREA			
General Plan Planning Area			
Project Type	Project Name	Project Priority	Projected Cost
Culvert Replacement	Main Street Project No. 1	Low	\$40,000
Culver Replacement	U.S. Highway 101 Project	Low	\$61,000
Drainage Channel Improvements	Quail Hollow Project (City Project No. 9813)	High	\$30,000
Culvert Replacement	3 rd Street and Railroad Crossing Project (City Project No. 9702)	High	\$93,000
Storm Drain Replacement	6 th Street Project	Low	\$165,000
Storm Drain Replacement	Main Street Project No. 2	Low	\$387,000
Storm Drain Replacement	Home Avenue Project (City Project No. 9801)	High	\$326,000
Storm Drain Replacement	11th Street and N Street Project (City Project No. 9504)	High	\$331,300
Storm Drain Replacement	9 th Street Project No. 1 (City Project No. 9506)	High	\$176,000
Storm Drain Replacement	9 th Street Project No. 2	Medium	\$489,000
Total			\$1,332,300
<i>Source: City of Fortuna 2005 Storm Drain Master Plan (Winzler & Kelly, 2005).</i>			

Rohner Creek Drainage Area. The Rohner Creek Drainage Area is located in the northern portion of the City of Fortuna, bordered by the North Fortuna Drainage Area to the west and the Hillside Creek and Strongs Creek watersheds to the east. Table 7-5 lists recommended drainage improvements in the Rohner Creek Drainage Area.



TABLE 7-5 RECOMMENDED STORM DRAIN IMPROVEMENT PROJECTS IN THE ROHNER CREEK DRIANAGE AREA General Plan Planning Area			
Project Type	Project Name	Project Priority	Projected Cost
Storm Drain Replacement	10 th Street Project	Low	\$390,000
New Storm Drain	Spring Street Project (City Project No. 9810)	Medium	\$298,000
Storm Drain Replacement	Newburg Drive Project No. 1	Medium	\$384,000
Storm Drain Replacement	Fortuna Boulevard Project No. 1	Low	\$370,000
Creek Widening	Rohner Creek Widening Project (City Project No. 9600)	High	\$323,000
Creek Rerouting	Rohner Creek Bypass Project (City Project No. 9601 & City Project No. 9704)	High	\$2,926,000 (bypass/bank stabilization) \$346,000 (detention basin)
Storm Drain Replacement	South 15 th Street Project	Medium	\$197,000
Storm Drain Replacement	Carson Woods Road Project	Medium	\$109,000
Total			\$5,343,000
<i>Source: City of Fortuna 2005 Storm Drain Master Plan (Winzler & Kelly, 2005)</i>			

Hillside Creek Drainage Area. The Hillside Creek Drainage Area is located south and east of the Rohner Creek Drainage Area and north and west of the Strongs Creek Drainage Area. Table 7-6 lists recommended drainage improvements in the Hillside Creek Drainage Area.

TABLE 7-6 RECOMMENDED STORM DRAIN IMPROVEMENT PROJECTS IN THE HILLSIDE CREEK DRAINAGE General Plan Planning Area			
Project Type	Project Name	Project Priority	Projected Cost
Storm Drain Replacement	Hillside Creek Outflow Project	High	\$84,000
Storm Drain Replacement	Fortuna Boulevard Project No. 2	Medium	\$367,000
Detention Basin Repair	Stockton property Detention basin Project (City Project No. 9701)	High	\$635,000
Storm Drain Replacement	Rohnerville Road Project No. 1	High	\$550,000
Storm Drain Replacement	Rohnerville Road Project No. 2	Medium	\$278,000
Storm Drain Replacement	Newburg Drive Project No. 2	Medium	\$80,000
Storm Drain Replacement	Hillside Creek Culvert Replacement Project	Medium	\$51,000
Improve Detention Basin	Hillside Drive Detention Basin Project	Medium	\$203,000
Total			\$2,248,000
<i>Source: City of Fortuna 2005 Storm Drain Master Plan (Winzler & Kelly, 2005).</i>			

Strongs Creek Drainage Area. The Strongs Creek Drainage Area is located in the central area of the City of Fortuna, bordered by the Rohner Creek and Hillside Creek Drainage Areas to the north and the Jameson Creek Drainage Area to the south. Table 7-7 lists recommended drainage improvements in the Strongs Creek Drainage Area.



TABLE 7-7 RECOMMENDED STORM DRAIN IMPROVEMENT PROJECTS IN THE STRONGS CREEK DRAINAGE AREA General Plan Planning Area			
Project Type	Project Name	Project Priority	Projected Cost
Storm Drain Replacement	Riverwalk Drive Project	Low	\$209,000
Storm Drain Replacement	Alamar Way Project	Medium	\$512,000
Storm Drain Replacement	Fortuna Boulevard Project No. 3	High	\$324,000
Stream Bank Protection	Maxwell Lane Slope Stabilization project	High	\$160,000
Storm Drain Replacement	Shamrock Drive to Redwood Way Project (City Project No. 9703)	High	\$346,000
Storm Drain Replacement	Rohnerville Road Project No. 3	Medium	\$125,000
Storm Drain Replacement	Rohnerville Road Project No. 4	Medium	\$126,000
Storm Drain Replacement	Rohnerville Road Project No. 5	Medium	\$61,000
New Detention Basin	Loop Road Detention Basin Project (City Project No. 9603)	Medium	\$142,000
Storm Drain Replacement	Loop Road Project	Medium	\$30,000
Total			\$2,035,000
<i>Source: City of Fortuna 2005 Storm Drain Master Plan (Winzler and Kelly, 2005)</i>			

Jameson Creek Drainage Area. The Jameson Creek Drainage Area is located in the southern part of the city of Fortuna, and is bordered by the Strongs Creek Drainage Area to the north and the Mill Creek Drainage Area to the south. The 2005 Storm Drain Master Plan recommended only one improvement project on Jameson Creek—replacing one culvert on Rohnerville Road, if the existing culvert fails, or as development warrants.

Mill Creek Drainage Area. The Mill Creek Drainage Area is the southern-most drainage in the incorporated City of Fortuna limits. Table 7-8 lists recommended drainage improvements in the Mill Creek Drainage Area.

**TABLE 7-8
RECOMMENDED STORM DRAIN IMPROVEMENT PROJECTS IN THE MILL CREEK DRAINAGE AREA
General Plan Planning Area**

Project Type	Project Name	Project Priority	Projected Cost
Storm Drain Replacement	Kenmar Road Project	Low	\$186,000
Storm Drain Replacement	Ross Hill Road Culvert Replacement Project	Medium	\$215,000
Storm Drain Replacement	Webber Street Culvert Replacement Project	Medium	\$34,000
Storm Drain Replacement	School Street Project No. 1	Medium	\$147,000
New Storm Drain and Detention Basin	Jones Street Project	High (Storm Drain) Medium (Basin)	\$137,000 (Storm Drain) \$72,000 (Basin)
Culvert Replacement	Mill Street Project	Medium	\$54,000
Culvert Replacement	School Street Project No.2	Low	\$56,000
Storm Drain Replacement	West School Street Project	Medium	\$527,000
New Storm Drain	Thomas Street Project	High	\$134,000
Culvert Replacement	Campton Heights Drive Project	High	\$90,000
Culvert Replacement	Drake Hill Road Project No. 1	Medium	\$34,000
Storm Drain Replacement	Cecil Avenue No. 1	Medium	\$182,000
Storm Drain Replacement	Bridle Creek Avenue Project	Low	\$79,000
Storm Drain Replacement	Bartlett Drive and Rohnerville Road Project	Medium	\$416,000
New Detention Basin	Osprey Terrace Project (City Project No. 9804)	Medium	\$89,000
Storm Drain Replacement	Cecil Avenue Project No. 2 (City Project No. 9405)	Medium	\$538,000
Storm Drain Replacement	Drake Hill Road Project No. 2	High	\$76,000
Culvert Replacement	Campton Heights Drive Project	High	\$90,000
Culvert Replacement	Drake Hill Road Project No. 1	Medium	\$34,000
Storm Drain Replacement	Cecil Avenue No. 1	Medium	\$182,000
Storm Drain Replacement	Bridle Creek Avenue Project	Low	\$79,000
Storm Drain Replacement	Bartlett Drive and Rohnerville Road Project	Medium	\$416,000
New Detention Basin	Osprey Terrace Project (City Project No. 9804)	Medium	\$89,000
Storm Drain Replacement	Cecil Avenue Project No. 2 (City Project No. 9405)	Medium	\$538,000
Storm Drain Replacement	Drake Hill Road Project No. 2	High	\$76,000
Total			\$4,356,000

Source: City of Fortuna 2005 Storm Drain Master Plan (Winzler & Kelly, 2005).



Findings

Recommendations set forth in the 2005 Storm Drainage Master Plan include the following:

- The City Community Development Department should require development methods that incorporate on-site stormwater detention and infiltration for all new developments to minimize the amount of runoff entering the drainage system. Methods include detention basins, vegetated swales, buffer strips, and other bioretention methods.
- The Community Development Department should require that new development not increase the existing estimated 25-year peak runoff volume from a site. Any increase in runoff beyond the peak 25-year event resulting from new development should be retained or detained on site.
- The City should implement a channel and drainage basin maintenance program to ensure drainage channels and basin function as designed.

7.5 Solid Waste

Introduction

This section discusses the solid waste service providers operating within the City of Fortuna Planning Area, local solid waste facilities, Fortuna's solid waste profile, recycling programs, and solid waste generation rates.

Key Terms

Authorized recycling agent. An authorized recycling agent is a person that a local governing body or private commercial entity authorizes or contracts with to collect its recyclable waste material. An authorized recycling agency may be a municipal collection service, private refuse hauler, private recycling enterprise, or private nonprofit corporation or association. (California Public Resources Code Section 40100-40201 - Definitions)

California Integrated Waste Management Board. The California Integrated Waste Management Board may also be referred to as CIWMB, or Board. The California Integrated Waste Management Board oversees the permitting of solid waste and recycling facilities managing programs for diverting used oil and tires from landfills.

(CIWMP). Countywide Integrated Waste Management Plan

Disposal facility. Disposal facility is any facility or location where disposal of solid waste occurs. (California Public Resources Code Section 40100-40201 - Definitions)

Recycle or recycling. Recycle or recycling is the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products which meet the quality standards necessary to be used in the marketplace. "Recycling" does not include transformation, as defined in Section 40201 (California Public Resources Code Section 40100-40201 - Definitions)

Single stream recycling. Single stream recycling is a program where recyclables are not sorted into separate classes, but are placed into one single container to be sorted at the recycling facility. Typically,

materials accepted include plastic, paper and cardboard, rinsed food cartons, glass jars and bottles, tin, aluminum and steel cans, empty spray cans, plastic and paper shopping bags, newspapers, and magazines.

Solid Waste. Solid waste is any unwanted or discarded material that is not a liquid or a gas. It includes organic wastes, paper products, metals, glass, plastics, cloth, brick, rock, soil, leather, rubber, yard wastes, and wood, but does not include sewage and hazardous materials. Organic wastes and paper products comprise about 75 percent of typical urban solid waste. (Humboldt Waste Transfer Station Environmental Impact Report.)

Solid waste facility. A solid waste facility includes a solid waste transfer or processing station, composting facility, gasification facility, transformation facility, and disposal facility. (California PRC § 40100-40201 - Definitions)

Regulatory Setting

State Regulations
State Regulated Solid Waste. Under the Public Resources Code (PRC) section 41750 et. seq., each county and city or regional agency is required to prepare and submit to the California Integrated Waste Management Board (Board, or CIWMB) a Countywide Integrated Waste Management Plan (CIWMP, or Plan) or Regional Agency Integrated Waste Management Plan (RAIWMP). Regulations on content requirements, planning guidelines and procedures for preparing countywide or regional integrated waste management plans are described in Title 14, Chapter 9, Article 8, Sections 18776-18788.

The PRC § 41770 also requires that each Plan be reviewed, revised, and submitted to the Board every five years. As part of this five-year review, deficiencies in the individual planning documents must be corrected and revised as necessary and the source reduction and recycling requirements established under PRC section 41780 must be complied with. The Five-Year review process and report content requirements are further explained in Title 14, CCR Section 18788. The City of Fortuna is required to comply with the State regulations regarding solid waste management plans, including reporting, review, amendment, and content requirements. The City of Fortuna worked with the County on the revision of the countywide CIWMP in 2006. This document was revised, adopted and approved by all parties in 2006.

State Regulated Recycling. Division 30, Part 2 Integrated Waste Management Plans, Chapter 18, Article 1, Section 42900 and 42901 of the Public Resources Code provides for the California Solid Waste Reuse and Recycling Access Act of 1991. The Act requires that:

- cities and counties must divert 50 percent of all solid waste by January 1, 2000, through source reduction, recycling, and composting activities;
- diverting 50 percent of all solid waste requires the participation of the residential, commercial, industrial, and public sectors; and
- the lack of adequate areas for collecting and loading recyclable materials that are compatible with surrounding land uses is a significant impediment to diverting solid waste and constitutes an urgent need for state and local agencies, to address access to solid waste for source reduction, recycling, and composting activities.

Local Regulations.

The 1993 Fortuna General Plan goals and policies relating to solid waste disposal are specified under Section 5400 of the Public Services and Facilities Element. General Plan Goal 5411 states that the city will: "provide



for the protection of the city's residents by ensuring that an adequate solid waste disposal system is operated within the City."

Existing Conditions

The waste stream generated in the City of Fortuna totals approximately 7,000 tons per year, and includes household, commercial, construction, and garden refuse material, as well as recycling.

Local Service Provider.

Local Service Provider. The City of Fortuna contracts with Eel River Disposal and Resource Recovery Inc. (ERD) for municipal solid waste collection services. ERD has been in operation for approximately 17 years and offers Fortuna residents weekly garbage pickup and bi-weekly curbside recycling of paper, cardboard, plastic, glass, and metal. As of January 2007 this service is available in Rio Dell and Ferndale, but not the unincorporated portions of the county. ERD began curbside, bi-weekly pick-up of greenwaste in June 2007. ERD manages a transfer station located in the industrial area on Riverwalk Drive. The waste transfer station was established in its present location in 1999 and handles waste from the cities of Fortuna, Ferndale, Rio Dell, and unincorporated areas of southern Humboldt County. The combined waste stream from these communities comprises approximately 15 percent of the county-wide waste stream (Humboldt Waste Transfer Station EIR). Currently, ERD sends its waste to the Dry Creek Landfill in Medford, Oregon or Anderson Landfill in Anderson, California.

Residents in unincorporated areas and communities outside the Planning Area may contract on an individual basis with ERD for curbside pickup of household refuse or may self-haul their refuse to the ERD transfer station. The ERD transfer station accepts recycling materials including paper and cardboard products, plastic bottles and bags, glass, metal including aluminum, tin or bimetal cans, and household hazardous waste, such as batteries and oil. Green waste, such as yard clippings, brush, and clean wood, is accepted for recycling at a significantly reduced cost.

The California Integrated Waste Management Board (CIWMB) jurisdictional waste profile for the City of Fortuna is based on year 2000 data, the most current data available. Residential (household) sources accounted for approximately 2,301 tons of refuse, which comprised 33 percent of overall waste disposal for the City of Fortuna. Fortuna businesses accounted for approximately 4,673 tons of waste, which comprised 67 percent of overall disposal for the City of Fortuna.

Recycling and Waste Diversion Programs. Recycling and Waste Diversion Programs. In 2000, the City of Fortuna's reported waste diversion rate was 34 percent, which fell short of the target 50 percent diversion rate mandated by State Legislation. As a result, on September 17, 2002, the CIWMB imposed a Compliance Order on the City. The Order contained specific requirements for the City, including working with the Board to develop a Local Assistance Plan to implement programs to increase the diversion of waste to alternative uses, such as recycling.

The CIWMB has also directed the City of Fortuna to develop and adopt a Construction and Demolition (C&D) Diversion Policy. This policy is part of the compliance efforts mandated by AB 939 that the City must implement to avoid further action by the CIWMB. The C&D Diversion policy calls for recycling and reuse of at least 50 percent of the materials/ resources generated by C&D projects that can reasonably be reused or recycled. Documentation of recycling construction materials is available via the Resource Management Plan

(RMP) and Resource Management Report (RMR), which are on file at the City and on the City's website. Documentation is to encourage all businesses and residents embarking on any type of construction or demolition projects to take into account reuse and recycling options before and during these projects. The City is making compliance voluntary for construction, remodeling, and demolition projects, except projects initiated by, or for the City of Fortuna's benefit.

The City has a number of waste diversion programs to help increase compliance with waste diversion targets, including curbside recycling pickup, single stream recycling pickup, greenwaste pick-up and subsidized composting containers. The City of Fortuna Department of Environmental Services website lists recycling programs, and resources for household, commercial, construction, and hazardous waste materials, in an effort to increase waste diversion rates.

The single-stream recycling program started January 9, 2006, collects unsorted recyclables placed into a single bin on a biweekly schedule. The recyclables are then sorted at the waste transfer facility. Materials accepted include plastic, paper and cardboard, rinsed food cartons, glass jars and bottles, tin, aluminum and steel cans, empty spray cans, plastic and paper shopping bags, junk mail, faxes, newspapers, magazines, catalogs and printer paper. The convenience of not having to pre-sort recyclable materials is expected to increase recycling rates. The City promotes composting and sells compost bins at a subsidized rate to Fortuna residents. Composting reduces household waste by up to one third. Information on composting, along with other recycling programs, is available on the City website and at City Hall. Residents who participate in the greenwaste collection program will have their 68 gallon green waste carts picked up once every two weeks. All materials collected are transported to PALCO and reused to generate electricity for Humboldt County.

Findings

- The City of Future contracts with Eel River Disposal, a waste transfer station and private contractor, to collect residential and commercial waste for City of Fortuna residents.
- Solid waste from the Eel River Disposal transfer station is transported out of Humboldt County to the Dry Creek Landfill in Medford, Oregon or Anderson Landfill in Anderson, California.
- The City of Fortuna recorded a solid waste diversion rate of 34 percent in 2000. The City is currently working with the California Integrated Waste Management Board to increase its waste diversion rate in an effort to meet the state mandated 50 percent target diversion rate. Additional waste diversion/recycling programs and information on the City website have been made available. These include the Construction and Demolition (C&D) Diversion Policy to reduce construction material waste, and the single-stream recycling program, to increase the convenience of recycling for residents in an effort to increase City waste diversion rates.
- The City of Fortuna offers a variety of programs including weekly curbside refuse pickup, bi-weekly recycling pickup and enhanced recycling pickup services which include a single-stream recycling program established January 9, 2006. Programs at ERD that are designed to increase resident diversion include reduced rates for construction and garden refuse.



7.6 Gas and Electric Service

Introduction

This section describes existing information on the gas and electric service within the Fortuna Planning Area, including existing demand for these utilities. Results point out that existing gas service is sufficient and with existing generation, the transmission system is sufficient to supply the Humboldt area with electricity for the next 10 years.

Key Terms

PG&E. The Pacific Gas and Electric Company

kV. kilovolt

mW. megawatt

kW. kilowatt

QF. Qualifying Facility

Therm. A unit of heat equal to 100,000 British Thermal Units

Public Utility. A corporation that provide gas, telephone, or electricity where the service is performed for, or the commodity is delivered to, the public (Public Utilities Code §216).

Substation. A facility that changes electric voltages from a higher voltage coming from the generation source, or from one substation to another, to lower voltages for local distribution.

Regulatory Setting

Pacific Gas and Electric Company (PG&E) operates under the California Public Utilities Commission and the Federal Energy Regulatory Commission.

State

California Public Utilities Commission. The California Public Utilities Commission (CPUC) regulates privately-owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies, pursuant to the Public Utilities Act (Public Utilities Code §§ 201 through 2119). The regulatory functions of the CPUC are wide ranging and include the establishment of service standards and safety rules; utility rate changes; energy efficiency and conservation programs; and programs for the low-income and disabled.

Local

Underground Utility Districts. Pursuant to Government Code §38793, and Pacific Gas and Electric (PG&E) Rule 20A, the City of Fortuna adopted regulations establishing underground utility districts (Fortuna Municipal Code Title 13 Utilities, Chapter 13.68). Upon making a finding during a public hearing that the public necessity, health, safety, or welfare requires the removal of overhead utilities, the City Council may adopt an ordinance establishing underground utility districts. Companies operating overhead utilities within the district shall remove existing overhead facilities and install new facilities underground. Undergrounding projects are limited by the PG&E budget allocated to the city of Fortuna, which is based on the number of overhead meters in the city in comparison to the entire PG&E system.

Existing Conditions

Electricity. PG&E supplies electric service within the city of Fortuna. PG&E is a public utility regulated by the CPUC, which establishes rules for operation, customer rates, and PG&E's rate of return on investment. The city falls within the Humboldt Transmission Area, which covers approximately 3,000 square miles. Table 7-9 describes power generation for the Humboldt Transmission Area.

**TABLE 7-9
POWER GENERATION FOR THE HUMBOLDT TRANSMISSION AREA
Humboldt County**

Generation Facility	Type	Normal Schedule (mW)¹	Capacity (mW)
Pacific Lumber – Scotia (QF) ²	Biomass	10	20.0
Pacific Lumber – Carlotta (QF)	Biomass	10	20.0
Fairhaven Power (QF)	Biomass	16	17.3
Kekawaka (QF)	Hydro	5 (During winter months)	5.0
Ultra Power Blue Lake	Biomass	0	11.4
Louisiana Pacific (Arcata) LP Samoa	Biomass	12	25.0
Humboldt Bay Power Plant Unit No. 1	Thermal	50	51.0
Humboldt Bay Power Plant Unit No. 2	Thermal	50	52.0
Humboldt Mobile Gas Turbine Unit No. 1	Thermal	15	15.0
Humboldt Mobile Gas Turbine Unit No. 2	Thermal	15	15.0
Total		183	231.7
<i>mW: megawatt</i>			
<i>QF: Qualifying Facility</i>			
<i>Source: Humboldt Area Generation Resource website: www.pge.com/docs/pdfs/biz/transmission_services/transmission_forum/Humboldt_Gen.pdf, 2004.</i>			

The local growth of the Humboldt Transmission Area is minimal—approximately one megawatt per year. Power to the area is supplied by both local generation and by four long transmission lines. The transmission lines consist of two 115 kilovolts (kV) lines from Cottonwood in the east, one 60 kV line from Trinity in the east, and one 60 kV line from Garberville in the south. A study conducted in 2002 determined that with the existing generation, the transmission system is sufficient to serve the Humboldt Transmission Area for the next 10 years (Humboldt Area Generation Resource, 2004).

The city of Fortuna is served by PG&E's Fortuna office and falls within a service area that ranges almost as far south as Garberville. There are approximately 7,408 customers in this service area, consuming up to 81,013,890 kilowatt hours per year (Ivan Marruffo, 2005, values from 2004).

PG&E operates one main substation serving the city of Fortuna that is located near Newburg Park. Parts of the Planning Area are served by substations in Carlotta, Rio Dell, and the Fernbridge area. PG&E has indicated that new electric load from future development will likely be shared between these substations in order to ensure redundancy (Pers. Comm. Sean Howard, PG&E, 2005).



The PG&E electric distribution system serving Fortuna is largely in place and PG&E is obligated under CPUC regulations to provide service to new customers within the city. New service requests, or requests for additional service, are generally governed by CPUC approved Rule 15 (Distribution Line Extensions) and Rule 16 (Service Extensions).

Natural Gas. PG&E supplies natural gas to the city and delivers seven million cubic feet of natural gas to their regional customers annually. Twenty-five percent of the natural gas supplied is mined from gas wells in the Tompkins Hill area, while the remainder is supplied from the Central Valley area near Red Bluff (City of Fortuna, EIR, 1995). PG&E's Fortuna office serves the city of Fortuna and falls within a service area that ranges almost as far south as Garberville. There are approximately 4,439 customers in this service area, consuming up to 2,930,872 therms per year (Ivan Marruffo, 2005; values from 2004). Natural gas is generally available throughout Fortuna, and PG&E is obligated to provide service to new and existing customers. New service requests or requests for additional service are generally governed by Rule 15 (Gas Main Extensions) and Rule 16 (Gas Service Extensions). Most households in the Planning Area are served by natural gas. Households and businesses located in areas without natural gas service use propane, which is available from Sequoia Gas located in Fortuna, as well as other propane providers.

PG&E operates a natural gas transmission pipeline that supplies Humboldt County which generally follows Highway 36 from Orland in the Sacramento Valley to a metering facility located in Alton. Smaller gas transmission facilities extend north and south from Alton to serve the urbanized areas of Humboldt County, including the Planning Area (Pers. Comm. John Cordova, PG&E, 2005).

There is a 12-inch high pressure main and regulator station on Fortuna Boulevard, which provides natural gas to the city. There are also natural gas lines running under Newburg Road (SHN, 2004). Natural gas is distributed in pipes that range from one inch to six inches and is transported into the area by pipes that are up to 12 inches in diameter. PG&E maintains these natural gas lines (City of Fortuna, EIR, 1995).

Findings

- A study conducted in 2002 determined that with the existing generation, the transmission system is sufficient to supply the Humboldt Transmission Area with electricity for the next 10 years.
- Gas distribution to the city seems sufficient.
- There are three electric substations serving the Planning Area, which represents a level of redundancy that could support future development.
- Natural gas and delivered propane are available throughout the Planning Area.
- The proximity of natural gas transmission lines to the Planning Area could allow for the expansion of natural gas service.

7.7 Communication Systems

Introduction

This section describes the general characteristics of the communication systems for the Planning Area. The following paragraphs outline current regulations governing the existing communication system and explain the existing demands and possible areas for expansion.

Key Terms

DSL. Digital Subscriber Line is service for higher speed data connections (compared to typical phone line).

Regulatory Setting

Public Utilities Commission. The California Public Utilities Commission (CPUC) regulates privately-owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies, pursuant to the Public Utilities Act (Public Utilities Code §§ 201 through 2119). The regulatory functions of the CPUC are wide ranging and include the establishment of service standards and safety rules, utility rate changes; energy efficiency and conservation programs; and programs for the low-income and disabled.

Fortuna City Municipal Code 14.04, 14.08, and 14.16 governs cable systems in the Fortuna city limits.

Existing Conditions

SBC provides all telephone services for the Planning Area. In addition, cellular phone service is available in the Planning Area and is provided by a number of companies. There is one cell tower in the Planning Area located at 200 Dinsmore Drive. The cell tower is owned by Verizon and PWM, and is located on City property.

Residents of the Planning Area have three options when choosing a way in which to receive a television signal: standard cable, which is supplied by Cox Cable currently (December 23, 2005); five local broadcast channels; or satellite service.

Cox Cable currently (December 2005) provides both cable T.V. and high speed Internet in the Planning Area. As of December 13, 2005 Cox Cable was in the process of selling the Humboldt County cable franchise, which provides service to 31,000 customers, to Cebridge Connections. The Cable Communications Policy Act of 1984 (CCPA) granted local governments the right to govern access to right of way for cable systems. A franchise agreement between Cox Cable and the cities and counties it serves locally, has been reached in principle, but not finalized. The expected close date for the sale is the second quarter of 2006.

Internet service available in the Fortuna Planning Area includes dial-up service, high speed cable and in some areas DSL. DSL, provided by SBC, is available within a 15,000 cable feet radius or approximately three miles, from the equipment office located at 832 L Street in Fortuna. There are plans to extend the network in the future, but a concrete timeframe has not been established.

Findings

- DSL is only available to residents in the Planning Area that live within 15,000 cable feet from the Fortuna SBC equipment office.
- There is one cell tower in the Planning Area located on City property at 200 Dinsmore Drive.
- Internet service available in the Planning Area includes dial-up service, high speed cable, and in some areas DSL.



7.8 Law Enforcement

Introduction

This section describes existing information regarding City of Fortuna law enforcement. This section utilizes recent historical crime data to assess the City of Fortuna's strengths for future departmental and community needs.

Key Terms

Sworn personnel. Sworn personnel are employees, regardless of rank, who are sworn employees of the City of Fortuna Police Department. Sworn members of the City shall be considered peace officers pursuant to *Penal Code 830.1*.

Non-sworn personnel. Non-sworn positions are any positions that are filled by civilian employees of the Police Department. Non-sworn members fulfill vital functions and responsibilities within the department, including management positions.

First responder. A first responder is trained to provide basic emergency medical care because they tend to be the first persons to arrive at the scene of an incident.

Regulatory Setting

State
California Government Code Section 38630-38638 governs certain aspects of Police Departments within the State of California. *California Government Code Section 38630* establishes the control of the City's Police Department to the Chief of Police and establishes who has control in a municipality with a consolidated public safety agency. *California Government Code Section 38631* governs the hiring of new police officers and who has the authority to hire additional officers. *Sections 38634-38637* governs the annual leave of absence that is mandatory for police officers and *Section 38630* grants the mayor or officer in charge of the police force power to staff public meetings with police officers if a breach of peace is anticipated.

Local

Fortuna Municipal Code 2.10.010 covers Police department creation, power, duties and responsibilities. *Municipal code 2.10.140* grants the police chief authority to appoint, train, and direct a reserve police force. *Fortuna Municipal Code 6.08.010, 6.08.020, and 6.08.030* governs the creation of the office of animal control officer, duties of the animal control officer, and penalties for interfering with the acts or duties of an animal control officer. In addition, *Fortuna Municipal Code 10.08.020* governs the authority of the police to enforce street traffic laws and traffic direction when necessary.

Existing Conditions

Police protection services and traffic patrol within the Fortuna city limits are provided by the Fortuna Police Department (FPD). The Humboldt County Sheriff Department provides police protection within the Planning Area, and along Highway 101 in the city limits. The California Highway Patrol provides traffic patrol within the Planning Area, but outside the city limits. However, the FPD does occasionally assist with calls outside the city limits when requested.

The Fortuna Police Department is located at 621 11th Street in Fortuna. The number of police officers in the Fortuna Police Department has remained the same for the past 35 years, although the population has continued to increase. As of December 8th, 2005, the FPD had 15 sworn and eight non-sworn employees. The 15 sworn employees consist of one police chief, three sergeants, three field training officers and eight police officers.

The Fortuna Police Department is unique in that they provide first response medical to the citizens of Fortuna, versus the majority of other cities where the Fire Department responds to medical calls. Every police unit is equipped with oxygen, a full medical bag, and an automatic deliberator. Fortuna is considered a safe community in which to live.

The following tables provide Fortuna crime statistics between 2003 and 2005.



TABLE 7-10 CALIFORNIA CRIME INDEX City of Fortuna 2003-2005			
Type of Crime	Total 2003	Total 2004	Total 2005
Homicide	0	0	0
Rape	2	6	7
Robbery	7	3	2
Aggravated Assault	12	34	13
Burglary	84	67	95
Vehicle Theft	30	16	42

Source: Robin Paul, Office Manager, Fortuna Police Department.

TABLE 7-11 FBI CRIME INDEX City of Fortuna 2003-2005			
Type of Crime	Total 2003	Total 2004	Total 2005
Arson	5	4	4
Grand Theft	50	45	39
Petty Theft	378	330	282

Source: Robin Paul, Office Manager, Fortuna Police Department.

TABLE 7-12 FORTUNA ARREST STATISTICS City of Fortuna 2003-2005			
Arrest Type	Total 2003	Total 2004	Total 2005
Adult Arrests	773	767	824
Juvenile Arrests	222	255	250
Total Arrests	1034	1022	1074

Source: Robin Paul, Office Manager, Fortuna Police Department.

TABLE 7-13 FORTUNA CRIME STATISTICS City of Fortuna 2003-2005			
Crime	Total 2003	Total 2004	Total 2005
Domestic Violence	27	40	40
Simple Assault	167	201	193
Dangerous Drug Reports	27	27	27
Vandalism	329	329	273
Drunkenness	107	87	130
Drunk Driving	96	148	114
Disorderly Conduct	1,231	1,529	1,423
Traffic Related Reports	600	671	661
Traffic Accidents	216	162	232
Agency Assists	296	296	302
All Other Reports	6,233	6,276	9,663

Source: Robin Paul, Office Manager, Fortuna Police Department.

TABLE 7-14 FORTUNA TRAFFIC AND PARKING VIOLATIONS City of Fortuna 2003-2005			
Violation Type	Total 2003	Total 2004	Total 2005
Traffic Violations	781	757	860
Parking Violations	370	232	215
Courtesy Notices	310	116	89

Source: Robin Paul, Office Manager, Fortuna Police Department.

Incarceration Facilities. The FPD has two holding cells in which to hold individuals for a few hours until they can be transferred to the Humboldt County Jail or questioned and released.

Dispatch Center. The FPD Dispatch Center handles all 911 calls for the Eel River Valley. They handle all calls for the Ferndale, Rio Dell and Fortuna Police Departments in addition to dispatch calls for the Fortuna Volunteer Fire Department. The dispatch center received 9,828 calls for service in 2003, 10,261 calls for service in 2004, and 14,345 calls for service in 2005.

Fortuna Police Department Programs.

It Pays. The "IT PAYS" Program is a cooperative program between the Fortuna Police Department, Fortuna Union High School, participating Fortuna Merchants, and the students of Fortuna High School Districts. The program is designed to recognize those students who make a commitment to be free from tobacco, alcohol, drugs, and crime. In order to participate in the program the student must sign a contract that they will not use tobacco, alcohol or drugs and not engage in criminal misconduct. Once the student signs the contract, they receive an "It Pays" card that when presented in conjunction with their student body card, can be used to obtain discounts at participating merchants. In addition, participating students are eligible to be entered into drawings for prizes and cash rewards.

Police Explorer Program. In 1996, the Fortuna Police Department began the "Police Explorer" Program which is chartered with the Boy Scouts of America. The program is designed to introduce the Explorer to the varied opportunities available in a law enforcement career, to give them a working knowledge of police functions, to instill a social awareness and responsibility, and to stimulate interest in law enforcement practices and the corresponding code of ethics.

Citizens Academy. In January of 2005, the Police Department began the Citizens Academy Program, which provides an opportunity for Fortuna residents, 18 years of age or older, to learn the inner workings of the Police Department. Residents attend six courses and learn about the following topics:

- Community oriented policing;
- Use of force and the use of deadly force;
- Arrest and control procedures;
- Gangs and prevention;
- High risk vehicle stops;



- Personal safety and self-defense;
- First-Aid;
- Crime prevention; and
- Other areas of interest.

Neighborhood Watch Program. Neighborhood Watch is a program that enlists active participation of citizens to reduce crime in their neighborhoods, and involves:

- Training citizens to recognize and report suspicious activity in their neighborhoods;
- Neighbors getting to know each other, taking time to care about each other and working together in a program of mutual assistance; and
- Use of crime prevention strategies such as home security and operation identification.

RUOK Program. The Police Department offers a daily computerized call to any Fortuna residents home free of charge. The intent of the program is check upon senior residents, people with a history of medical problems or individuals who are mobility impaired to ensure their well being. The call is made once a day, every day at a designated time set by the individual requesting the call. If the call is not answered on the first try, the computer will redial the number in ten minutes and if necessary again in twenty minutes. If the phone is not answered on any of the three attempts, the computer alerts the police dispatcher who calls a listed neighbor or friend to check on the individual who requested the call. If the neighbor or friend finds that individual is in need of assistance, a police officer and/or medical help are dispatched.

Volunteer Programs.

Redwood Amateur Radio Club's (RARC). This group is composed of about a dozen licensed amateur radio operators available to assist the department and community during times of disaster or when needed to provide communications for special events, such as searches and community events. Each volunteer belongs to RARC and holds a current Federal Communications Commission Amateur Radio Operators License and has passed a background check conducted by the department.

Retired Senior Volunteer Program (RSVP). This program uses retired seniors to assist with clerical staff duties. The volunteers provide services at no cost, which allows the FPD to use limited tax dollars for other vital services provided by the FPD.

The Citizen's On Patrol Program. The Citizen's On Patrol Program is comprised of adult citizens over the age of 18, who are familiar with the city of Fortuna. The volunteers conduct high visibility patrols, vacation house checks, assist the Crime Prevention Unit, conduct business and home security surveys, provide traffic control for special events and accidents, help transport station vehicles for service or repair and conduct other crime prevention related duties. However, they are not allowed to carry weapons, nor make arrests.

Other Programs. In addition to the aforementioned programs, the FPD provides the following programs:

- Adopt-A-Cop;
- Annual Merchant's Loss Prevention Seminars;
- Annual Fortuna Disaster Preparedness Fair;
- Anti-Terrorism: Interdiction and Response for Law Enforcement;
- Counter-Terrorism, an Introduction for First Responders;

- Disaster Planning;
- Fortuna Police Department Public Safety Newsletter;
- Gang Resistance Education and Training (GREAT);
- Merchant Seminars;
- Monthly Community Surveys;
- Neighborhood Emergency Service Team (NEST);
- Operation ID;
- Personal Protective Equipment Selection Guide;
- Women's Self-Defense Training; and
- Workplace Violence: Recognizing and Managing the Threat.

Findings

- The Fortuna Police Department has not had an increase of staff in 35 years, despite an increasing population.
- Fortuna Police Officers provide first response medical service, which is typically provided by a City's Fire Department.
- The Police Department provides a large variety of informational and training programs.
- The number of calls received for service has steadily increased since 2003.
- The Fortuna Police Department is unique in that they provide first response medical to the citizens of Fortuna, versus the majority of other cities where the Fire Department responds to medical calls.

7.9 Fire Protection

Introduction

This section describes the existing information regarding the City of Fortuna's fire protection services. This section outlines the current fire protection standards and existing fire protection infrastructure.

Key Terms

Apparatus. Fire apparatus include the various vehicles operated by fire departments, such as fire engines (outfitted with an on-board water supply and pump), water tenders (outfitted with a large water tank), aerials or ladder trucks (trucks that carry ground ladders and fixed hydraulic ladders or platforms that often extend beyond 50 feet) and rescue vehicles (trucks that carry medical and specialized rescue equipment).

Fire Protection District. A fire protection district is a "special district" (a government agency organized under state law for the local performance of governmental or proprietary functions within limited boundaries) whose principal purpose is preventing and putting out fires. Fire protection districts are established pursuant to Fire Protection District Law of 1987 (California Health and Safety Code §13800 et



seq.). Other special districts, such as community services districts (California Government Code §61000 et seq.), can also provide fire protection services.

Response time. Response time generally refers to the elapsed time to necessary to deliver personnel and equipment to an incident, and includes dispatch, turn-out (the time required for firefighters to get to the fire station), and the travel time to get to the scene.

State Responsibility Area. Section 4102 of the Public Resources Code (PRC) defines "state responsibility areas" as those areas of the state for which the State has the financial responsibility of preventing and suppressing fires. The SRA roughly corresponds to areas outside incorporated cities with vegetated lands that have watershed value.

Regulatory Setting

S **tate**
California Fire Code. Part 9 of Title 24 of the California Code of Regulations contains statewide fire safety-related building standards, comprised of the 2000 Uniform Fire Code prepared by the Western Fire Chiefs Association. The fire code establishes standards for the design and construction of new and existing buildings; fire protection systems; fire department access requirements; hazards; and the use and handling of hazardous materials.

California Health and Safety Code. The Health and Safety Code contains the regulations for the state fire marshal, fire safety, and local fire protection, including the enabling regulations for fire protection districts.

California Public Resources Code. The Public Resources Code establishes the California Department of Forestry and Fire Protection and the regulations for the prevention and control of wild fires.

Local

Fortuna Municipal Code. The City Municipal Code contains several sections that pertain to fire protection, including Title 8 Health and Safety, Chapters 8.16, Property Maintenance, which strives to eliminate nuisances that could lead to a fire hazard; and 8.20, Weeds, which relates to weeds or other inflammable materials that represent fire hazards; and Title 9 Public Peace, Morals and Welfare, Chapter 9.12, Fireworks, which requires that the fire chief review all applications for permits for the limited display of fireworks.

Existing Conditions

The Planning Area is protected by three fire agencies (see Figure 7-5). The Fortuna Fire Protection District (FFPD) provides structural fire protection and emergency services to the City of Fortuna as well as most of the Planning Area. A small portion of the Tompkins Hill area is located within the Loleta Fire Protection District (LFPD). The California Department of Forestry and Fire Protection (CDF) provides wildland fire protection to the forest area within the Planning Area north and east of the city limits that is designated as State Responsibility Area (SRA).

Fortuna Fire Protection District. Organized fire protection in Fortuna began in 1904 with the creation of the Fortuna volunteer fire department. The FFPD was formed in 1936 under the County Fire Protection District Law. The FFPD is considered a "dependent" district that is governed by Humboldt County. Most other fire districts in Humboldt County are "independent," whereby voters within district directly elect the district Board of Directors. In 1985 the Board of Supervisors passed Resolution 85-40, delegating their governing board powers to a district board of fire commissioners. Pursuant to Health and Safety Code §13844, the Board of Supervisors "shall determine whether the commissioners shall serve at its pleasure or

for staggered terms of four years subject to removal for cause.” In the case of Fortuna, the Board of Supervisors periodically appoints Fire Commissioners to serve.

The FFPD boundaries cover approximately 26 square miles and extend north to Graham Road (off of Tompkins Hill Road) and Fernbridge; west to the Eel River; south to the Metropolitan area near Rio Dell; and east almost to Carlotta. The FFPD is staffed by the Fortuna Volunteer Fire Department (FVFD), which is comprised of all-volunteer firefighters. The population within the FFPD is approximately 13,000.

The FVFD is organized separately from the FFPD. The FVFD is a non-profit corporation made up of its members and governed by the department’s chief officers. The FFPD provides the volunteer fire department with operational and capital funding, equipment, apparatus, utilities, and maintenance. The average annual revenue for the FFPD is approximately \$380,000 per year, about 60 percent of which comes from property tax and 20 percent from assessments. The volunteer fire department also raises funds to support its activities aside from firefighting and charitable activities. In addition, the FVFD participates in most Fortuna community events.

The command structure of the FVFD includes a chief, two assistant chiefs, five captains, ten lieutenants, one dispatcher and forty-five firefighters that are part of five fire companies. Of the five fire companies, three are located downtown, one in Campton Heights and one in Hydesville. Each company has a captain, two lieutenancies and up to 10 firefighters.

The FVFD operates out of three fire stations. The largest station is located on South Fortuna Boulevard in the center of town, with the two smaller stations located in Hydesville and Campton Heights.

TABLE 7-15 SUMMARY OF FIRE STATION INFORMATION City of Fortuna			
Station	Address	Engines	Companies
Headquarters Station	320 South Fortuna Blvd	2 Engines 2 Aerials 1 Rescue	No. 1, No. 2 & No. 3
Campton Heights	3080 School Street	1 Engine 1 Tender	No. 5
Hydesville	3495 Hwy 36	2 Engines	No. 4

Source: Fortuna Fire Protection District, 2005.

The volunteer fire department is dispatched by the Fortuna Police Department. Once a call for service is received, the Police dispatcher pages each firefighter and triggers sirens located at each fire station and at the City of Fortuna Corporation Yard on Dinsmore Drive. After dispatch, volunteer firefighters respond to the nearest station. Average response time for the first-in unit is three to four minutes within the City limits and four to five minutes for the rest of the district. The volunteer fire department responded to 170 calls in 2004, 70 of which were fires (structure, vehicle, and grass fires), and 29 were medical aid.

The volunteer fire department responds primarily to fires and non-medical calls-for-service. The volunteer fire department also responds to medical calls in the Hydesville area and is dispatched automatically to traffic accidents that occur within the district. The City Ambulance Company, located on South Fortuna Boulevard in Fortuna responds to all medical aid calls within the Planning Area. City Ambulance will request



mutual aid from the volunteer fire department if necessary. The Fortuna Police Department will also respond to medical aid calls within the city limits.

All firefighters attend a 40 hour academy given by volunteer fire department instructors. Firefighters are trained to a minimum proficiency in firefighting based on the National Fire Protection Association standards. Firefighters also receive training in specialized fire and rescue subjects, including hazardous materials, first responder medical, rope rescue, automobile extrication, wildland fire, and the use of FFPD equipment and apparatus.

The FFPD maintains mutual aid agreements with the following emergency response agencies (Humboldt County Master Fire Protection Plan-FSC Draft Plan, September 2005):

- Carlotta Community Services District – Fire;
- Ferndale Fire Protection District;
- Loleta Fire Protection District;
- Rio Dell Fire Protection District;
- Scotia Volunteer Fire Department;
- Fortuna Police Department;
- California Highway Patrol;
- City Ambulance Fortuna; and
- CDF (for mutual aid within Humboldt County).

The Insurance Services Office (ISO) establishes fire insurance ratings for communities throughout the United States. One of ISO's more well known services is to evaluate the fire suppression delivery systems of fire departments and districts. The result of those reviews is an individual Public Protection Classification (PPC) rating number assigned to the community that the respective fire department protects. The ratings are presented in a rating class structure which ranges from 1 to 10. Class 1 is the highest rating, representing excellent fire protection and Class 10 is the lowest, meaning the community's fire department did not meet the minimum requirements of the Fire Suppression Rating Schedule and is not recognized by ISO. The PPC is commonly used by insurance providers to establish home and business fire insurance rates.

The Fire Suppression Rating Schedule is used by ISO to rate the response capabilities within a community. Fifty percent of the grade is based on the fire department (equipment, staffing, training, and geographic distribution of fire companies), 40 percent is based on the water supply (condition and maintenance of hydrants, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires), and ten percent is based on fire alarm and communications systems (telephone systems, telephone lines, staffing, and dispatching system). Based on an ISO audit that occurred in 2004, the FFPD has a PPC rating of 5 for the urbanized areas near one of the three stations and within 1,000 feet of a hydrant, and a PPC rating of 8B in all other areas of the district that are more than five miles from a fire station or more than 1,000 feet from a hydrant. The FFPD has a rating comparable to, or better than, most urbanized areas in the county.

The 8B PPC rating was recently added by the ISO to recognize the efforts of fire departments to improve fire protection in areas with limited water supplies. Normally, a community whose water supply fails to meet ISO minimum standards would receive a Class 9 grading. With the new rating schedule, a community with limited water but otherwise superior fire-protection capabilities can earn Class 8B. The 8B rating acknowledges the number of firefighters responding to structure fires, training for firefighters, and water delivery capabilities (Effective Fire Protection, a National Concern, ISO, 2004).

City Ambulance. The Fortuna City Ambulance facility contains three ambulances and two on-duty ambulance crews staffed by paramedics and emergency medical technicians. City Ambulance provides 24-hour medical transport by ambulance with advanced life-support systems from their Fortuna facility under a contract with the North Coast Emergency Medical Services Agency. Fortuna City Ambulance has a response area that includes the entire Planning Area and extends beyond the Planning Area to Hookton Road in the



north, Trinity County in the east, the Pacific Ocean in the west, and the Dyerville Loop and Petrolia in the south. Fortuna City Ambulance responds to approximately 2,000 medical aid calls per year. It is not known how many calls for service City Ambulance responds to within the Planning Area. (Pers. Comm. with Jason Chand, City Ambulance, December, 2005)

Loleta Fire Protection District (LFPD). The LFPD, like the FFPD has a board of five fire commissioners that is appointed by the Board of Supervisors to govern the district. Based on the Humboldt County Master Fire Protection Plan-FSC Draft Plan, September 2005, the LFPD is an all volunteer fire department with 22 members. The LFPD fire station is located at 567 Park Street in Loleta. The LFPD boundaries extend north to Hookton Road and the south jetty at the mouth of Humboldt Bay, west to the Pacific Ocean, south to Fernbridge, and east into the hills approximately five miles beyond Highway 101.

California Department of Forestry and Fire Protection. The Headquarters of the CDF Humboldt-Del Norte Unit is located on South Fortuna Boulevard in Fortuna. CDF has the responsibility to suppress wildfire within the State Responsibility Area (SRA). CDF responds to all fires in the SRA during the declared fire season (approximately May to November), because such fires pose a threat to the vegetation. CDF also responds to vegetation fires in SRA at all times of the year.

In addition to housing the CDF Unit command and resource management/forestry operations, the Fortuna CDF headquarters facility also contains the CDF Fortuna Battalion. The Fortuna Battalion consists of two Type III fire engines (designated according to the Incident Command System and designed to respond to wildland fires and also have limited structure fire capabilities). Each engine is staffed with a minimum of three personnel during Immediate Response Action (IRA) periods. IRA is the fire season months which usually occur from May to November. Non-IRA is the other non fire season months. These engines can be staffed during non-IRA with available on duty personnel. The Fortuna Battalion also contains the Bridgeville Forest Fire Station. This station has one Type III engine which is staffed with a minimum of three personnel during IRA.

The CDF Rohnerville Air Attack Base, which is located within the Planning Area at Rohnerville Airport, is staffed only during IRA. The Rohnerville Air Attack Base has a staff of ten air and ground personnel, an air-attack "spotting" plane, and an air tanker. The Rohnerville Attack Base protects approximately 4.0 million acres and responds to an average of about 90 incidents per year. (Pers Comm. Jeremy Monroe, CDF Humboldt-Del Norte Unit Fire Prevention Officer, November, 2005.)

Findings

- The FFPD has three fire stations staffed by five fire companies and CDF has its Unit headquarters and an air attack base within the Planning Area. There are significant fire protection resources within the Planning Area.
- Like most fire departments within Humboldt County, the FFPD is an all-volunteer fire department. The FFPD is the most populous fire district in Humboldt County protected exclusively by an all-volunteer fire department.
- With the exception of vehicle accidents and mutual aid requests from City Ambulance, the volunteer fire department responds primarily to non-medical calls for service. Emergency medical services within the Planning Area are provided primarily by City Ambulance Fortuna and Fortuna Police.
- Based on an ISO audit that occurred in 2004, the FFPD has a PPC rating of 5 for the urbanized areas near one of the three stations and within 1,000 feet of a hydrant, and a PPC rating of 8B in all other

areas of the district that are more than five miles from a fire station or more than 1,000 feet from a hydrant. The FFPD has a rating comparable to, or better than, most urbanized areas in the county.

7.10 School Facilities

Introduction

This section describes the general characteristics of the City of Fortuna’s school facilities serving students in the Planning Area. This assessment utilizes historical and empirical data to outline the existing education facilities.

Key Terms

Classified employees. Classified employees are school employees not required to hold teaching credentials and include paraprofessionals (instructional and library aides), business managers, custodians, bus drivers, and cafeteria workers.

Certified employee. Certified employees are school employees that hold a teaching credential or other certificate, which could include a waiver or emergency permit. Certified employees include employees who serve students directly such as counselors, nurses or speech specialists.

Community Day School. These are schools that serve high-risk youths, including those referred by expulsion, probation, or a School Attendance Review Board, provide challenging academic curriculum; and develop pro-social skills and resiliency.

Charter School. This is a school that is created or organized by a group of teachers, parents and community leaders or a community-based organization, and is usually sponsored by an existing local public school board or county board of education. Specific goals and operating procedures for the charter school are detailed in an agreement (or “charter”) between the sponsoring board and charter organizers.

Continuation High School. An alternative high school primarily for students who are considered at-risk of not graduating at the normal pace.

Regulatory Setting

The California Education Code governs all aspects of education within the State.

Existing Conditions

There are four school districts in the Fortuna Planning Area: the Rohnerville School District, Fortuna Union High School District, Fortuna Union Elementary School District, and Hydesville Elementary School District (see Figure 7-6).



**TABLE 7-16
HISTORICAL ENROLLMENTS BY DISTRICT
City of Fortuna**

School District	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
Rohnerville	589	557	563	577	582	594	588	570	621	662
Fortuna Union High	1,123	1,187	1,215	1,238	1,245	1,231	1,181	1,225	1,159	1,282
Fortuna Union Elementary	743	778	808	780	761	783	764	814	810	790
Hydesville Elementary	178	166	171	162	161	157	164	179	157	152

Source: California Department of Education, School Level Enrollment Reports 2004-05, <http://data1.cde.ca.gov/dataquest>, accessed December 9, 2005.

**TABLE 7-17
FORTUNA PLANNING AREA SCHOOL DISTRICTS 2004-2005 DATA
City of Fortuna**

School Name	School Type	Enrolled	Capacity	Address
Rohnerville School District				
Norman G. Ambrosini	Elementary	298	Below Capacity	3850 Rohnerville Road, Fortuna
Toddy Thomas	Elementary	364	Below Capacity	2800 Thomas Street, Fortuna
Fortuna Union High School District				
Fortuna Union High	High School	1,110	Below Capacity	379 12 th Street, Fortuna
East High (Continuation)	High School	95	At Capacity	392 16 th Street, Fortuna
Academy of the Redwoods	High School	67	Below Capacity	7351 Tompkins Road, Eureka
Strong's Creek (Community Day)	High School	10	At Capacity	922 N Street, Fortuna
Fortuna Union Elementary School District				
Fortuna Middle School	Middle	345	Below Capacity	843 L Street, Fortuna
South Fortuna Elementary	Elementary	445	Below Capacity	2089 Newburg, Fortuna
Hydesville Elementary School District				
Hydesville Elementary School	Elementary	152	Below Capacity	3050 Johnson Road, Hydesville

Source: Enrollment data was obtained from California Department of Education, School Level Enrollment Reports 2004-05, <http://data1.cde.ca.gov/dataquest>, accessed December 9, 2005. Capacity information provided by Trudy Bonnikson, Toddy Thomas School, Personal Communication December 6, 2005; Dave Moss, Fortuna Union High School District Superintendent, Personal Communication December 16, 2005; Dale Stockly, Principle South Fortuna Elementary, Personal Communication December 9, 2005; John Blakely, Superintendent/Principle Hydesville Elementary, Personal Communication December 9, 2005.

TABLE 7-18 FORTUNA SCHOOL SUMMARY STATISTICS City of Fortuna				
School Name	Average Class Size	Teacher to Student Ratio	Classified Staff	Certified Staff
Norman G. Ambrosini	19.2	17.3	19	19
Toddy Thomas	26.4	20.8	21	23
Fortuna Union High	28.4	23.5	17	60
Fortuna Middle	29.9	23	33	20
East High	N/A	19	3	5
Academy of the Redwoods	N/A	22.3	2.5	3
Strongs Creek	N/A	10	1	1
South Fortuna Elementary	20.7	18.7	42	28
Hydesville Elementary	Unavailable	20.5	16	11
<i>Source: California Department of Education, Ed-Data, http://www.ed-data.k12.ca.us/welcome.asp, accessed December 9, 2005.</i>				

Charter and Private Schools. The River Valley Charter School (1200 Ross Hill Road, Fortuna, CA 95540) is located in the Planning Area and provides kindergarten through eighth grade education. Also located within the Planning Area are two private schools. New Life Christian (1736 Newburg, Fortuna, CA 95540) provides preschool through twelfth grade education and Fortuna Junior Academy, affiliated with the Seventh Day Adventists (1200 Ross Hill Road, Fortuna, CA 95540) which provides first through eighth grade education.

Higher Education. The Planning Area is located within the Redwoods Community College District and is 27 miles from Humboldt State University. Opportunities for higher education are available from College of the Redwoods and Humboldt State University, both of which are public universities.

The Redwoods Community College District operates College of the Redwoods (CR), which provides three main educational facilities (Eureka, Crescent City and Fort Bragg) and two branch campus locations (Klamath-Trinity and Southern Humboldt). The Eureka branch serves approximately 5,000 students, offers over 1,000 classes and is the closest facility to the Planning Area.

Humboldt State University, located in Arcata, is part of the California State University system. Humboldt State provides graduate and undergraduate education to approximately 7,500 students.

Facility Repair. Fortuna Union High School District has scheduled a reconfiguration of the East High campus for the summer of 2006. The plans include the addition of a new portable classroom, parking, landscaping, and removal of the old portable.

Rohnerville School District, as of December 21, 2005, was in the process of applying for facility and financial hardship monies to repair and modernize Toddy Thomas and Ambrosini Schools. If received, the money would be used to construct a new wing at Ambrosini that could accommodate three to four classrooms. Once the wing has been built, fourth grade classes would be moved from Toddy Thomas to Ambrosini. Funds would also be used to modernize the kitchen and bathroom facilities, and perform electrical and fire



alarm maintenance and upgrades at Toddy Thomas School. Rohnerville is also in the process of receiving funds for termite damage repair at Toddy Thomas that has closed two classrooms.

Fortuna Elementary School District currently (January 2006) has identified a list of repairs for Fortuna Middle School and South Fortuna Elementary, but is in need of funds to match the already approved funding from the State. The schools have an estimated 5-9 million dollars worth of needed repairs. South Fortuna Elementary needs a new gym, updated kitchen facilities, new electric wiring and mains (old mains are outdated and at capacity with current usage) new phone system, new windows and window casings, new doors and rot repair. In addition, the asbestos floor tile needs to be replaced. Fortuna Middle School is in need of new electric wiring and mains (current mains are outdated and at capacity with current usage), new windows, new doors, new gymnasium, rot repair and asbestos floor tile replacement. The district would also like to add a kitchen facility at Fortuna Middle School, in order to provide hot lunches for students on site. Two years ago Fortuna Middle School received a hardship grant, which was issued to cover the cost of replacing the roof. The grant was also used to replace three walls that were found to have excessive rot and replace a bathroom facility.

Findings

- Fortuna area schools are operating under capacity, with the exception of the two alternative High Schools East High and Strongs Creek Community Day.
- The elementary and middle schools in the Planning Area are in need of restoration and repair work.
- The initial unification effort has lost momentum, as schools would no longer qualify for state funds needed for construction projects once the districts were unified.

7.11 Libraries

Introduction

This section describes the library services available in the Planning Area and Humboldt County. This section lists existing library facilities and services and discusses needs for expansion or future programs. Representatives of the Fortuna Branch Library, the Humboldt County Library administration at the Eureka Main Library, Fortuna schools administration and librarians, Humboldt County of Office of Education Library Resources, and published sources of public information provided the background information for this section.

Key Terms

Dedicated Library Space. In school libraries, this refers to a room specifically designated or set aside for library resources, including books, periodicals, special collections, audio/visual equipment, computerized search stations, internet connected computers, and other resources and services that contribute to library services and do not form part of classroom space.

Regulatory Setting

There are no federal, State, or local regulations that are directly applicable to library services within the Planning Area.

Existing Conditions

Fortuna Library. The Fortuna Library, also known as Fortuna Memorial Library, is located at 753 14th Street at the corner of "N" Street and primarily serves residents of Fortuna and residents in the surrounding unincorporated area. The Fortuna Memorial Library is a branch of the Humboldt County Library system, which administers library services in Humboldt County. Currently (January 2006), the Fortuna Branch library provides library services in a 3,100 square foot building, constructed in 1952 and expanded in 1987. The Fortuna library contains books, periodicals, audio/visual and other resource materials, and provides programs and cultural events for children, teens, adults, and families.

Humboldt County Library. The main branch of the Humboldt County Library, also known as the Eureka Main Library, is located in Eureka, at 1313 3rd Street. The Humboldt County Library serves a population of approximately 126,518 from a large geographic area of 3,573 square miles in Humboldt County. The Humboldt County Library is a "dependent district" or department of the County, with its own budget separate from the County General Fund. The Library operates as an integrated and interdependent system, which allows the County to work in cooperation with the City of Fortuna to deliver library branch services to Fortuna residents.

According to the 2003-2004 Fiscal Year Report, the Humboldt County library collection contains nearly 317,000 books, approximately 550 periodical subscriptions, 8,620 audio /compact disc books/music items, and about 7,500 videocassettes/ DVDs. The Humboldt County Bookmobile serves the smaller Humboldt County communities of Miranda, Myers Flat, Weott, Redcrest, Orleans, Bridgeville, Dinsmore, Petrolia, Honeydew, Big Lagoon, Orick and the Redwood Valley area.

Other Libraries

Fortuna Schools. Libraries operated by other entities are also located within the Planning Area. Public schools containing dedicated library space include elementary schools, such as Ambrosini, Toddy Thomas, South Fortuna and Hydesville Elementary schools, and other public schools including Fortuna Middle School; and Fortuna Union and Fortuna East High Schools. Charter and private schools with library resources include the Fortuna Junior Academy.

Services and Collections. The City of Fortuna provides and maintains the Fortuna Library facility, while the County supplies the staffing, collections and services. The City of Fortuna owns the library building, pays for building repair and maintenance, janitorial services, utilities, and insurance for the library, but does not provide additional supplemental funding for library services. The City has also signed a memorandum of understanding (MOU) between the City of Fortuna and the Humboldt County Library. The MOU transfers all library equipment owned by the City of Fortuna to the County. The County is responsible for maintenance, supplies, and property insurance of this equipment.

Specific areas within the Fortuna library include a circulation desk and administration area for staff, and special collections featuring adult fiction and non-fiction, a large children's fiction and non-fiction area, a senior adult collection ("Older and Wiser" collection), a new and expanded young adult collection known as "Teen Zone", four public access internet terminals, search/catalog terminals, and seating and reading areas. The Fortuna Library has approximately 18,000 items, including books, audio/music/visual materials and videocassettes/ DVDs, and a circulation of approximately 9,000 books per month. The library has an automated computer library system that is connected to the central Eureka Main Library that provides access to all library services.



The library's public open hours include 10:00 am to 5:00 pm Thursday through Saturdays, Tuesday, noon to 5:00 pm, and Wednesday, noon to 9:00 pm. The Fortuna Library and other County library branches are closed on Sunday and Monday. In March 2005, the Fortuna branch library was awarded two grants by the Rose Perenin Foundation that provided an additional \$70,000 in funding for a two-year period. This grant has been used to enhance library services, including library open hours and hiring of a bi-lingual staff member involved with outreach efforts to Spanish speaking groups in the community.

Staffing for the Fortuna library includes one full-time branch manager, one half-time library assistant (18 hrs/week), and two part-time office assistants (10 and 13 hours/week). There is a high level of participation in programs and volunteerism at the Fortuna Library. The Fortuna Library has an active team of about 20 volunteers who contribute between 70-100 hours per month to the library assisting in various reading/story time, literacy programs, shelving or other services and activities offered by the library. Volunteers range in age from pre-teen/young adult to senior adults. One example of volunteer literacy efforts is a volunteer reading program where grandparents read to preschool age children. Table 7- 19 describes volunteer and participation rates.

TABLE 7-19 VOLUNTEER PARTICIPATION RATES: HOURS/YEAR NUMBER OF ACTIVE VOLUNTEERS PER MONTH City of Fortuna	
Branch Library	Hours per year/ No. active volunteers per month
Arcata	919/8.4
Fortuna	855/15
McKinleyville	1,118/12
Ferndale	182/2
Garberville	308/4
Willow Creek	168/2.5
Hoopa	159/1.5
Trinidad	328/4.5
Rio Dell	65/0.8
Blue Lake	0/0
<i>Source: Humboldt County Library, 2005.</i>	

The Fortuna Library hosts a number of reading and literacy programs by library staff and volunteers. The children's programs are some of the most active programs with storytime reading averaging five or six story hour readings per week. The Spanish and English Share a Story program is part of the KEET TV Ready to Learn Project, an on-going early childhood literacy program sponsored by KEET TV and the library. Children's programs at the Fortuna Library include preschool storytime on Friday mornings, children storytime on Tuesdays and Thursdays, Spanish Share a Story on the first Wednesday evening of the month, and English Share a Story on the third Wednesday evening of the month. The Humboldt Literacy Program sponsors the Family Literacy Night held on the second Wednesday of the month. The Fortuna Library Summer Reading program for children has a high level of community participation.

Service Demand. A space shortage exists at the Fortuna Library which is attributed to the small size of the building. The lack of space limits the amount of shelf and floor space available for library collections, which

results in restrictions in the size and variety of collections able to be housed at the Fortuna Library. Space for the new Teen Zone young adult library section, in operation since November 2005, was only obtained by converting the branch manager's office into the new library section. The demand for library material and services exceeds the ability to supply these services at the current Fortuna Library location, with limited potential for expansion at this facility. The library staff has determined the need for a larger building with sufficient floor area to house library collections, administration, and to meet projected community needs and library programs for the next 20 years.

In January 2003, the County Board of Supervisors authorized the formation of the County Library Task Force, a fourteen-member committee with each member representing a specific area or jurisdiction within Humboldt County, including the City of Fortuna. The charge of the committee was to create a five-year vision and goals for library services, and funding options. The three main priorities of need identified by this committee and from community input included: increased open hours, more new books and materials and a new or improved building.

Humboldt County Funding. The Humboldt County Library system is a special district for taxing purposes. Although the library is governed by the County Supervisors and operates as county department, it is not part of the County General Fund. Humboldt County Library revenues come primarily from property taxes, State and Federal funds, and some fees, fines and gifts. Another source of funding for the library includes grants to support basic and enhanced operations and services. Due to limited government funding, all books and materials were purchased through grants and donations during the 2003-04 fiscal year.

Fiscal conditions that continue to impact the Humboldt County Library's ability to meet public demand for service include the reduction in State aid to public libraries (75 percent reduction in funding in three years), the ongoing shift of property tax revenues to the State and the rising costs of providing service, evident in insurance, retirement, health care, gasoline and other operational costs.

Foundation, Friends Organizations. The Humboldt Library Foundation and the Friends of the Redwood Libraries are the two main support organizations for the Humboldt County Library system. Money raised by the Friends book sales, Internet sales, and from the Serendipity Bookstore (used books) located on the second floor of the Main Eureka library provide a significant source of revenue for books and materials distributed to the County library branches. During 2003-2004 Fiscal Year, the Friends organization contributed \$47,949 to the library, which supported the library collection and special needs.

Friends of Fortuna Library. Most branch libraries in Humboldt County have a separate 'Friends of the Library' organization that raise supplementary funds for their specific branch location. The Fortuna library has an active "Friends of the Fortuna Library" (also known as "Friends"). The Friends of Fortuna raised approximately \$9,000 in the 2003-04 fiscal year to provide supplemental funds for services and materials for the Fortuna Library. Through the work of the Friends, and through grant funding, the library has been able to provide supplemental funds for programs/services, books, and materials to enhance library services (Ref: Humboldt County library/Fortuna Friends website, and personal communication Chris Cooper).

In communications with the president of the Fortuna Friends organization, the Fortuna library branch manager, and acting director of Humboldt County library, additional floor area for the library is an identified need. One opportunity for expansion at the current facility could be to plan a new building addition extending into the adjacent Chamber Park located between the library and the Chamber of Commerce buildings. The Chamber Park is a city owned pocket park.



Findings

- The Humboldt County Public Library system provides a variety of library services to residents of both the City of Fortuna and Humboldt County. The Fortuna Library is one of 11 existing library branches operated by the County of Humboldt.
- There is a high level of use and demand for library services at the Fortuna Library. Increased future demand for library services is expected to be concentrated within the child, young adult, and senior adult age groups. An expected increase in demand for Spanish language resources and programs is a projected need for special collection library services.
- The current Fortuna Library building is too small to meet current and future level of service demands. The insufficient floor area and shelf space are key limiting factors.
- Fiscal conditions impact the Library's ability to meet public demand for service. This includes the erosion of State aid to public libraries, the ongoing shift of property tax revenues to the State and the rising costs of providing service. Fundraising efforts through the Humboldt Library Foundation and Friends organizations and the use of volunteers will continue to be key to the present and future provision and funding of library materials and services for the Fortuna library and Humboldt County library system.

8

Public Health & Safety



8.1 Introduction

Key to future development of the Planning Area involves the protection of public safety and property from natural and human-made hazards. Some of these hazards may occur naturally, such as seismic, geologic, or wildfire hazards. Other health and safety hazards may be the result of natural hazards, but are exacerbated by human activity and the alteration of the natural environment, such as urban fire hazards and development in floodplains. Additional hazards may be human made, including air quality effects and exposure to hazardous materials.

This chapter is divided into the following sections:

- Air Quality (Section 8.2)
- Noise (Section 8.3)
- Geologic and Seismic Hazards (Section 8.4)
- Human-Made Hazards (Section 8.5)
- Flood Hazards (Section 8.6)
- Wildland Fires (Section 8.7)

8.2 Air Quality

Introduction

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. The primary factors that determine local air quality are the locations of air pollutant sources and the amounts of air contaminants emitted. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients, interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

To provide a better understanding of the current air quality conditions in the Planning Area, this section describes existing regional topography and climate, federal and state ambient air quality standards, local air quality planning and management, and existing air quality conditions for the Planning Area.

Key Terms

PM₁₀. Dust and other particulates come in a range of particle sizes. Federal and state air quality regulations reflect the fact that smaller particles are easier to inhale and can be more damaging to health. PM₁₀ refers to dust/particulates that are 10 microns in diameter or smaller.



PM_{2.5}. The federal government has recently (2005) added standards for smaller dust particles. PM_{2.5} refers to dust/particulates that are 2.5 microns in diameter or smaller.

Ozone. Ozone is a pungent, colorless toxic gas created in the atmosphere rather than emitted directly into the air. Ozone is produced in complex atmospheric reactions involving oxides of nitrogen and reactive organic gases with ultraviolet energy from the sun. Motor vehicles are the major sources of these ozone precursors.

Regulatory Setting

Federal

Federal Clean Air Act. The federal Clean Air Act (FCAA), adopted in 1970, and amended twice thereafter, establishes the framework for modern air pollution control. The act directs the EPA to establish ambient air standards for six pollutants: ozone, carbon monoxide, lead, nitrogen dioxide, particulate matter, and sulphur dioxide. The standards are divided into primary and secondary standards; the former are set to protect human health and welfare with an adequate margin of safety and the latter to protect non-health related effects, such as visibility.

Areas that do not meet the ambient air quality standards are called “nonattainment” areas. The federal Clean Air Act requires each state to submit a state implementation plan (SIP) for nonattainment areas. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards will be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits for such improvements as highway construction and sewage treatment plants. In cases in which the SIP is submitted by the state but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

State

California Clean Air Act. The California Clean Air Act (CCAA) establishes an air quality management process that generally parallels the federal process. The CCAA, however, focuses on attainment of the state ambient air quality standards, which, for certain pollutants and averaging periods are more stringent than the comparable federal standards. The California Air Resources Board (CARB) and local air pollution control districts, such as the North Coast Unified Air Quality Management District, have the responsibility for meeting California’s standards. Compliance strategies are presented in district-level air quality management plans, which are incorporated into the state implementation plan.

The CCAA requires that air districts prepare an air quality attainment plan if the district violates state air quality standards for carbon monoxide, sulfur dioxide, nitrogen dioxide, or ozone. No locally prepared attainment plans are required for areas that violate the state inhalable particulate (PM₁₀) standards. The CCAA requires that the state air quality standards be met as expeditiously as practicable but does not set precise attainment deadlines. Instead, the act established increasingly stringent requirements for areas that will require more time to achieve the standards.

Local

North Coast Unified Air Quality Management District. The North Coast Unified Air Quality Management District (NCUAQMD) regulates air quality in Humboldt County to achieve and maintain federal and state air quality standards, subject to the powers and duties of the California Air Resources Board. The NCUAQMD is

responsible for developing air quality plans, monitoring air quality, and reporting air quality data for the North Coast Air Basin, which includes Humboldt County.

The NCUAQMD adopts rules and regulations intended to protect human health and safety. Regulation 1 (Air Quality Rules) establishes permit requirements and fees, new source review (review of new stationary emissions sources, such as power plants), and prohibitory rules. The prohibitory rules establish emissions standards and forbid the discharge of particulate matter and other air contaminants in excess of such standards. The NCUAQMD also conducts risks assessments as part of its new source review that analyzes the effect of the new source on air quality for each air contaminant for which the significance level is exceeded. Regulation 1 also contains authority for enforcement and penalty actions by the NCUAQMD. The NCUAQMD rules and regulations also include open burning procedures (Regulation 2), toxic control rules (Regulation 3), and procedures for issuing permits to operate for sources subject to Title V of the Federal Clean Air Act Amendments of 1990 (Regulation 5).

Existing Conditions

L**ocal Meteorology.** The city of Fortuna is located within the North Coast Air Basin, which is comprised of Del Norte, Humboldt, Mendocino, and Trinity counties, as well as the northern and western portion of Sonoma County (as defined in the California Code of Regulations, Title 17, Division 3, Chapter 1, Article 1). The local climates within the basin, also known as sub-climates, are affected by elevation, topography, and proximity to the Pacific Ocean. Weather within the basin is dependent upon proximity to the ocean.

Humboldt County, like the North Coast Air Basin, contains sub-climates that are created by local topography and proximity to the ocean. The city of Fortuna is located within the Eel River delta. Weather in the Eel River delta is subject to cold upwelling of sea water to the ocean surface off the Humboldt Coast. This cold sea water in turn cools the surface air. During the summer, winds flowing from the Pacific Ocean are drawn on shore by the difference in surface temperatures, resulting in daytime northwesterly winds. In winter, this temperature differential is less, and surface winds may blow from many directions depending on storm patterns or periods of calm. These periods of calm can amount to 30 percent of the year.

The climate within the city of Fortuna is somewhat unique in comparison to the rest of the Eel River delta due to the local topography. The city is somewhat protected from the prevailing northwest winds and fog by the range of hills to the north. As a result, there is less fog and the average summer temperature in Fortuna is warmer.

Temperature inversions, which occur when a layer of warm air traps cool air near the surface creating a lid, inhibit the vertical dispersion of pollutant emissions. Inversions occur most commonly in the Fortuna area during winter months and trap emissions of all types near the surface. Wind helps disperse air pollution; whereas calm periods can allow it to build up to unhealthy levels. Dispersion usually occurs when a frontal system, sometimes bringing strong winds, passes over the area disturbing the temperature inversion, which allows pollutants to disperse vertically and horizontally.

There is no official National Weather Service weather data for the city of Fortuna. The nearest monitoring station for climate information used by the National Weather Service is in Town of Scotia (www.nrcc.dir.edu/climatedata.html). The average annual daily temperature in Scotia is 54.6 degrees Fahrenheit, with an average maximum temperature of 62.9 and an average minimum temperature of 46.3. Based on data available from sunnyfortuna.com, the mean annual air temperature in Fortuna is about 55



degrees Fahrenheit. Nighttime temperature in summer is about 50 degrees, while daytime temperatures regularly rise to 70 degrees.

Air Quality Air Pollutants of Concern. Table 8-1 lists State and federal criteria pollutants and the status of these pollutants on the North Coast. As Table 8-1 indicates, the North Coast meets, or achieves "attainment" of, most state and federal air quality standards. Attainment means that the federal and state standards for a particular criteria pollutant are not exceeded in the local area. "Non-attainment" means that the concentration of a criteria pollutant in the local air basin exceeds federal or state standards.

**TABLE 8-1
STATUS OF CRITERIA POLLUTANTS IN THE NORTH COAST AIR BASIN
North Coast Air Basin**

Criteria Pollutant	Federal Standards	State Standards
Sulfur Dioxide	Attainment	Attainment
Nitrogen Dioxide	Attainment	Attainment
Particulate PM ₁₀	Unclassified/Attainment	Nonattainment
Particulate PM _{2.5}	Unclassified/Attainment	Unclassified
Carbon Monoxide	Unclassified/Attainment	Attainment
Sulfates	No Standard	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	No Standard	Attainment
Vinyl Chloride	No Standard	Attainment

Source: North Coast Air Quality Facts, NCUAQMD; California Air Resources Board.

The most significant criteria pollutants for the North Coast are described below.

Particulate Matter 10 Microns or Less. Particulate matter refers to inhalable particles that are less than 10 microns in diameter (PM₁₀). Particulates are classified as primary or secondary depending on their origin. Primary particles are unchanged after being directly emitted (e.g., road dust) and are the form of PM₁₀ that are most commonly analyzed and modeled. Because it is emitted directly and has limited dispersion characteristics, primary PM₁₀ is considered a localized pollutant. Primary PM₁₀ sources are derived from both human and natural activities. A significant portion of PM₁₀ sources is generated from a variety of human activity. These types of activities include agricultural operations, industrial processes, combustion of wood and fossil fuels, construction and demolition activities, and entrainment of road dust into the air. Natural sources also contribute to the overall PM₁₀ problem. Natural sources include windblown dust and wildfires.

Secondary PM₁₀ sources emit air contaminants into the atmosphere that form or help form PM₁₀. Consequently, these pollutants are considered precursors to PM₁₀ formation. These secondary PM₁₀ pollutants include emissions of ROG, NO_x, and sulfur oxides (SO_x). Control measures that reduce PM₁₀ precursor emissions tend to have a beneficial impact on ambient PM₁₀ levels.

Increases in mortality have been associated with very high 24-hour concentrations of PM₁₀, with some increased risk of mortality at lower concentrations. Small increases in mortality appear to exist at even lower levels. Risks to sensitive individuals increase with consecutive, multi-day exposures to elevated PM

concentrations. The research also indicates that aggravation of bronchitis occurs with elevated 24-hour PM₁₀ levels, and small decreases in lung function take place when children are exposed to lower 24-hour peak PM₁₀ levels. Lung function impairment persists for two to three weeks following exposure to PM₁₀.

PM₁₀ levels tend to be high in summer months because auto traffic is about 20 percent higher than average, farm activities raise dust, and little rainfall occurs to wash pollutants out of the air. In the winter, temperature inversions trap emissions very close to the ground. Emissions from agricultural burning, wood stoves and fireplaces, and motor vehicles are all important sources that contribute to high levels of winter time PM₁₀.

The most significant local source of PM₁₀ emissions during the cool months is residential wood combustion. These emissions occur primarily during the evening hours, and peak hourly levels may exceed the state daily standard by 400 percent (i.e. 200 g/m³ on a day that reaches 50 g/m³ for 24 hours). However, with the mixing in of cleaner air during the late evening and early part of the day, the average level comes down significantly.

Local Air Quality Conditions. The ARB collects ambient air quality data through a network of air monitoring stations throughout the State. These data are summarized annually and are published in CARB's California Air Quality Data Summaries. There is one monitoring station in Humboldt County, which is located at the Humboldt County Health Department in Eureka.

Table 8-3 summarizes PM₁₀ concentrations that have been measured within the County through the period of 1986 to 2004. As shown, the Humboldt County has a history of State exceedances for particulate matter standards.

Based on a search of the ARB permitted facility search engine (<http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php?dd=>), there is one facility in Fortuna with an air permit, the Mercer Fraser gravel, concrete, and asphalt plant on Dinsmore Drive along the Eel River, which is a source of particulate matter. The Pacific Lumber Mill Company (PALCO) in Fortuna, which closed in 2005, did have permitted cyclones associated with saws and planers; however, this facility is no longer operational. Other facilities within the Planning Area that may have air quality permits include gravel extraction (if the facility includes a crusher), vapor recovery associated with gas stations, dry cleaners, auto body paint, and standby diesel generators 50 horse-power or greater.



**TABLE 8-2
PM10 TRENDS SUMMARY: EUREKA-HEALTH DEPT 6TH AND I STREET
City of Fortuna**

Year	Est. Days Exceeding Std.		Annual Average		3-Year Average		High 24-Hr Average		EPDC	Year Coverage
	Nat'l	State	Nat'l	State	Nat'l	State	Nat'l	State		
2004	0	-	20.7	-	-	-	60.7	63.9	-	87.0
2003	-	-	-	-	-	21.0	67.5	71.1	-	82.0
2002	0	-	18.5	-	20.0	22.0	36.2	38	65.9	96.0
2001	0	13.0	20.8	21.3	20.0	22.0	63.5	67.1	73.2	93.0
2000	0	5.8	20.9	21.8	18.0	22.0	50.9	53.4	63.4	90.0
1999	0	12.6	19.2	19.9	18.0	20.0	56.6	59.8	-	95.0
1998	0	0	14.8	15.9	18.0	16.0	43.0	45.0	-	89.0
1997	0	6.0	21.2	21.0	20.0	21.0	56.0	56.0	73.1	96.0
1996	0	11.5	18.4	19.0	21.0	24.0	87.0	87.0	83.6	94.0
1995	0	-	19.9	-	-	24.0	68.0	68.0	-	92.0
1994	0	12.1	24.3	24.3	-	24.0	77.0	77.0	-	100.0
1990	0	29.0	28.0	28.0	32.0	31.0	83.0	83.0	117.5	98.0
1989	0	35.1	31.4	31.4	35.0	31.0	92.0	92.0	121.2	100.0
1988	0	-	36.2	-	-	-	98.0	98.0	-	97.0
1987	0	-	36.1	-	-	-	98.0	-	-	98.0
1986	-	-	-	-	-	-	98.0	-	-	30.0

Source: California Air Resources Board Aerometric Data Analysis and Management System database, 2005.

Particulate Matter 2.5 Microns or Less. In July 1997, the EPA adopted new air quality standards for particulate matter. The EPA established annual and 24-hour standards for the fine fraction of particulates which are 2.5 microns or less in size. It revised the primary (health-based) PM standards by adding a new annual PM_{2.5} standard set at 15µg/m³ and a new 24-hour PM_{2.5} standard set at 65 µg/m³. Based on health studies conducted, PM_{2.5} is considered to be more adverse to human health than any other pollutant.

The EPA also revised the secondary (welfare-based) standards by making them identical to the primary standards. The purpose of the secondary standards in combination with the federal regional haze program is intended to provide protection against the major PM related welfare effects, such as visibility impairment, soiling and materials damage. Other recent changes made by the EPA include rules to address the monitoring network design for the new PM_{2.5} standards and to improve visibility by requiring states to develop programs to help reduce regional haze.

The EPA will retain the current annual PM₁₀ standard of 50 µg/m³ and adjust the PM₁₀ 24-hour standard of 150 µg/m³ by changing the form of the standard. The North Coast Air Basin has been designated "attainment" for the federal PM_{2.5} standard.

Ozone Smog. Ozone smog is one of the main air pollutants that cause health and welfare problems in California. Smog is formed near the earth's surface when two classes of chemicals, reactive organic gases (ROG) and oxides of nitrogen (NO_x), react in the presence of sunlight to form a third compound, ozone. Ozone gas is comprised of three oxygen atoms, is highly reactive with other molecules, and can sometimes be destructive. Substantial research indicates that crop yields are reduced when ozone levels exceed 0.06 parts per million.

Ozone within the City of Fortuna has not been measured by state or local agencies. However, the NCUAQMD indicates that the local ozone air quality summary contained in Table 8-3 is representative of air quality along coastal Humboldt County, including the City of Fortuna.

TABLE 8-3 OZONE AIR QUALITY DATA SUMMARIES City of Fortuna, 1993-1996					
Location	Year	Highest 1-Hr.	4 th Highest 8-Hr.	# of Days Exceeding Standard:	
				State 1-Hr.	Federal 8-Hr.
Eureka - Ft. Humboldt	1992	0.040	0.040	0	0
Requa (Redwood NP)	1993	0.050	0.050	0	0
	1994	0.051	0.049	0	0
	1995	0.052	0.048	0	0

Source: Arcata General Plan: Program EIR, 2020.

Sensitive Receptors. As discussed previously, the national and State ambient air quality standards have been set at levels whose concentrations could be generally harmful to human health and welfare and to protect the most sensitive persons from illness or discomfort with a margin of safety. Air pollution regulatory agencies typically define sensitive receptors to include residences, schools, playgrounds, child care centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Each of these land use types is present in the Planning Area.

Findings

- There are few sources of air pollution or toxic air contaminants in Fortuna.
- Fortuna benefits from good air quality.
- The North Coast Air Basin has been designated "attainment" for the federal PM_{2.5} standard.
- The only non-attainment category in the North Coast Basin is for PM₁₀.
- The most significant source of PM₁₀ emissions during cool months is residential wood combustion, which can exceed state daily standards by 400 percent.



8.3 Noise

Introduction

This section describes the regulation of noise in Fortuna and identifies major noise sources in the Planning Area including major roadways, highways, airports, and fixed noise sources.

Key Terms

Ambient Noise Level. The composite of sound from all sources near and far. The normal or existing level of environmental sound at a given location.

ANSI. American National Standards Institute

A-Weighted Sound Level (dBA). The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to sound. All sound levels in this report are A-weighted, unless reported otherwise.

CDF. California Department of Forestry

CEQA. California Environmental Quality Act

Community Noise Equivalent Level (CNEL). The average A-weighted sound level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels measured in the night between 10:00 p.m. and 7:00 a.m.

Day/Night Noise Level (L_{dn}). The average A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 p.m. and 7:00 a.m.

Decibel (dB). A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

EPA. Environmental Protection Agency

Equivalent Noise Level (L_{eq}). The average A-weighted sound level during the measurement period.

Frequency (Hz). The number of complete pressure fluctuations per second above and below atmospheric pressure.

Intrusive. That sound which intrudes over and above the existing ambient sound at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient sound level.

L_{01} , L_{10} , L_{50} , L_{90} . The A-weighted sound levels that are exceeded 1 percent, 10 percent, 50 percent, and 90 percent of the time during the measurement period.

L_{max} , L_{min} . The maximum and minimum A-weighted sound level during the measurement period.

Regulatory Setting

Federal

Environmental Protection Agency. The Environmental Protection Agency (EPA) recommended in 1974 that Day/Night Noise Level (L_{dn}) should be kept below 55 A-Weighted Sound Level (dBA) in residential areas “to protect public health and welfare with an adequate margin of safety” (EPA 1974). This level relates to the level normally present in a typical suburban community of about 770 people per square kilometer. This goal did not account for economic or technological feasibility and was not designed as a regulation. The study recognized that many people lived in both quieter and noisier areas. The EPA guideline has methodologies for evaluating other size communities, as well as “correction” factors used to adjust for seasonal operations, the existence of pure tones and impulse sounds.

Federal Highway Administration. The Federal Highway Administration uses a one-hour equivalent (time-average) sound level criteria of 67 dBA to determine when to consider noise barriers for new highway projects. Before actually building barriers, the Federal Highway Administration requires that the project further qualify based on the cost and benefit of the barrier per protected home.

State

California Environmental Quality Act. The state legislature adopted the California Environmental Quality Act (CEQA) as a result of a public mandate for thorough environmental analysis of projects that might affect the environment. CEQA considers excessive noise to be an environmental impact. Implementation of CEQA ensures that during the decision making stage of development, City officials and the general public assess the noise impacts associated with public and private development projects.

California Noise Insulation Standards (Title 24). The California Commission of Housing and Community Development officially adopted noise standards in 1974. In 1988, the Building Standards Commission approved revisions to the standards (Title 24, Part 2, California Code of Regulations). As revised, Title 24 establishes an interior noise standard of 45 dBA for residential space (Community Noise Equivalent Level [CNEL] or L_{dn}). Acoustical studies must be prepared for residential structures that are to be located within noise contours of 60 dBA or greater from freeways, major streets, thoroughfares, rail lines, rapid transit lines or industrial noise sources. The studies must demonstrate that the building is designed to reduce interior noise to 45 dBA or lower.

California General Plan Guidelines. The California Governor’s Office of Planning and Research published the current General Plan Guidelines in 2003. These advisory guidelines serve as valuable reference for cities and counties in the preparation of local general plans. The Office of Planning and Research aims to realize the sustainable developmental goals of protecting the environment, maintaining a healthy economy, and ensuring equitable treatment of all people.

Local

City of Fortuna Ordinances. The City’s Zoning Ordinance as of January 2006 does not address noise. Similarly, Fortuna has no noise ordinance.

City of Fortuna Penal Code. When the Police Department responds to noise complaints, a citation issued will refer to section 415 PC from the Penal Code, which deals with general disturbance.

Fortuna General Plan. The 1993 Fortuna General Plan contains a one-page noise section. It is divided into three sections: general noise discussion, goals, and policies. The goal, as specified in § 6610, is to “ensure



that the residents of Fortuna are free from excessive noise and abusive sounds.” This goal is to be achieved through the following policies described in § 6621 through 6625:

§ 6621. Isolate uses whose operations are characterized by high levels of noise from sensitive uses such as (sic) residential, health care facilities, schools, and places of public assembly. The Noise Maps show the projected noise levels in the City and areas sensitive to loud noises.

§ 6622. Reduce the future impact of excessive noise along the City’s arterial and collector roads through project design, providing buffers to the extent feasible, and screening.

§ 6623. The City shall use the Noise and Land Use Compatibility Matrix (Table 24) in reviewing development proposals.

§ 6624. Identify and evaluate potential noise problem areas on a continuing basis.

§ 6625. The City shall enforce performance standards for acceptable noise levels in the permit process.

Existing Conditions

Community Noise Study. The General Plan consultants conducted a community noise study to document noise levels near significant noise sources. After discussion with Fortuna residents regarding potential noise sources and a quick survey of the Fortuna area in early December 2005 using a sound level meter, the consultants performed the community noise study in mid-December 2005 along major roadways in the Planning Area. Short-term noise measurements were collected at ten locations (Figure 8-1), once during the day and one at night to allow valid estimates of L_{dn} to be prepared. A Type 8-4 integrating and logging sound level meter, meeting standards of the American National Standards Institute (ANSI), collected these noise measurements. The consultants then calibrated the sound level meter. Table 8-4 summarizes the noise measurement locations data from the field study.

Table 8-4 portrays the results of the short-term measurements. It presents the integrated average noise level (L_{eq}) measured during short-term measurement periods. The table also portrays the noise level exceeded during one percent of the measurement period (L_{01}) which is considered the intrusive noise level in a variable sound environment; the noise level exceeded during 50 percent of the measurement period (L_{50}), which is the median noise level; and the noise level exceeded during 90 percent of the measurement period (L_{90}), which is considered the background noise level in a variable sound environment. In addition, Table 8-4 presents the maximum level (L_{max}) during the measurement interval with a slow response setting incorporating A-weighting. These noise measurement terms and other acoustical terms are further defined in the “Key Terms” subsection along with an explanation of the principles of sound. Table 8-4 also portrays the number of vehicles (including automobiles, pickup trucks, semi trucks, and motorcycles) counted passing by the sound level meter during the sound level measurements to gauge the impact of vehicular noise levels.

During the sound level measurements, no unusually loud sounds occurred and no unexpected sounds arose to bias the readings. One exception existed—the nighttime sound level measurement for Site 8 was artificially increased by three of the six passing vehicles had defective mufflers and they stopped and lingered at the nearby stop sign. Vehicular traffic noise level varied widely depending on the time of day and the proximity of the location to the road. As expected, passing vehicles heavily influenced the sound level measurements for most locations, as demonstrated by the 8 to 23 dBA higher daytime average noise levels (L_{eq}) compared with the nighttime average noise levels (L_{eq} gathered between 10 p.m. and 7 a.m.), resulting from much

higher daytime vehicle counts for daytime versus nighttime. Conversely, the daytime average noise levels for Site 8 were 5 dBA higher than the nighttime average noise levels at that location, since it was a half block away from a well-traveled street. These daytime and nighttime noise levels provided the basis for the estimated L_{dn} values in Table 8-4.



**TABLE 8-4
NOISE MEASUREMENT RESULTS, COMMUNITY NOISE STUDY
City of Fortuna**

Site #	Location and Measurement Distance from Major Roadway	Date & Time of Measurement Initiation	Average Noise Level (L_{eq}) ¹	Maximum Noise Level (L_{max}) ²	Intrusive Noise Level (L_{01}) ³	Median Noise Level (L_{50}) ⁴	Background Noise Level (L_{90}) ⁵	Auto & Truck Count	Estimated L_{dn} ⁶
1	Northbound Hwy 101 exit onto Main St. – 100 feet.	12-14-05/2:42 p.m.	62.3	73.2	69.9	60.2	52.4	44	62
		12-14-05/11:41 p.m.	52.7	64.8	62.7	46.6	36.5	14	
2	East of Hwy 101 at Kenmar Rd. Exit – 120 feet.	12-14-05/2:14 p.m.	63.0	70.4	68.1	62.2	57.1	64	64
		12-15-05/12:31 a.m.	54.4	62.8	61.9	52.5	45.3	11	
3	12 th St & I St. - 7 ft.	12-14-05/1:13 p.m.	68.8	84.1	80.7	64.4	55.4	50	64
		12-14-05/11:58 p.m.	45.1	60.3	57.3	40.3	38.0	1	
4	Main St. & 12 th St. – 15 feet.	12-14-05/3:05 p.m.	70.4	81.2	79.5	68.6	64.0	88	67
		12-14-05/11:26 p.m.	55.9	68.4	67.2	45.5	41.3	5	
5	Main St. & Fortuna Blvd. – 54 feet.	12-14-05/3:33 p.m.	64.1	73.2	71.5	62.7	58.7	103	65
		12-14-05/11:13 p.m.	55.0	70.3	68.7	45.5	42.6	8	
6	Fortuna Blvd. & Kenmar Rd. - 13 ft.	12-14-05/4:57 p.m.	68.9	82.4	78.5	66.1	60.9	88	66
		12-15-05/12:47 a.m.	54.9	70.4	68.8	48.5	38.0	4	
7	Rohnerville Rd. & Loop Rd. (north) – 60 feet.	12-14-05/4:00 p.m.	65.3	80.3	77.9	59.4	49.4	41	65
		12-14-05/10:55 p.m.	54.1	69.0	66.9	42.8	38.5	6	
8	School St. & Wood Ave. – 15 feet.	12-14-05/4:33 p.m.	64.4	75.2	73.6	60.3	50.0	37	63
		12-14-05/10:37 p.m.	59.2	73.5	70.7	51.3	42.7	6	
9	Drake Hill Rd. & Hwy 101 – 130 feet.	12-14-05/12:41 p.m.	66.6	74.4	72.9	65.3	59.7	76	67
		12-15-05/12:15 a.m.	58.0	72.0	70.7	46.1	38.7	9	
10	Rohnerville Rd. & Drake Hill Rd. – 20 feet.	12-15-05/1:19 p.m.	67.6	82.5	79.9	52.5	43.5	17	63

1. L_{eq} : Equivalent Noise Level, The average A-weighted sound level during the measurement period. Measured in A-weighted Decibels (dBA)
 2. L_{max} : Maximum Noise Level, measured in dBA.
 3. L_{01} : Intrusive Noise Level, measured in dBA.
 4. L_{50} : Median Noise Level, measured in dBA.
 5. L_{90} : Background Noise Level, measured in dBA.
 6. L_{dn} : Day/Night Noise Level
 Source: SHN, December 2005.

Transportation Related Noise Sources

Roadways. Daily volume counts for free-flowing traffic could not be located for surface streets or Highway 101. Turning movement counts were collected in late 2004 and 2005. However, the computerized traffic noise prediction programs cannot incorporate such counts. Consequently, the sound level measurements from the Fortuna community noise study and additional field noise checks in the area provided the basis for the noise contours presented on Figure 8-2. The noise contours indicated are 60 dB L_{dn} . At a particular location, the actual location of the 60 dB L_{dn} may differ from that shown in Figure 8-2 due to the barrier provided by local topography or structures, roadway grade, roadway curvature, raised roadways, or elevated receivers.

Railroads. The North Coast Rail Authority has not operated trains on the railroad tracks located on the west side of Fortuna since 1998. Therefore, railroads make no contribution to the noise environment.

Airport Noise. The Rohnerville Airport, located south of Fortuna city limits, is a public use airport serving small private airplanes employed for personal or business objectives. In addition, California Department of Forestry (CDF) airplanes use the airport during the fire season for staging firefighting activities and the impact of such operations is undetermined. While sound level measurements were being collected in the field, no airplanes took off or landed at Rohnerville Airport. It is expected airport operation contributions to the L_{dn} would be negligible except for a few days of the year.

Fixed Noise Sources. Beyond transportation noise sources, noise can be generated from fixed noise sources.

Commercial and Public Service Facilities. Commercial and public service facilities can produce unwanted noise. During the survey of noise sources in Fortuna, only a few possible fixed sources were located in December 2005. Previously, the Fortuna Division of the Pacific Lumber Company (PALCO), located east of Highway 101 between the Kenmar Road and Sandy Prairie Road (12th Street), was the major fixed noise source. However, the PALCO Mill no longer operates or produces significant noise.

Mercer-Fraser Gravel Operations. Instantaneous sound level measurements were collected at the entrance to the Mercer-Fraser Gravel Operations on December 9, 2005, at the north end of Riverwalk Drive near the 12th Street exit from southbound Highway 101. During active gravel operations, the maximum sound level observed was 54 dBA at the gate into the facility. At the same time, the sound level observed from traffic noise on Highway 101 varied from 55 to 58 dBA at the intersection of Riverwalk Drive and the road into the Mercer-Fraser facility. Therefore, the Mercer-Fraser Gravel Operations apparently generate minimal noise impact on the community.

Eel River Disposal Transfer Station. Instantaneous sound level measurements were collected at the entrance to the Eel River Disposal Transfer Station on Riverwalk Drive on December 15, 2005. During various types of facility operations, the maximum sound level observed ranged from 52 to 56 dBA at the facility entrance. During that same period, customer vehicles delivering items for disposal produced sound levels from 55 to 66 dBA at the entrance to the facility. Therefore, the Eel River Disposal Transfer Station seems to generate minimal noise impact on the community.

Tire and Car Repair Shops (at various locations). Tire and car repair shops are situated at various locations in and around Fortuna. The primary sources of noise at such businesses are impact wrenches, air compressors, and tire breakers. Such tools and equipment produce noise in the range of 60 to 100 dBA but



the duration is normally very short. The use of this type of equipment would be periodic and normally limited to the hours of 8 a.m. to 5 p.m. Tire and car repair shops would not normally be expected to significantly impact the L_{dn} in residential areas, as a rule.

Findings

- Roadway traffic provides the primary noise source for the city of Fortuna. Highway 101 and major arterials supply the major contributions.
- The airport's operations do appear to contribute to the noise environment in a meaningful way, but the contribution of the CDF firefighting planes has not been evaluated.
- Fixed noise sources do not contribute significantly to the overall noise level in Fortuna.

8.4 Geologic and Seismic Hazards

Introduction

This section describes the existing geologic hazards that may impact the Planning Area. The area is subject to a variety of geologic hazards, especially in outlying areas that will be subject to most of the future growth. Planning for this growth will need to incorporate a thorough understanding of these hazards to prevent substantial loss of life and property. This section includes a critical review of existing City policies regarding evaluation and mitigation of geologic hazards relative to new development.

Key Terms

A-P Act. Alquist-Priolo Earthquake Fault Zone Act

CSZ. Cascadia Subduction Zone

Earthquake magnitude. Earthquake magnitude is a measure of the strength of an earthquake, or the strain energy released by it, as determined by seismographic observations.

Holocene. Holocene is the youngest period of geologic time; generally incorporating the past 11,000 years.

km. kilometers

Liquefaction. Liquefaction is the sudden loss of soil shear strength due to a rapid increase of soil pore water pressures caused by seismic shaking. Liquefied soil temporarily acts more like a fluid than a solid.

Pleistocene. The Pleistocene is the geologic time period preceding the Holocene; generally extending from about 11,000 years before present to about 1.8 million years.

Recurrence interval. A recurrence interval is the average time interval between earthquakes on a particular fault.

Subduction. Subduction is the process of one crustal plate descending beneath another. Subduction typically occurs along a "subduction zone", a long, narrow fault often associated with an oceanic trench.

Syncline. A syncline is a crustal fold in which the youngest stratigraphic layers are in the core. These folds are generally concave upward.

Thrust fault. A thrust fault is a fault where one block is pushed over another.

Regulatory Setting

State **Alquist-Priolo Earthquake Fault Zone Act.** The Alquist-Priolo Earthquake Fault Zone Act (A-P Act) of 1972 (California Public Resources Code, Chapter 7.5, Division 2) is intended to mitigate the hazard of surface fault rupture, and mandates specific, detailed geologic studies for certain projects to demonstrate the presence or absence of active faults within "Earthquake Fault Zones." The special study zones are defined by the State of California on specific earthquake fault zone maps.

Local

Fortuna General Plan. The 1993 Fortuna General Plan includes the following goal described in § 6211—"to minimize the fiscal, economic, and social impacts on the community from geologic hazards." This goal is to be achieved through the following policies described in § 6221 through 6224:

§ 6221. *"The potential seismic and geologic hazards present in Fortuna should be reduced to an acceptable level of risk."*

§ 6222. *"The City should enforce the Uniform Building Code to minimize future structural problems in buildings from geologic hazards."*

§ 6223. *"Regulate land development to ensure that construction in potentially hazardous areas identified on the Geologic Hazards Map will not create a public hazard in the future."*

§ 6224. *"The City should require that a preliminary geologic and/or soils report be completed by a registered geologist or civil engineer prior to the construction of public facilities and large commercial or industrial building in areas that may have geologic hazards." The policy refers to the "Land Use and Geologic Hazards Matrix" (Table 22) for determination of when technical reporting is required. Specific criteria are presented for determination of when reports are required on "discretionary" sites.*

Existing Conditions

The city of Fortuna is located within a complex geologic environment characterized by very high rates of active tectonic deformation and seismicity. The area lies just north of the Mendocino Triple Junction (see Figure 8-3), the intersection of three crustal plates (e.g., the North American, Pacific, and Gorda plates). North of Cape Mendocino, the Gorda plate is being actively subducted beneath North America, forming what is commonly referred to as the Cascadia subduction zone. In much of coastal Humboldt County, secondary deformation related to the subduction zone is manifested on-land as a series of northwest-trending thrust faults and intervening folds (i.e., "fold and thrust belt"). The geomorphic landscape of the region is largely a result of the active tectonic processes and the setting in this dynamic coastal environment.

Basement rock beneath the lower Eel River Valley area is the Paleocene-Eocene Yager terrane, a part of the Coastal belt of the Franciscan Complex (Blake et al., 1985; Clarke, 1992). The Franciscan Complex is a regional bedrock unit that consists of a series of "terranes," which are discrete blocks of highly deformed oceanic crust that have been welded to the western margin of the North American plate over the past 140 million years. The Yager terrane consists of as much as 9,800 feet of well-indurated marine mudstone and thin-bedded siltstone. Yager terrane bedrock is at least 8,000 feet below the ground surface in the vicinity of Fortuna, based on geologic cross-sections presented in Ogle (1953).



Basement rock in the region is overlain by a late Miocene to middle Pleistocene age terrestrial deposits referred to as the Wildcat Group (Ogle, 1953). The marine part includes some 6,000 to 8,000 feet of mudstone and lesser amounts of sandstone deep coastal basin (e.g., the Eel River basin). Gradationally overlying the marine Group are 2,500 to 3,250 feet of nonmarine sandstone and conglomerate, which part of the Wildcat depositional sequence. The Wildcat Group is truncated at its top by an unconformity of middle Pleistocene age, and is overlain by coastal plain and fluvial deposits of middle to late Pleistocene age. In the Eureka and Eel River valley areas, these middle and late Pleistocene age deposits are referred to as the Hookton Formation (Ogle, 1953). Hookton Formation sediments are described as gravel, sand, silt, and clay which have a characteristically yellow-orange color (Ogle, 1953).

The Little Salmon fault is perhaps the most active on-land fault in the region and traverses the hillslopes directly east of

Local Geologic Setting. The local geologic setting of the Fortuna Planning Area is characterized by proximity to two of the most significant geomorphic influences in Humboldt County—the Little Salmon fault and the Eel River (see Figure 8-3). The city lies directly east of the Eel River, and is built on alluvium derived from the Eel and Van Duzen rivers, and streams draining the hills east of town (Rohner, Strongs, and Jameson Creeks). The Little Salmon fault is perhaps the most active on-land fault in the region and traverses the hillslopes directly east of city. The fault is associated with a large amount of cumulative displacement, and therefore defines a distinct geologic boundary between earth materials on either side of the fault.

The area around the confluence of the Van Duzen and Eel rivers is underlain by a series of alluvial terraces that date back to the late Pleistocene. Uplift and folding associated with the Eel River syncline, a roughly east-west trending, active crustal fold, have resulted in broad deformation of these low-relief surfaces such that they are no longer level. The most prominent alluvial surface in the area is the broad Rohnerville terrace (often referred to as the Rohnerville "Formation"). This late Pleistocene age terrace forms the planar, north-dipping surface that extends from the Rohnerville airport plateau to beneath the City of Fortuna. Elevation of the terrace beneath the airport is approximately 400 feet; it descends steadily to as low as 60 feet in the northern part of downtown Fortuna. The terrace sediments are defined by Kilbourne (1985) as "unconsolidated and gently folded, older Eel River flood plain deposits consisting predominantly of gravel with smaller amounts of sand, silt, and clay."

As the Rohnerville surface descends beneath Fortuna, it is mapped by Kilbourne (1985) as being buried by younger alluvial deposits derived from the series of streams that drain the hills east of Fortuna (Rohner, Strongs, and Jameson Creeks). This alluvium is mapped as Holocene in age by Kilbourne, and is defined as "unconsolidated sand, silt, gravel, and clay deposited by streams in canyon bottoms." These younger alluvial deposits extend up the stream canyons bordering Fortuna as recent stream channel deposits.

The hills directly east of Fortuna are underlain by middle to late Pleistocene age sediments of the Hookton Formation. These sediments are described by Kilbourne (1985) as "well-to-poorly sorted, gently folded, unindurated marine, grading to nonmarine sand, gravel, and silt." Hookton Formation sediments extend east to the Little Salmon fault, where they are juxtaposed against undifferentiated Wildcat Group sediments. Undifferentiated Wildcat Group sediments on the northeast side of the Little Salmon Fault are described as "moderately-to-poorly indurated, massive-to-poorly bedded, folded, compact, blue-gray, clayey siltstones with smaller amounts of sandstone, pebbly sandstone, and conglomerate."

Seismic Setting. Fortuna is located in a region of high seismicity. More than 60 earthquakes have produced discernible damage in the region since the mid-1800s (Dengler et al., 1992). Historic seismicity and

paleoseismic studies in the area suggest there are six distinct sources of damaging earthquakes in the region (see Figure 8-3): (1) the Gorda Plate; (2) the Mendocino fault; (3) the Mendocino Triple Junction; (4) the northern end of the San Andreas fault; (5) faults within the North American Plate (including the Mad River fault zone); and (6) the Cascadia Subduction Zone (Dengler et al., 1992).

Earthquakes originating within the Gorda Plate account for the majority of historic seismicity. These earthquakes occur primarily offshore along left-lateral faults, and are generated by the internal deformation within the plate as it moves toward the subduction zone. Significant historic Gorda Plate earthquakes have ranged from magnitude 5 to 7.5. The November 8, 1980, earthquake (magnitude 7.2) was generated 30 miles (48 kilometers [km]) off the coast of Trinidad on a left-lateral fault within the Gorda Plate.

The Mendocino Fault is the second most frequent source of earthquakes in the region. The fault represents the plate boundary between the Gorda and Pacific plates, and typically generates right lateral strike-slip displacement. Significant historic Mendocino fault earthquakes have ranged from magnitude 5 to magnitude 7.5. The September 1, 1994, magnitude 7.2 event originating west of Petrolia was generated along the Mendocino fault. The Mendocino triple junction was identified as a separate seismic source only after the magnitude 6.0 August 17, 1991, earthquake. Significant seismic events associated with the triple junction are shallow onshore earthquakes that appear to range from magnitude 5 to 6. Raised Holocene age marine terraces near Cape Mendocino suggest larger events are possible in this region.

Earthquakes originating on the northern San Andreas Fault are extremely rare, but can be very large. The northern San Andreas Fault is a right lateral strike-slip fault that represents the plate boundary between the Pacific and North American plates. The fault extends through the Point Delgada region and terminates at the Mendocino triple junction. The 1906 San Francisco earthquake (magnitude 8.3) caused the most significant damage in the north coast region, with the possible exception of the April 1992, Petrolia earthquake (Dengler et al., 1992).

Earthquakes originating within the North American plate can be anticipated from a number of intraplate sources, including the Mad River Fault zone and Little Salmon Fault. There have been no large magnitude earthquakes associated with faults within the North American plate, although the December 21, 1954, magnitude 6.5 event may have occurred in the Mad River Fault zone. Damaging North American plate earthquakes are expected to range from magnitude 6.5 to 8. The Little Salmon Fault appears to be the most active fault in the region, and is capable of generating very large earthquakes.

Little Salmon Fault. The Little Salmon Fault is the closest known active fault to Fortuna, traversing the hills directly east of the city (Ogle, 1953; Kilbourne, 1985; Wills, 1990). The Little Salmon Fault is a northwest-trending, northeast-dipping thrust fault (i.e., the northeast side of the fault slides up and over the southwest side of the fault along a northeast-dipping fault plane). Offset relations within the upper Wildcat Group suggest vertical separation exceeds 5,900 feet (1,800 meters), representing about 4.4 miles (7 km) of dip-slip motion on the Little Salmon Fault since the Quaternary (i.e., in the past 700,000 to 1 million years). Paleoseismic studies of the Little Salmon Fault indicate that the fault deforms late Holocene sediments at the southern end of Humboldt Bay (Clarke and Carver, 1992). Estimates of the amount of fault slip for individual earthquakes along the fault range from 15 to 23 feet (4.5 to 7 meters). Radiocarbon dating suggests that earthquakes have occurred on the Little Salmon fault about 300, 800, and 1,600 years ago. Average slip rate for the Little Salmon fault for the past 6,000 years is between 6 and 10 millimeters per year. Based on currently (2005) available fault parameters, the maximum magnitude earthquake for the Little Salmon fault is thought to be between 7.0 (CDMG/USGS, 1996) and 7.3 (Geomatrix Consultants, 1994).



Cascadia Subduction Zone. The Cascadia Subduction Zone (CSZ) represents the most significant potential earthquake source in the north coast region. The CSZ is the location where the oceanic crust of the Gorda and Juan de Fuca plates are being subducted beneath continental crust of the North American Plate. A great subduction event may rupture along 200 km or more of the coast from Cape Mendocino to British Columbia, may be up to magnitude 9.5, and could result in extensive tsunami inundation in low-lying coastal areas. The April 25, 1992, Petrolia earthquake (magnitude 7.1) appears to be the only historic earthquake involving slip along the subduction zone, but this event was confined to the southernmost portion of the fault. It is estimated that there have been 6 significant subduction zone events along the CSZ in the last 3,000 years (Dariento and Peterson, 1995). Paleoseismic studies along the subduction zone suggest that great earthquakes are generated along the zone every 300 to 500 years. Historic records from Japan describing a tsunami thought to have originated along the CSZ suggest the most recent great subduction event occurred on January 27, 1700. A great subduction earthquake would generate long duration, very strong ground shaking throughout the north coast region.

The CSZ is located offshore, west of the north coast region. Available mapping indicates that the surface expression of the subduction zone is located some 30 to 35 miles west of the project site (Clarke, 1992; McLaughlin et al., 2000). Seismic profiles suggest that the subduction interface dips landward at an angle of about 11 degrees (McPherson, 1992), which would place it at a depth of about six miles beneath the project area (using right angle projection).

Findings

- The City of Fortuna is located in a seismically active region, and there are numerous seismic sources in the area that may produce strong ground shaking.
- The Little Salmon Fault, arguably the most significant active on-land seismic source in the region, passes through the eastern part of the Planning Area. An earthquake generated on this fault would likely result in surface fault rupture and very strong ground shaking.
- Because most of the lower elevation areas of the city are built on alluvium, a liquefaction hazard exists in Fortuna. The degree of this hazard is poorly understood.
- Slope stability hazards exist in sloping areas on the outskirts of the Planning Area.
- Future development in the City of Fortuna will increasingly occur in unstable areas. Because most of the favorable, stable ground has been built on, future development will encroach into sloping areas with lower stability conditions.
- There are currently no requirements in the 1993 Fortuna general plan for investigation beyond that of a "preliminary geologic and/or soils report." The result has been a generally low standard of geologic hazard investigation. There is a notable lack of subsurface data and analysis for developments in Fortuna. Quantitative liquefaction, ground motion, or slope stability analyses are not typically requested or performed, despite the presence of liquefaction, earthquake strong motion, and landslide hazards within the Fortuna Planning Area.
- The Little Salmon Fault is perhaps the most active on-land fault in the region and traverses the hillslopes directly east of the city.
- More than 60 earthquakes have produced discernible damage in the region since the mid-1800s.

- Historic seismicity and paleoseismic studies in the area suggest there are six distinct sources of damaging earthquakes in the region.
- Earthquakes originating on the northern San Andreas Fault are extremely rare, but can be very large.
- The 1906 San Francisco earthquake (magnitude 8.3) caused the most significant damage in the North Coast Region.
- The Little Salmon Fault is the closest known active fault to Fortuna, traversing the hills directly east of the city. It appears to be the most active fault in the region, and is capable of generating very large earthquakes.
- Based on currently (2005) available fault parameters, the maximum magnitude earthquake for the Little Salmon Fault is thought to be between 7.0 and 7.3
- The Cascadia Subduction Zone (CSZ) represents the most significant potential earthquake source in the north coast region.
- A great subduction event may rupture along 200 km or more of the coast from Cape Mendocino to British Columbia, may be up to magnitude 9.5, and could result in extensive tsunami inundation in low-lying coastal areas.

8.5 Human Made Hazards

Introduction

This section describes primary human-made hazard concerns for the Planning Area, including the potential exposure to hazardous materials. This section focuses on those hazards associated with the potential use, exposure, or release of hazardous materials. This section provides an overview of federal, state, and local hazardous material and hazardous waste regulations and describes existing known hazardous materials in the Planning Area.

Key Terms

Aboveground Storage Tank (AST). The Aboveground Storage Tank database contains registered ASTs. The data comes from the State Water Resources Control Board's Hazardous Substance Storage Container Database.

ASTM. American Society for Testing and Materials

AWP. Annual Work Plan list

Cal-ARP. California Accidental Release Prevention

California Spills, Leaks, Investigations and Cleanups Program (CA SLIC). In the SLIC Program, Regional Water Quality Control Water Board (RWQCB) staff oversees soil and water investigations, corrective actions, and human health risk assessments at sites with current or historic unauthorized discharges, which have adversely affected or threaten to adversely affect waters of the state.

CCR. California Code of Regulations.

CDHS. California Department of Health Services



CERCLA. Comprehensive Environmental Response, Compensation, and Liability Act of 1980

CFR. Code of Federal Regulations

CGP. Construction General Permit

Conditionally Exempt Small Quantity Generators (CESQGs). CESQG sites generate less than 100 kilograms (kg) of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

California Hazardous Material Incident Report System (CHMIRS). CHMIRS contains information on reported hazardous material incidents (i.e., accidental releases or spills). The source is the California Office of Emergency Services.

Hazardous Waste and Substances Site (CORTESE). The CORTESE database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with Underground Storage Tanks (USTs) having a reportable release and all solid waste disposal facilities from which there is known migration. The source is the California Environmental Protection Agency/Office of Emergency Information.

CUPA. California Unified Program Agency

Drycleaners. A list of drycleaner related facilities that have U.S. Environmental Protection Agency (USEPA) identification numbers. These are facilities with certain Standard Industrial Classification (SIC) codes: power laundries, family and commercial; garment pressing and cleaners' agents; linen supply; coin-operated laundries and cleaning; dry cleaning plants except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

DWP. Drinking Water Program

EDR. Environmental Data Resources, Incorporated

California State EPCRA Rules/Law Emergency Planning and Community Right-to-Know laws

ERP. Emergency Response Plan

Emergency Response Notification System (ERNS). The ERNS records and stores information on reported releases of oil and hazardous substances. The source of this database is the USEPA.

ESA. Environmental Site Assessment

Facility Index System (FINDS). The FINDS database contains both facility information and "pointers" to other sources of information that contain more detail. The source of this database is the USEPA/NTIS (National Technical Information Service). These include:

- Aerometric Information Retrieval System (AIRS);
- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS);
- Chemicals in Commerce Information System (CICS);
- Enforcement Docket (DOCKET) used to manage and track information on civil judicial enforcement cases for all environmental statutes;

- FIIRA (Federal Insecticide Fungicide Rodenticide Act) and Toxic Substances Control Act (TSCA) Enforcement System (FATES);
- Federal Reporting Data System (FRDS);
- FIFRA/TSCA Tracking System (FTTS);
- Federal Underground Injection Control (FURS);
- PCB Activity Database System (PADS);
- Permit Compliance System (PCS);
- Resource, Conservation, and Recovery Act (RCRA)-J medical waste transporters/ disposers;
- Resource Conservation and Recovery Information System (RCRIS);
- Surface Impoundments (SIA);
- Toxic Release Inventory System (TRIS); and
- Toxic Substances Control Act (TSCA).

HAZNET. HAZNET is the data extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000-1,000,000 annually, representing approximately 350,000-500,000 shipments. Data from non-California manifests and continuation sheets are not included. Data is from the manifests submitted without correction, and therefore may contain some invalid values for data elements such as generator ID, Treatment, Storage, & Disposal Facility (TSD) identification, waste category, and disposal method. The source is the Department of Toxic Substance Control (DTSC).

HCDEH. Humboldt County Division of Environmental Health

HIST UST. Historical UST Registered Database

IS. Initial Study

Leaking Underground Storage Tank (LUST) The LUST Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data comes from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

NPDES. The National Discharge Elimination System

OSHA. Occupational Health and Safety Administration

PSM. Process Safety Management

RCRAInfo. RCRAInfo is the USEPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites, which generate, transport, store, treat and/or dispose of hazardous waste as defined by the RCRA.

Small Quantity Generators (SQGs). SQG sites generate between 100 kg and 1,000 kg of hazardous waster per month.



Large Quantity Generators. Large quantity generators generate over 1,000 kg of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Transporters. Transporters are individuals or entities that move hazardous waste from the generator, offsite to a facility.

SPCC. Spill Prevention, Control and Countermeasures

Statewide Environmental Evaluation and Planning System (SWEEPS). This underground storage tank listing was updated and maintained by a company contracted by the California (State) Water Resources Control Board (SWRCB) in the early 1980s. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Solid Waste Facilities/Landfill Sites (SWF/LF). The SWF/FL site records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. The data comes from the Integrated Waste Management Board's Solid Waste Information System (SWIS) database.

SWRCB. State (California) Water Resource Control Board

SWPPP. Storm Water Pollution Prevention Plan

Solid Waste and Recycling Facilities (SWRCY). A listing of recycling facilities in California.

Underground Storage Tank (UST). The UST database contains registered USTs. USTs are regulated under Subtitle I of the RCRA. The data comes from the WRCB's Hazardous Substance Storage Container Database.

USC. United States Code

USEPA. United States Environmental Protection Agency

Vas. Vulnerability Assessments

WDS. Waste Discharge System

Waste Management Unit Database System (WMUDS/SWAT). This database is used for program tracking and inventory of waste management units. The source data is the State Water Resources Control Board.

Regulatory Setting

When planning for future development, it is important to know the approximate locations and types of human-made hazards that exist. Projects can be greatly impacted when constructing within areas that have been impacted by hazardous materials. Escalating project costs and additional time to prepare supporting documentation can be minimized when hazards and hazardous sites are identified beforehand. Additionally, specific types of uses may need to be restricted when proposing to build within the influence of an identified hazardous release site or potentially hazardous areas (i.e. downwind from a chemical plant). The following regulatory requirements pertain to businesses, municipalities, industrial sites, construction and development sites, and private facilities:

California Unified Program Agency (CUPA). California Unified Program Agency (CUPA), which is currently implemented by the Humboldt County Division of Environmental Health (HCDEH) under the direction of the Department of Toxic Substance Control (DTSC), requires that businesses that handle hazardous materials in

quantities equal to or greater than the listed thresholds must complete a business plan as required by the California Health and Safety Code, Chapter 6.95, Article 1.

Emergency Planning and Community Right-to-Know laws (California State EPCRA Rules/Law).

Emergency Planning and Community Right-to-Know laws (California State EPCRA Rules/Law) allow the public to obtain specific information regarding facilities that contain regulated quantities of hazardous materials and/or wastes, the types of chemicals being stored and used, and potential hazards of the chemicals handled on site.

The California Accidental Release Prevention (Cal-ARP) Program. The California Accidental Release Prevention (Cal-ARP) Program regulates sites that contain threshold quantities of extremely hazardous chemicals, specified in the CCR Title 19, Division 2, Chapter 4.5, and Occupational Health and Safety Administration (OSHA) Process Safety Management (PSM) standards (Section 5189 of Title 8 of California Code of Regulations (CCR), or Code of Federal Regulations (CFR), Title 29, Section 1910.119).

California Department of Health Services (CDHS) Drinking Water Program (DWP). In California, the California Department of Health Services (CDHS) Drinking Water Program (DWP) is the Drinking Water Primacy Agency for all public water systems serving over 200 service connections. One of the operational requirements for a public water system is to “provide a reliable and adequate supply of pure, wholesome, healthful, and potable water” (California Health & Safety Code, Section 11655). Emergency response planning for both terrorist activities and natural disasters is an essential part of ensuring that customers receive a reliable and adequate supply of potable water, and for water/wastewater disasters or acts of terrorism. There are several regulations associated with the legal requirements of preparing an Emergency Response Plan (ERP) in California, which are described below:

United States Public Law 107-188 Public Health Security and Bioterrorism Preparedness and Response Act of 2002. *United States Public Law 107-188 Public Health Security and Bioterrorism Preparedness and Response Act of 2002*–“All community water systems serving more than 3,300 population (1,000 service connections) shall prepare or revise an ERP that incorporates the results of Vulnerability Assessments (VAs) that have been completed. The updated ERP shall be certified to EPA within 6 months of completing the vulnerability assessment.”

California Health and Safety Code, Sections 116460, 116555 and 116750. *California Health and Safety Code, Sections 116460, 116555 and 116750. Please refer to the current edition of the California Safe Drinking Water Act and Related Laws for the specific language.*

- Section 116460 – Emergency Notification Plan Requirement
- Section 116555 – Operational Requirements
- Section 116750 – Tampering with Public Water Systems

California Waterworks Standards, Section 64560. Minimize the effects of events such as power supply, equipment, structural failures, earthquakes, fires, floods, and sabotage that are reasonably foreseeable; and protection against unauthorized entry and/or vandalism.

The National Discharge Elimination System (NPDES). The National Discharge Elimination System (NPDES) program is the national program for administering and regulating Sections 307, 318, 402, and 405 of the Clean Water Act. The NPDES Program requires all facilities that discharge pollutants from any point source into waters of the U.S. to obtain a permit for the discharge.



Storm Water Pollution Prevention Plans (SWPPPs). Storm Water Pollution Prevention Plans (SWPPPs) shall be in compliance with the State (California) Water Resource Control Board (SWRCB) Water Quality Order No. 97-03-DWQ, NPDES General Industrial Storm Water Permit No. CAS000001 (General Permit), which sets forth the requirements for discharges of storm water associated with industrial activities.

Construction SWPPPs shall conform to the General Construction Activities Storm Water Permit, Water Quality Order No. 99-08-DWQ (NPDES No. CAS000002). The CGP was modified in 2001 by Resolution No. 2001-046 "Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Storm Water Discharges Associated with Construction Activity (CGP)." On December 8, 1999, federal regulations promulgated by USEPA (40 CFR Parts 9, 122, 123, and 124) expanded the NPDES storm water program to include storm water discharges from small construction activities. Federal regulation 40 CFR Section 122.26(b)(15) defines small construction activity as including clearing, grading, and excavating that result in land disturbance of equal to, or greater than, one acre and less than five acres.

United States Environmental Protection Agency (USEPA). The United States Environmental Protection Agency (USEPA) issued the Oil Pollution Prevention Regulation, which is codified in Title 40 of the CFR Part 112, to address the oil spill prevention provisions contained in the Clean Water Act of 1972. The regulation forms the basis of USEPA's Oil Spill Prevention, Control and Countermeasures (SPCC) program, which seeks to prevent oil spills from certain aboveground and underground storage tanks discharging to the navigable waters of the United States.

Regulations regarding properties that are being developed within close proximity to regulatory listed sites may require completion of an environmental assessment, which are to comply with Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and Title 22 of the CCR.

Environmental Site Assessments (ESAs). Environmental Site Assessments (ESAs) are to be prepared in general accordance with American Society for Testing and Materials (ASTM) Standard Practice E 1527-00 for the Phase 1 ESA Process. This practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability; that is, practices that constitute "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice," as defined in 42 United States Code (USC) 9601 (35)(B).

OSHA 1910.120. OSHA's Hazardous Waste Operations and Emergency Response Plans will be utilized to protect workers and the public when handling, or in potential contact with hazardous and/or toxic substances or materials.

Existing Conditions

An initial assessment of the "human-made hazards" was conducted to help obtain an overview of the areas that have known hazardous or toxic releases to the soil and/or groundwater, store hazardous or toxic substances on site, or generate(d) hazardous substances that could be released into the environment. This section includes a summary of known regulated and/or hazardous material sites currently listed within the Planning Area.

Although not meant to be a Phase I ESA, EDR provided most of the local, state and federal listed sites, including closed underground tank sites. Verification of the location and types of materials listed within the

EDR database should be evaluated. Databases regarding hazardous and toxic materials use and storage are maintained by the following agencies:

- City of Fortuna Building and Planning Departments.
- **Cal-DHS.** California Department of Health Services
- **Cal-EPA.** California Environmental Protection Agency
- **CIWMB.** California Integrated Waste Management Board
- **CORRACTS.** Corrective Action Report
- **DOG.** California Division of Oil and Gas
- **DTSC.** Department of Toxic Substances Control
- **HCDEH.** Humboldt County Department of Health and Human Services, Division of Environmental Health
- **NPL.** EPA National Priorities List
- **ODW.** Cal-DHS, Office of Drinking Water
- **OEHHA.** Office of Environmental Health Hazard Assessment
- **RCRIS-TSD.** Resource Conservation and Recovery Information System
- **RWQCB.** Regional Water Quality Control Board, North Coast Region
- **SWRCB.** California (State) Water Resources Control Board

In December 2005, an EDR database was obtained that shows areas of the City of Fortuna that have been or potentially could be impacted from human-made hazards. Except as otherwise stated in this Background Report, verification of the accuracy or completeness of any such information listed has not been attempted. The passage of time, manifestation of latent conditions, or occurrence of future events may require further exploration of the subject area; analysis of the data; and re-evaluation of the findings, observations, and conclusions expressed in this section.

Table 8-5 indicates the type and number of recorded sites within the assessment boundary. Sites may be listed in more than one database. Additionally, this database may include some sites that are outside the assessment area, and may or may not have a potential impact to the Planning Area.



TABLE 8-5 SUMMARY OF HAZOURDOUS/TOXIC MATERIALS REGULATED SITES General Plan Planning Area	
Database	Total Plotted
Federal Records	
NPL	0
Proposed NPL	0
Delisted NPL	0
NPL Liens	0
CERCLIS	0
CERC-NFRAP	0
CORRACTS	0
RCRA TSD	0
RCRA Lg. Quantity Gen.	0
RCRA Sm. Quantity Gen	10
ERNS	1
HMIRS	0
US ENG CONTROLS	0
US INST CONTROL	0
DOD	0
FUDS	0
US BROWNFIELDS	0
CONSENT	0
ROD	0
UMTRA	0
ODI	0
TRIS	0
TSCA	0
FTTS	0
SSTS	0
PADS	0
MLTS	0
MINES	0
FINDS	20
RAATS	0
State and Local Records	
AWP	0
Cal-Sites	0
State and Local Records	
Toxic Pits	0
CA Bond Exp. Plan	0
NFA	0
NFE	0
REF	0
SCH	0
State Landfill	3

TABLE 8-5 SUMMARY OF HAZOURDOUS/TOXIC MATERIALS REGULATED SITES General Plan Planning Area	
Database	Total Plotted
CA WDS	4
WMUD/SWAT	1
CORTESE	40
LUST	59
SLIC	3
UST	11
CA FID UST	0
HIST UST	64
SWRCY	2
AST	2
SWEEPS UST	66
CHMIRS	2
Notify 65	0
DEED	0
VCP	0
CLEANERS	1
WIP	0
HAZNET	41
EMI	0
Tribal Records	
INDIAN RESERV	0
INDIAN LUST	0
INDIAN UST	0
EDR Propriety Records	
COAL GAS	0
<i>Source: Environmental Data Resources, 2005.</i>	

For a more detailed description of the sites and regulatory concerns, refer to the EDR Database Report. Additionally, the HCDEH, and the RWQCB should be contacted to verify the accuracy of specific information contained within this report, prior to being used.

Several areas of the city have experienced hazardous releases, or have a potential to release hazardous or toxic chemicals into the environment; therefore, planning with regard to human-made hazards is essential.

Findings

- Several areas of the city have experienced hazardous releases, or have a potential to release hazardous or toxic chemicals into the environment; therefore, planning with regard to human-made hazards is essential.



8.6 Flooding

Introduction

This section describes the existing information on flooding within the Fortuna Planning Area including FEMA mapping and identifies principle flood problems. This analysis identifies flood prone areas based on historical events, existing regional topography and climate. The only flood protection measure constructed in the city of Fortuna is the Sandy Prairie levee, built by the U.S. Army Corps of Engineers in 1959. Areas of significant flood potential are discussed for each of the major drainages.

Key Terms

100-Year Flood. A 100-Year flood is a flood event that has a one percent chance of being equaled or exceeded each year.

500-Year Flood. A 500-Year flood is a flood event that has a 0.2 percent chance of being equaled or exceeded each year.

Design Floodway (DF). Humboldt County Zoning Code designation.

Exceedance Probability. The exceedance probability is the probability that a precipitation or runoff event of a specified size will be achieved or exceeded in any one year.

Flood Boundary and Floodway Map (FBFMs). The Flood Boundary and Floodway Map is the official map on which the Federal Emergency Management Agency (FEMA) has delineated both the areas of special flood hazards and the floodway.

Flood Hazard Boundary Map (FHBM). A Flood Hazard Boundary Map is a map of a community issued by FEMA, where the boundaries of the flood, mudflow, and related erosion areas having special hazards have been designated.

Flood Insurance Rate Map (FIRM). The Flood Insurance Rate Map (FIRM) is the official map on which the FEMA has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

Flood Insurance Study (FIS). A Flood Insurance Study (FIS) is the official report provided by FEMA that includes the flood profiles, the flood insurance rate map, the flood boundary and floodway map, and the water surface elevation of the base flood for a community.

Flood Insurance Zone B. Flood Insurance Zone B is an area between the special flood hazard areas and the limits of the 500-year flood, including areas of the 500-year flood that are protected from the 100-year flood by dike, levee, or other water control structure; also areas subject to certain types of 100-year shallow flooding where depths are less than one-foot; and areas subject to 100-year flooding from sources with drainage areas less than one-square mile.

Flood Insurance Zone C. Areas of minimal flooding are considered Flood Insurance Zone C.

Flood Insurance Zones A-AX. Flood Insurance Zones A-AX are special flood hazard areas inundated by the 100-year flood, determined by detailed methods, base flood elevations shown, and zones subdivided according to flood hazard factors.

Flood Plain (FP). Humboldt County Zoning Code designation.

Flood. A flood is a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area, or of two or more properties from overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters from any source, or mudflow.

Floodplain Management. Floodplain Management is the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including but not limited to, emergency preparedness plans, flood control works, floodplain management regulations and open space plans.

Floodplain. A floodplain is land adjacent to a stream, slough or river that is subject to flooding or inundation from a storm event. FEMA defines the floodplain to be the area inundated by the 100-year flood.

Floodway Fringe. Floodway Fringe is the area between the floodway and the boundary of the 100-year flood. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water surface elevation more than one-foot at any point.

Floodway. A floodway is the channel of a stream or river plus any adjacent floodplain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood height.

Frequency. Frequency is an expression, by return period or exceedance probability, that an event will occur within a given time period.

Recurrence Interval/Return Period. The recurrence interval/return period represents the long-term average period between floods of a specific magnitude. The 10-, 50-, 100-, and 500-year recurrence intervals have been selected as having special significance for floodplain management and for flood insurance premium rates. These events are commonly termed the 10-, 50-, 100-, and 500-year floods and have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year.

Regulatory Setting

Federal National Flood Insurance Program (NFIP). The NFIP was established by the US Congress with the passage of the National Flood Insurance Act of 1968; and modified through the passage of the Flood Disaster Protection Act of 1973, and the National Flood Insurance Reform Act of 1994. The Federal Emergency Management Agency (FEMA), a component of the Department of Homeland Security (DHS), administers the NFIP. The NFIP consists of two major parts-mapping and local regulation of the 100-year floodplain, and flood insurance protection. Communities participating in the NFIP establish an agreement with the federal government to adopt and enforce a floodplain management ordinance that reduces future flood risks in the community. In return, the federal government makes flood insurance available for the community, allowing property owners in participating communities to purchase insurance protection against losses from flooding. Both the City of Fortuna and the County of Humboldt participate in the NFIP.

Federal Emergency Management Agency (FEMA). FEMA is the federal agency that administers the NFIP. FEMA issues the official Flood Insurance Studies (FIS) and Flood Hazard Boundary Maps (FHBM) for the communities participating in the NFIP program.

Local



Humboldt County Zoning Code. In the Humboldt County Zoning Code, there are two designations for flood zone areas outside the Coastal Zone: Design Floodway (DF) and Flood Plain (FP). The zoning regulations outline the principal permitted uses, the uses permitted with a use permit, and the other regulations that apply in these zones. The DF zoning is intended to be applied to areas that lie in a designated floodway. DF zoning is intended to prohibit such structures in the zone as might endanger life or significantly restrict the carrying capacity of the designated floodway. The FP zoning is intended to be applied in areas that have been inundated by flood waters in the past and which may reasonably be expected to be inundated by flood waters in the future. The FP Zone is intended to limit the use of areas subject to such inundation and flooding to protect lives and property from loss, destruction and damage due to flood waters and to the floating wreckage and debris.

Fortuna Municipal Code. The Fortuna Municipal Code (FMC) currently (2005) addresses flooding in Chapters 15.50 through 15.60 of Title 15, Building and Construction and Chapter 16.36 of Title 16 Subdivisions. The FMC references Ordinances 79-426, 87-509, and 99-618 for floodplain management regulations. Chapter 15.50 of the FMC provides an overview of the floodplain management division including the statutory authorization, findings of fact, and the statement of purpose for the division. The purpose of the floodplain management provisions included in the FMC is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas. The provisions included in the FMC for floodplain management are designed to protect human life and health; minimize expenditure of public money for costly flood control projects; minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public; minimize prolonged business interruptions; minimize damage to public facilities and utilities such as, water and gas mains, electric, telephone and sewer lines, and streets and bridges located in areas of special flood hazard; help maintain a stable tax base by providing for the sound use and development of areas of special food hazard so as to minimize future blighted areas caused by flood damage; ensure that potential buyers are notified that property is in an area of special flood hazard; and ensure that those who occupy areas of special flood hazard assume responsibility for their actions (FMC 15.50.030). To accomplish the purpose of the floodplain management division, Chapter 15.50 of the FMC also includes methods and provisions for reducing flood losses. These methods include:

- restricting or prohibiting uses that are dangerous to health, safety, and property due to water or erosion hazards, or that result in damaging increases in erosion or flood heights or velocities;
- requiring that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
- controlling the alteration of natural floodplains, stream channels, and natural protective barriers that help accommodate or channel flood control waters;
- controlling flood filling, grading, dredging, and other development that may increase flood damage; and
- preventing or regulating the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards in other areas (FMC 15.50.040).

Chapter 15.52 provides definitions for the floodplain management division. Chapter 15.54 provides the general provisions for the floodplain management division, including descriptions of the lands to which the

floodplain management division applies and the basis for establishing the areas of special flood hazards. Chapter 15.54 also includes sections that describe the terms of compliance, abrogation, interpretation, liability, and severability for the floodplain management division of the FMC. Chapter 15.56 of the FMC provides for the administration of the floodplain management division and includes sections that provide for the establishment of development permits in special flood hazard areas, and the designation of the building official as the appointed floodplain administrator. Chapter 15.58 of the FMC outlines the provisions for flood hazard reduction including sections that describe the standards for construction; standards for utilities; standards for subdivisions; standards for manufactured homes; standards for recreational vehicles; and standards for construction in floodways. Chapter 15.60 of the FMC summarizes the variance procedure for the floodplain management division.

Chapter 16.36 of the FMC addresses other improvements associated with the subdivision of land and specifically addresses drainage and sewer facilities in Section 16.36.011. The purpose of Section 16.36.011, as it relates to drainage facilities, is to establish a program to reduce flooding within the city by completing drainage improvements included in the 1982 Storm Drain Master Plan. The section describes procedures for addressing significant impacts associated with development projects, addressing conflicts with the 1982 Storm Drain Master Plan, and payment and use of drainage fees (FMC 16.36.011).

Existing Conditions

FEMA Mapping. The U.S. Department of Housing and Urban Development published the first Flood Hazard Boundary Map (FHBM) for the City of Fortuna in 1977. In 1981, FEMA completed the Flood Insurance Study (FIS) for the City of Fortuna, which superseded the 1977 FHBM for the city. The effective date for the corresponding FHBMs and Flood Insurance Rate Maps (FIRMs) for the city of Fortuna is May 3, 1982. The FIS for the unincorporated areas of Humboldt County was completed in 1988. The effective date for the corresponding FHBMs and FIRMs for the unincorporated areas adjacent to the city of Fortuna is July 19, 1982.

FEMA's Flood Insurance Study focused on the Eel River, Strongs Creek and the Rohner Creek drainages, the three largest drainages located within the incorporated limits of the city. FEMA studied Strongs Creek from the corporate limits at the Southern Pacific Railroad Bridge to the corporate limits near Rohnerville Road. FEMA also studied Rohner Creek from the mouth of the creek to the corporate limits at Carson Woods Road. FEMA conducted a preliminary study for Jameson Creek indicating the 100-year floodplain had a width less than 200 feet throughout the entire length of the stream, therefore a detailed study for this creek was not completed. According to the FIS, at the time (1988), the most significant floodplain development in Fortuna was the area of Fortuna Boulevard adjacent to Rohner Creek.

FEMA studied the Eel River from just downstream of Ferndale to the upstream corporate limits of Fortuna in conjunction with the FIS for the unincorporated areas of Humboldt County. FEMA also conducted a detailed study of the Van Duzen River from the mouth of the river at the confluence with the Eel River to a location approximately 500 feet upstream of the Cummings Creek Camp.

Principal Flood Problems. According to the FIS for the City of Fortuna, the principal flood problems in the city have resulted from a succession of intense winter rainstorms (FEMA, 1981). Rainfall in this area is typically concentrated from November through March, with 75 percent of the annual rainfall precipitation falling during this period (FEMA, 1981).



The Eel River borders the city of Fortuna to the west and is susceptible to frequent flooding. Two river gauges located on the Eel River near the city of Fortuna have recorded historical floods in the Planning Area. The United States Geological Survey (USGS) gauging station at Scotia has recorded discharges since 1911. The flood of record at the Scotia gauge occurred on December 23, 1964, with a measured peak discharge of 752,000 cubic feet per second (cfs) and estimated recurrence interval of 290 years (FEMA, 1981). Another significant large flood in this area occurred on December 22, 1955; the measured peak discharge was 541,000 cfs, with an estimated recurrence interval of 59 years. Downstream of the city of Fortuna, at Fernbridge, the National Weather Service (NWS) has operated a gauging station since 1938; however, this gauge only measures river stage with no correlation to discharge.

According to the FIS, the 1964 flood caused catastrophic damage in the Eel River basin (FEMA, 1981). The FIS for the City of Fortuna includes a list of high water marks from the 1964 flood tabulated within the city limits on the Eel River, Strongs Creek, Rohner Creek, and Jameson Creek drainages. On the Eel River, the high water marks ranged in elevation from 41.13 feet near the intersection of U.S. Highway 101 and the Southern Pacific Railroad, to 53.69 feet downstream of western end of Drake Hill Road. On Strongs Creek, the high water marks ranged in elevation from 50.32 feet at the upstream side of Highway 101, to 81.01 near the cemetery on Newburg Road. On Rohner Creek, the high water marks ranged in elevation from 43.88 feet near Sunnybrook Road, to 74.00 feet near the Carson Woods Road crossing. On Jameson Creek the high water mark was noted at elevation 100.25 on the downstream side of the Rohnerville Road crossing (FEMA, 1981).

Existing Flood Protection Measures. The only flood protection measure constructed in the City of Fortuna is the Sandy Prairie Levee, built by the U.S. Army Corps of Engineers in 1959. The levee consists of three miles of levee on the east bank of the Eel River and one mile of levee on the south bank of Strongs Creek outside the corporate limits of Fortuna. According to the FIS, the levee provides a moderate amount of protection against major floods (FEMA, 1981). When constructed in 1959, the levee was built to an elevation above the 1955 high water mark. The FIS notes the levee did prevent damage to roads and railroads during the 1964 flood; however, the levee was damaged during this flood and inundation occurred on both sides of the levee. The levee has not been reconstructed to the 1964 high water mark.

Areas of Significant Flood Potential. The FIS references the initial storm drainage studies completed in 1976 for the Strongs Creek, Rohner Creek, Jameson Creek and Hillside Creek drainages. At that time, areas of significant flood potential included Strongs Creek, where dense willow tree growth near the channel was cited as a contributory cause of flooding problems. Flooding in the Rohner Creek basin was also reported, and noted to be most severe in the Alder Drive area. Minor flooding was reported on Jameson Creek upstream of the confluence with Strongs Creek; and an undersized culvert on Hillside Creek at Fortuna Boulevard was noted to cause flooding in the Smith and Fortuna Boulevard area. According to the FIS, increased development in the City of Fortuna has aggravated flooding problems in the surrounding watersheds due to increasing amounts of runoff from newly created impervious areas (FEMA, 1981).

The City updated the initial storm drainage studies in 1982 and at that time adopted the Storm Drain Master Plan for the entire city consisting of a number of improvement projects as outlined in the 1982 report. According to the recent update to the Storm Drain Master Plan, approximately one-third of the improvements recommended in the 1982 storm drainage master plan have been partially or fully completed. Many improvements that were not included in the 1982 Master Plan have also been completed to meet

drainage requirements for new developments, improve existing facilities and facility capacity, and to reduce erosion caused by drainage outfalls (Winzler & Kelly, 2005).

The 2005 Storm Drain Master Plan is organized according to the six major natural drainages located within the city limits. These drainages include the North Fortuna Drainage; Rohner Creek Drainage; Hillside Creek Drainage; Strongs Creek Drainage; Jameson Creek Drainage; and Mill Creek Drainage. For each drainage basin, the 2005 Storm Drain Master Plan provides a detailed overview of the existing major storm drain facilities and provides recommendations for improving identified deficiencies in the city storm drain system. According to the 2005 Storm Drain Master Plan, many of the storm drains and culverts in the city are undersized, and development in the southern and eastern areas is increasing runoff to the city's drainage system, which is causing some areas of localized flooding (Winzler & Kelly, 2005). The following sections present the flood potential in each drainage basin, as summarized in the 2005 Storm Drain Master Plan.

North Fortuna Drainage. According to the 2005 Storm Drain Master Plan, the drainage facilities in the North Fortuna Drainage are generally acceptable and in good condition; however, there are several areas in the drainage basin that are subject to frequent flooding during relatively minor storm events; and discussions with City staff suggested that there potential for significant flood problems in this drainage basin (Winzler & Kelly, 2005). The results of the hydraulic modeling effort undertaken for the 2005 Storm Drain Master Plan show that a number of the drainage facilities in the North Fortuna drainage basin are undersized for the 25-year design flow (Winzler & Kelly, 2005). The 2005 Storm Drain Master Plan provides a summary of the existing facilities that are undersized in the drainage basin, and the recommended improvement projects. Table 7-4, in Chapter 7, provides a summary of the recommended improvement projects for the North Fortuna Drainage, as identified in the 2005 Storm Drain Master Plan.

Rohner Creek Drainage. According to the 2005 Storm Drain Master Plan, Rohner Creek has more potential than any other creek in the City of Fortuna to cause serious flooding damage (Winzler & Kelly, 2005). The lower reaches of Rohner Creek traverse through urban and residential areas and these reaches are subject to bank erosion and heavy growth of vegetation. These factors contribute to a serious reduction in channel capacity, and Rohner Creek has topped its bank several times (Winzler & Kelly, 2005). Although a number of the improvements recommended in the 1982 storm drainage study have been completed, the 2005 Storm Drain Master Plan notes that the major projects addressing the Rohner Creek flooding problems have not yet been completed. The 2005 Storm Drain Master Plan summarizes of the existing facilities that are undersized in the Rohner Creek drainage basin, and the recommended improvements. Table 7-5, in Chapter 7, provides a summary of the recommended improvement projects for the Rohner Creek Drainage, as identified in the 2005 Storm Drain Master Plan.

Hillside Creek Drainage. According to the 2005 Storm Drain Master Plan, the majority of the drainage facilities in the Hillside Creek Drainage are considered undersized for the 25-year storm event (Winzler & Kelly, 2005). The plan notes a number of improvement alternatives were recommended in the 1982 Storm Drainage Master Plan, and that none of the improvements were successfully implemented. The 2005 Storm Drain Master Plan provides a summary of the existing facilities that are undersized in the Hillside Creek drainage basin, and the recommended improvements. Table 7-6, in Chapter 7, provides a summary of the recommended improvement projects for the Hillside Creek Drainage, as identified in the 2005 Storm Drain Master Plan.

Strongs Creek Drainage. According to the 2005 Storm Drain Master Plan, the 1982 Storm Drain Master Plan recommended that development along Strongs Creek be conducted using building setbacks corresponding



to the calculated 100-year floodplain. According to the 2005 Storm Drain Master Plan, inspection of the latest aerial photo of the city of Fortuna indicates that development has progressed in accordance with this recommendation (Winzler & Kelly, 2005). The 1982 Storm Drain Master Plan also states that during extreme floods the Eel River will cause flooding in the lower reaches of Strongs Creek. The 2005 Storm Drain Master Plan reiterates that statement. Table 7-7, in Chapter 7, provides a summary of the recommended improvement projects for the Strongs Creek Drainage, as identified in the 2005 Storm Drain Master Plan.

Jameson Creek Drainage. According to the 2005 Storm Drain Master Plan, the only flooding that has occurred in the Jameson Creek watershed has been at its confluence with Strongs Creek. Little if any damage to residences or property has resulted from this flooding due to lack of development in this area (Winzler & Kelly, 2005). The 2005 Storm Drain Master Plan recommended only one improvement project on Jameson Creek—replacing one culvert on Rohnerville Road, if the existing culvert fails, or as development warrants.

Mill Creek Drainage. According to the 2005 Storm Drain Master Plan, many of the recommended improvements from the 1982 Storm Drain Master Plan study have been implemented in the Mill Creek Drainage. However, most of the storm drains installed have been downsized from those recommended (Winzler & Kelly, 2005). Currently (2005), significant development is occurring in the Mill Creek Drainage and City staff members have observed a significant increase in the amount of runoff entering the Mill Creek drainage system as a result of the developments in the area (Winzler & Kelly, 2005). Table 7-8, in chapter 7, provides a summary of the recommended improvement projects for the Mill Creek Drainage, as identified in the 2005 Storm Drain Master Plan.

Findings

- In 1981, the most significant floodplain development in Fortuna was in the area of Fortuna Boulevard adjacent to Rohner Creek.
- The only flooding that has occurred in the Jameson Creek watershed has been at its confluence with Strongs Creek.
- During extreme floods, the Eel River will cause flooding in the lower reaches of Strongs Creek.
- According to the 2005 Storm Drain Master Plan, the majority of the drainage facilities in the Hillside Creek Drainage are considered undersized for the 25-year storm event.
- Rohner Creek has the most potential to cause serious flooding damage. Its lower reaches traverse through urban and residential areas and these reaches are subject to bank erosion and heavy growth of vegetation.
- Drainage facilities in the North Fortuna Drainage are generally acceptable and in good condition; however, there are several areas in the drainage basin that are subject to frequent flooding during relatively minor storm events.
- According to the 2005 Storm Drain Master Plan update, approximately one-third of the improvements recommended in the 1982 Storm Drain Master Plan have been partially or fully completed.

- Increased development in the city of Fortuna has aggravated flooding problems in the surrounding watersheds due to increasing amounts of runoff from newly created impervious areas.
- In 1976, areas of significant flood potential included Strongs Creek, where dense willow tree growth near the channel was cited as a contributory cause of flooding problems.

8.7 Wildland Fires

Introduction

This section deals primarily with the assessment of wildland fires in the Planning Area. This section outlines the current regulations and conditions that directly affect wildland fire control and monitoring.

Key Terms

State Responsibility Area. Section 4102 of the Public Resources Code (PRC) defines "state responsibility areas" as those areas of the state for which the State has the financial responsibility of preventing and suppressing fires. The SRA roughly corresponds to areas outside incorporated cities with vegetated lands that have watershed value.

Regulatory Setting

State **California Public Resources Code.** The Public Resources Code establishes the California Department of Forestry and Fire Protection and the regulations for the prevention and control of wildland fires.

Local

Humboldt County Fire Safe Regulations. The Humboldt County Fire Safe Regulations are contained in Title III - Division 11, Land Use and Development, are known as the "SRA Fire Safe Regulations" and constitute the wildland fire protection standards of the County for lands within State Responsibility Areas (SRA).

Existing Conditions

Wildland Fire Hazard. Steeply sloped hills covered with coniferous forest are located within and around the northern and eastern portions of the Planning Area. As described above, the CDF Fortuna Battalion is responsible for providing wildland fire prevention and suppression within the area.

The 2005 Humboldt County Master Fire Protection Plan contains a wildland fire risk/hazard assessment that was prepared for eleven fire planning compartments covering the entire county using the RAMS (Risk Assessment and Management System) computer model. Planning compartments were developed based on watershed and planning boundaries and were designed to include areas with similar fire planning characteristics. The Planning Area is located within the Humboldt Bay Planning Compartment, which extends from Trinidad in the north to Rio Dell and Carlotta in the south.



The RAMS analysis evaluated five factors that contribute to the overall risk of catastrophic fire. The five factors are:

- fire-related fuels hazard and topography;
- resources and economic assets at risk;
- wildland ignition risk;
- wildfire history; and
- fire protection capacity.

As can be seen on the Fortuna slope map (Figure 8-4) the northern and eastern edges of the Planning Area are steeply sloped and forested, and the central and western portions are predominantly flat.

Based on the RAMS analysis, the risk of catastrophic fire for the Humboldt Bay Planning Compartment is considered moderate. However, the Planning Area does contain significant natural resources and economic assets, and due to the population density and transportation system, this area has significant wildland ignition risks.

The Humboldt County Fire History map 1908-2001, prepared by Humboldt County Community Development Services in October 2002, indicates that there have been no major wildfires in the Planning Area in the last century. Although there have been no major fires within the Planning Area in the last century, the increasing incidence of homes located at or near the wildland interface (wildland interface is defined by the National Wildfire Coordinating Group as "the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels") will increase wildfire risk.

In addition to the RAMS analysis, the Humboldt County Master Fire Protection Plan contains a list of "communities at risk" to wildfire that was compiled by the CDF. In preparing this list, CDF relied upon three categories:

- fuel hazards-ranking vegetation types by their potential fire behavior during a wildfire;
- assessing the probability of fire-the annual likelihood that a large damaging wildfire would occur in a particular vegetation type; and
- defining areas of suitable housing density that would create wildland-urban interface fire protection strategy situations.

The communities at risk wildfire risk rankings range from 3, the highest risk, to 1, the lowest risk. According to the HCMFPP 2005, Fortuna has a wildfire risk ranking of 2.

Findings

- The Planning Area is at moderate risk of wildfire. The Planning Area has highly valued natural and economic assets that are at risk of wildfire and high wildfire ignition risks due to population density and transportation system. The Planning Area also contains significant fire protection capabilities.
- According to the HCMFPP 2005, Fortuna has a wildfire risk ranking of 2.
- There have been no major wildfires in the Planning Area during the last century, however, the increasing incidence of homes located at or near the wildland interface will increase wildfire risk.

- The risk of catastrophic fire for the Humboldt Bay Planning Compartment is considered moderate.
- CDF Fortuna Battalion is responsible for providing wildland fire prevention and suppression within the Planning Area.



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Clendenan, Clif. Grower/Owner of Clendenan's Apples

Creb, Holly. Fortuna Grower

Crotty, John. Director of Parks and Recreation, December 16, 2005, personal communication.

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Punla, Anita, Senior Planner. Planning Division, Humboldt County

Reed, David. Coordinator, Fortuna Business Improvement District, January 2006, personal communication.

Ziemer, Katherine. Agricultural Bureau

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Allen, Marlene, Engineer. SBC

Chand, Jason, Manager. City Ambulance.

Cordova, John. Gas Service Design, PG&E.

Edmonds, Dave. Engineer. SBC

Foley, Rob. SBC

Geiger, Mark. Cox Cable

Howard, Sean. Electric Service Design, PG&E.

Kindsfather, Gerald. Manager, Humboldt Waste Management Authority, January 2006, personal communication.



Monroe, Jeremy, Fire Prevention Officer. California Department of Forestry and Fire Protection Humboldt-Del Norte Unit.

Smith, Karen. Office Manager, Eel River Disposal, December 19, 2005, personal communication.

Winburn, Lon, Chief. Fortuna Volunteer Fire Department.

Wood, Angie. Recycling Coordinator, City of Fortuna, Public Works Department, December 19, 2005, personal communication.

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Air Pollution Control Officer. *North Coast Unified Air Quality Management District*

Ashley, Lana. Chief of Environmental, North. California Department of Transportation (Caltrans).

Avis, Steven. Assistant City Planner. City of Fortuna, Planning Department.

Englehart, Christian. Engineering Technician II. City of Fortuna, Engineering Department.

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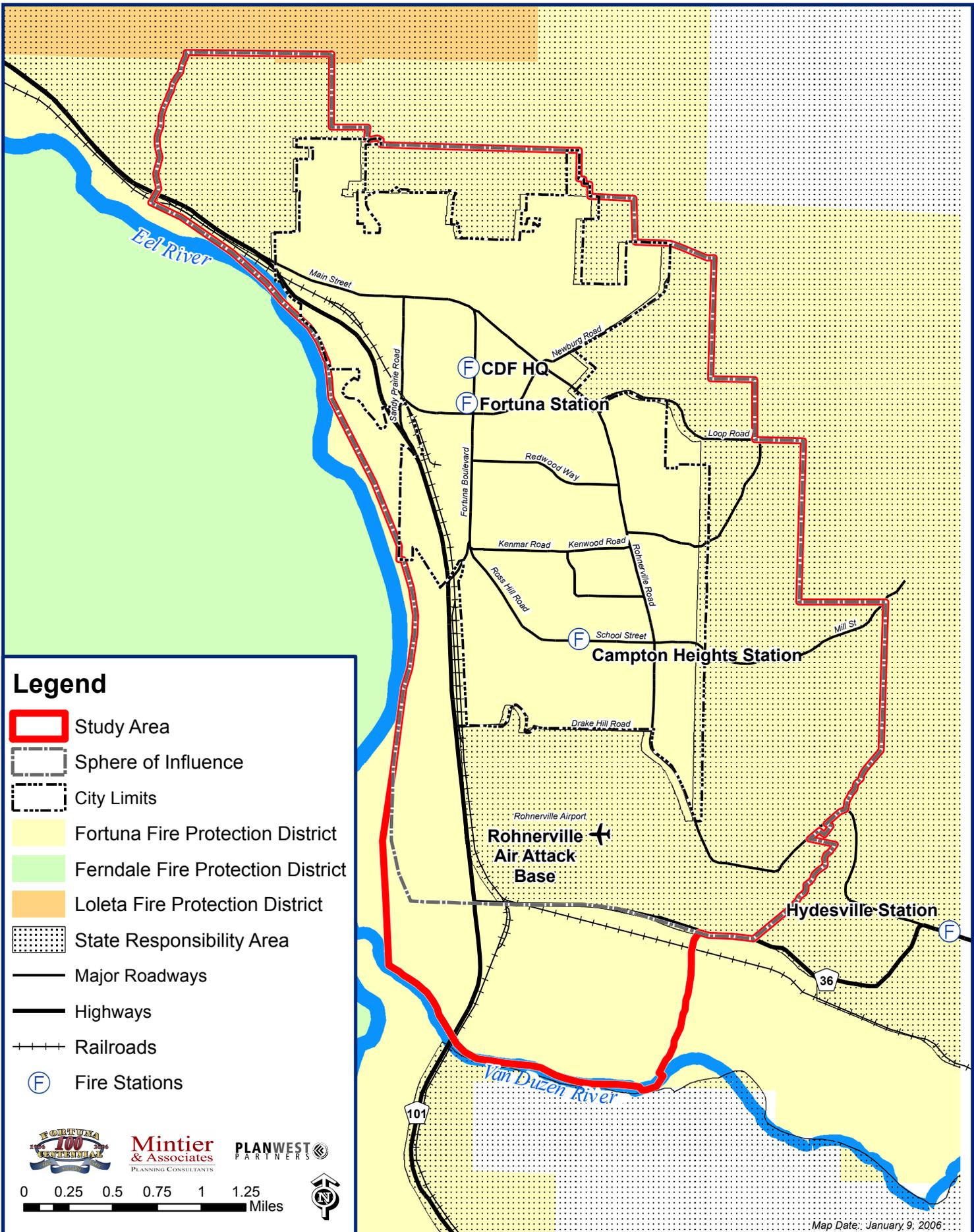
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Rodkin, Richard. Principal and Acoustical Consultant. Illingworth & Rodkin, Inc.

Shorey, Liz. Senior Planner. City of Fortuna, Planning Department.

Whitlock, Dalene. Principal and Co-owner. Whitlock & Weinberger Transportation, Inc. (W-Trans).

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PLANWEST PARTNERS



CITY OF FORTUNA GENERAL PLAN UPDATE

Figure 7-6
Fire Protection

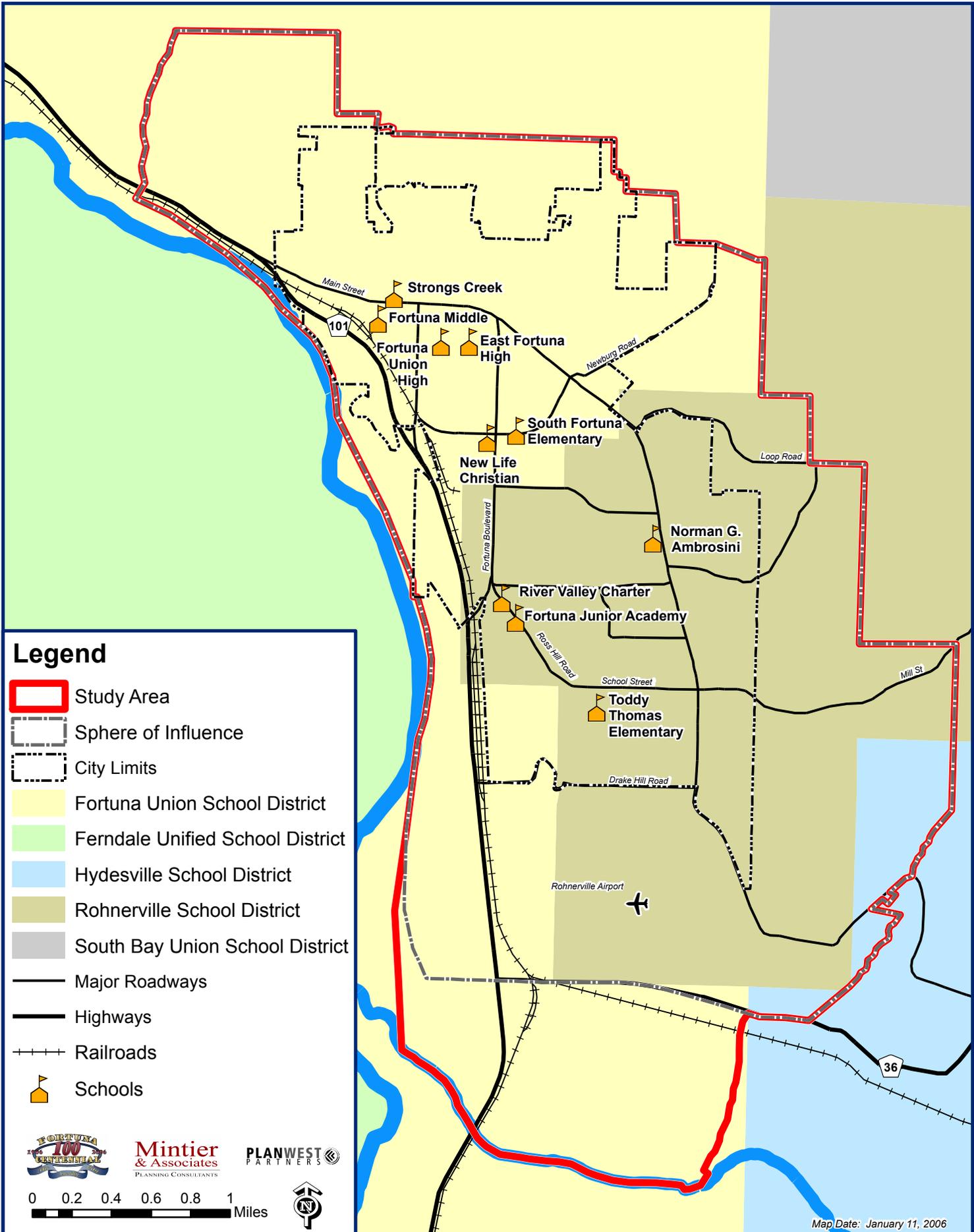
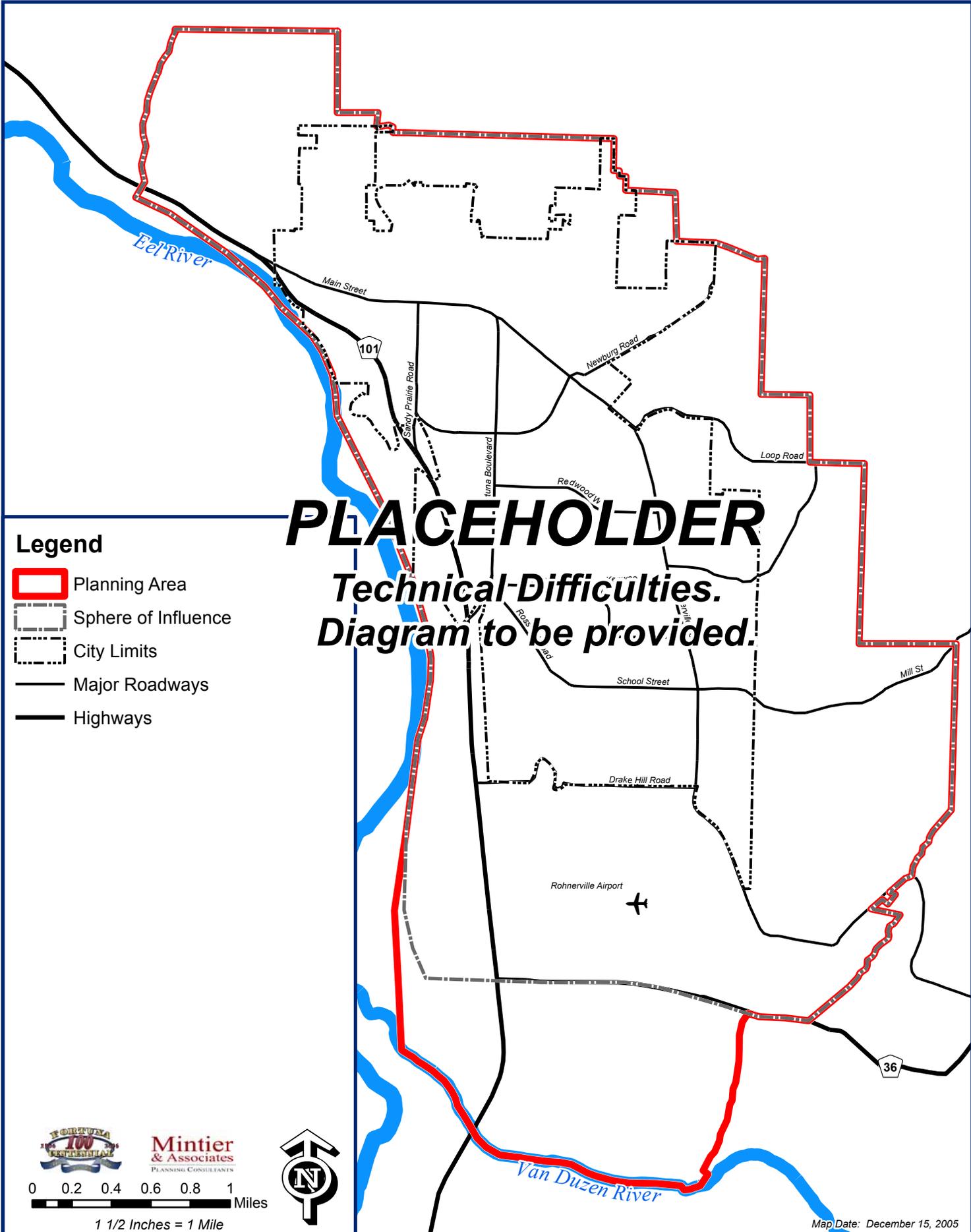


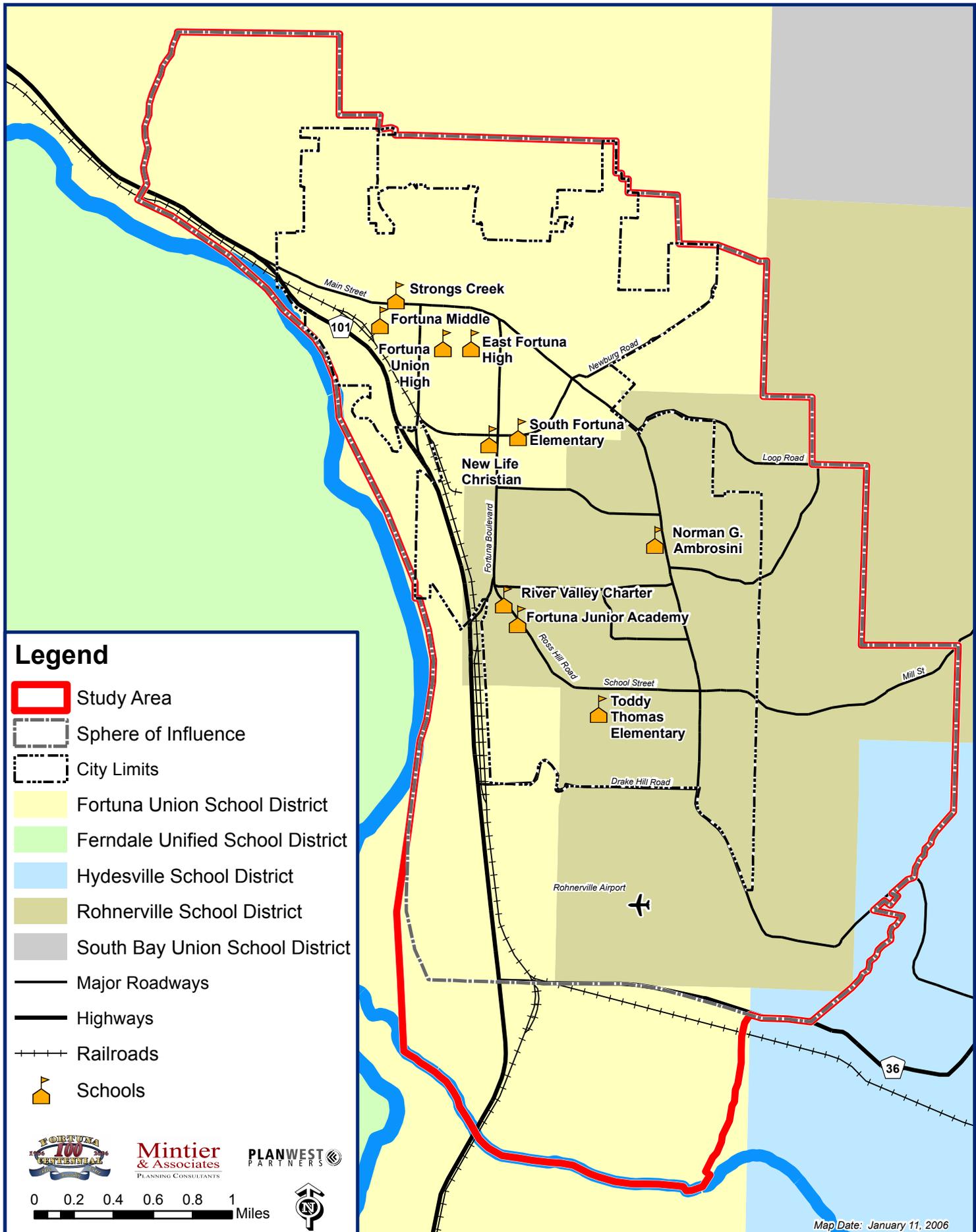
Figure 7-5
School Districts and Facilities



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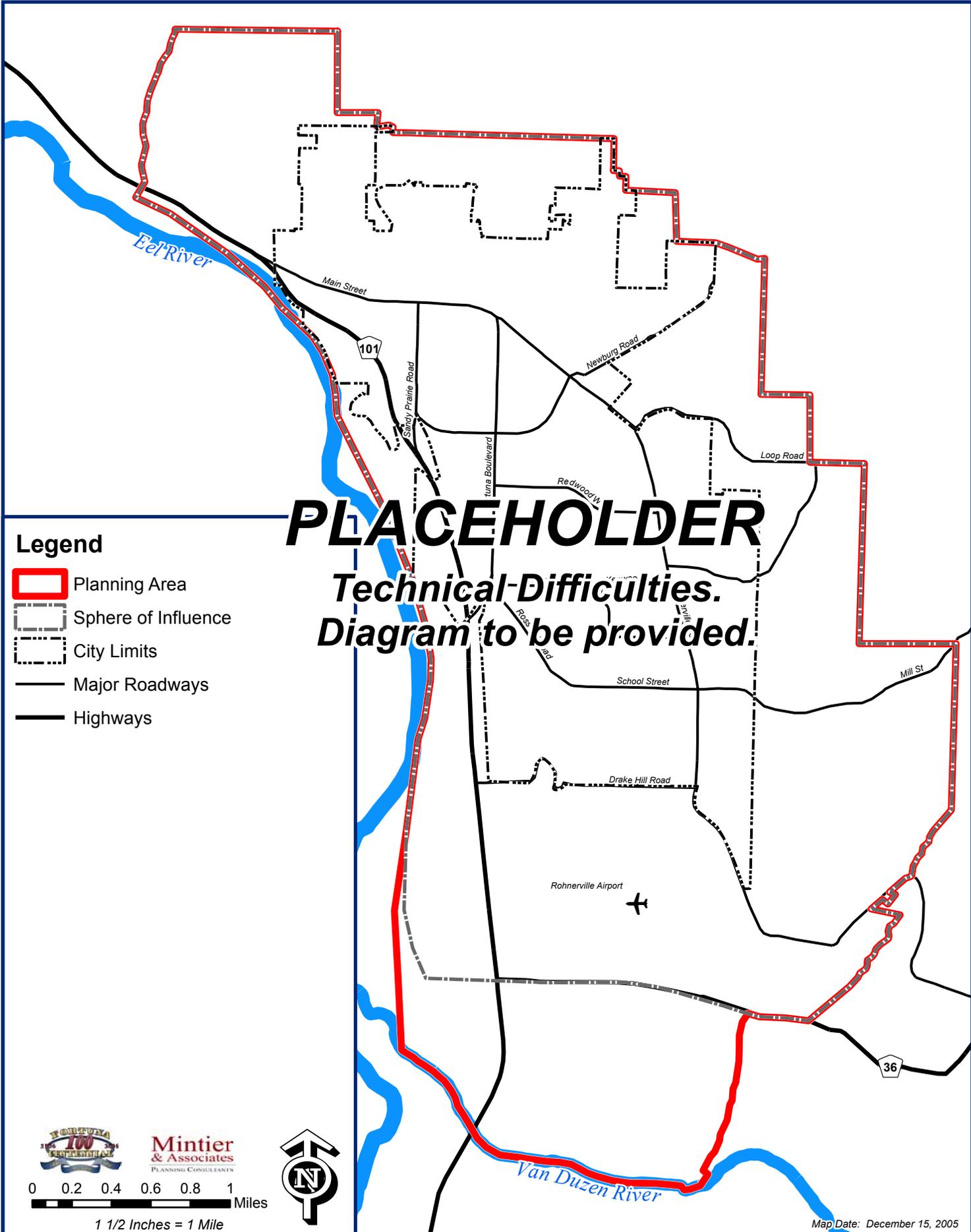


Figure 7-4
Proposed Wastewater Treatment Plant



CITY OF FORTUNA GENERAL PLAN UPDATE

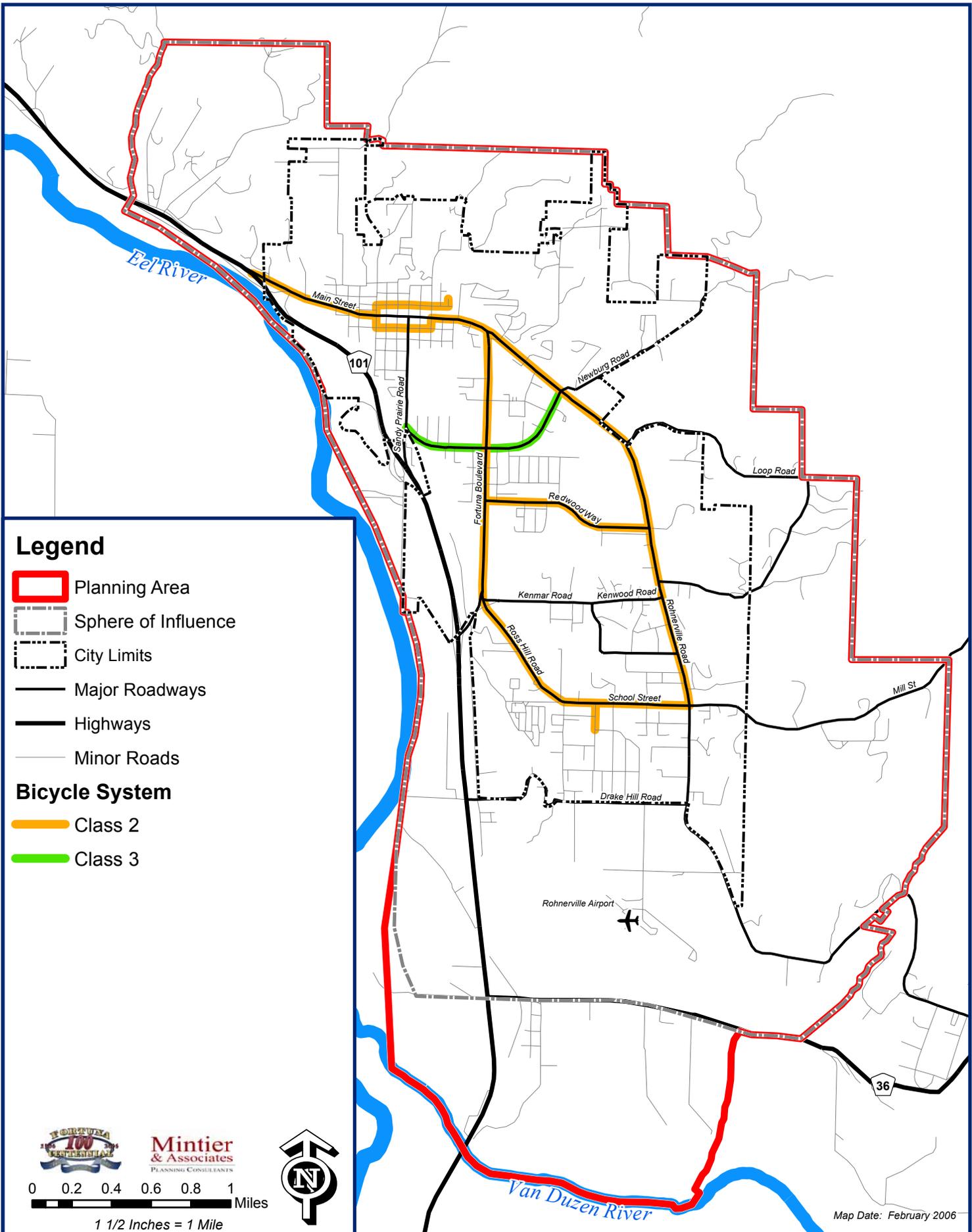
Figure 7-5
School Districts and Facilities



0 0.2 0.4 0.6 0.8 1 Miles
 1 1/2 Inches = 1 Mile



Figure 7-1
 City Distribution System

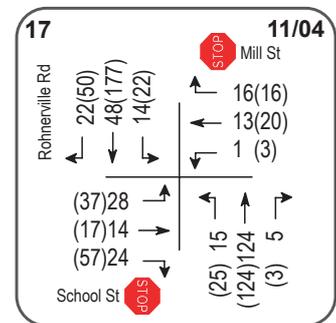
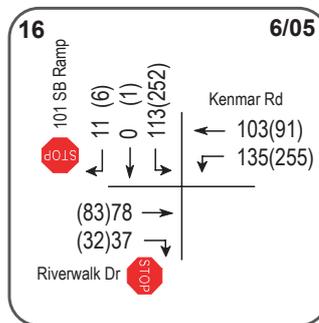
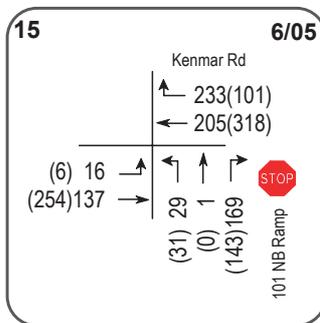
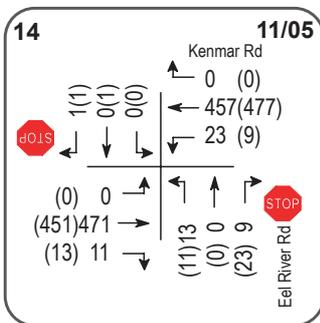
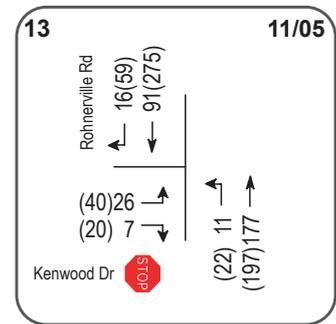
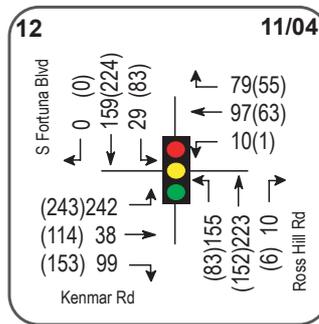
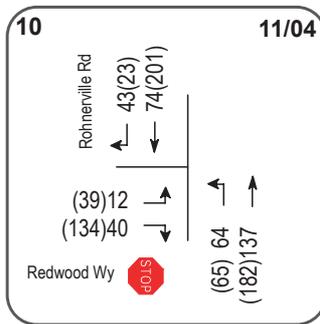
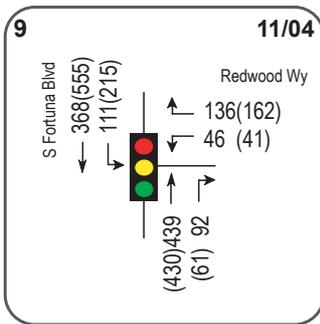
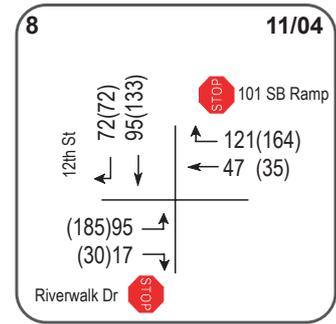
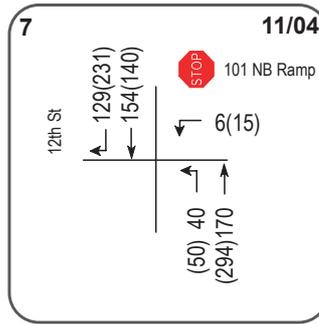
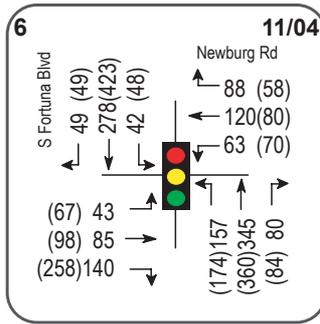
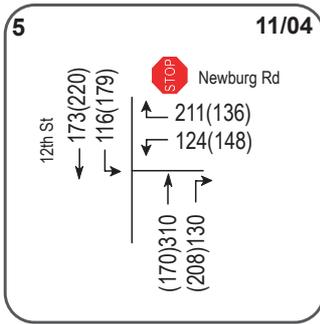
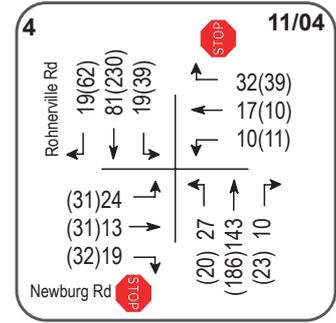
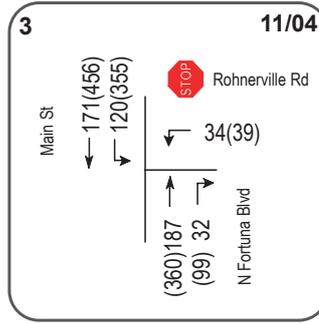
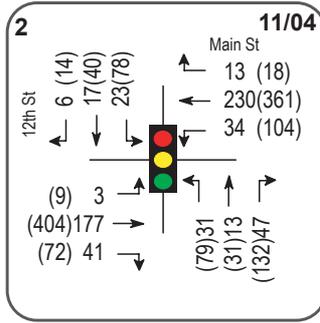
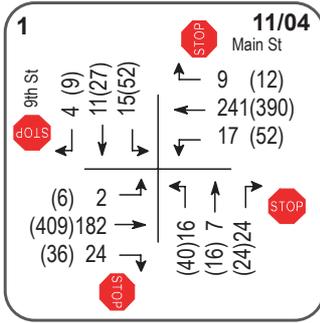


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Figure 5-5
Bicycle Classification System

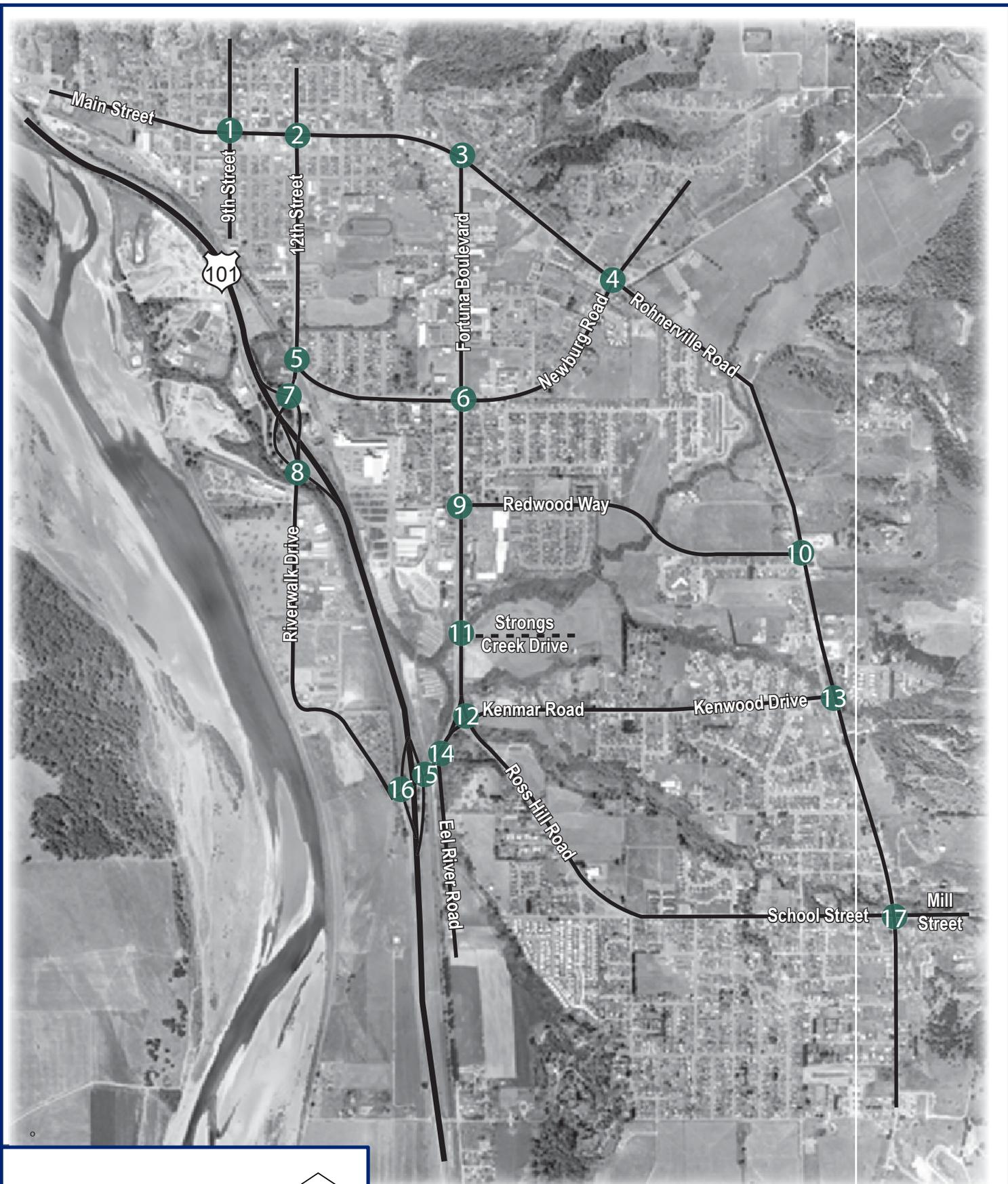


Static Print Date: January 2006



CITY OF FORTUNA GENERAL PLAN UPDATE

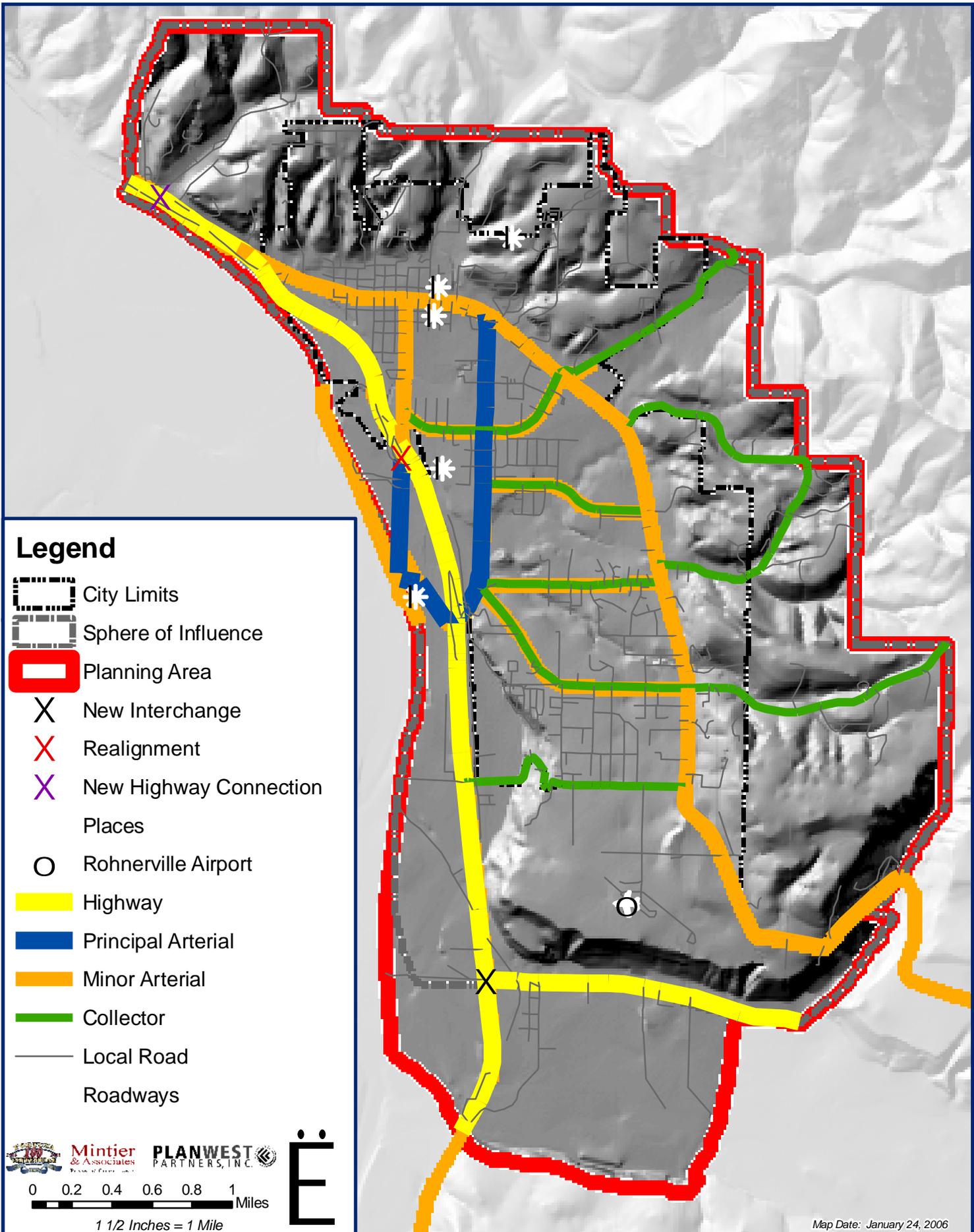
Figure 5-4
Existing Traffic Volumes



Static Print Date: January 2006



Figure 5-3
Critical Intersections



Map Date: January 24, 2006

Figure 5-2
Circulation System

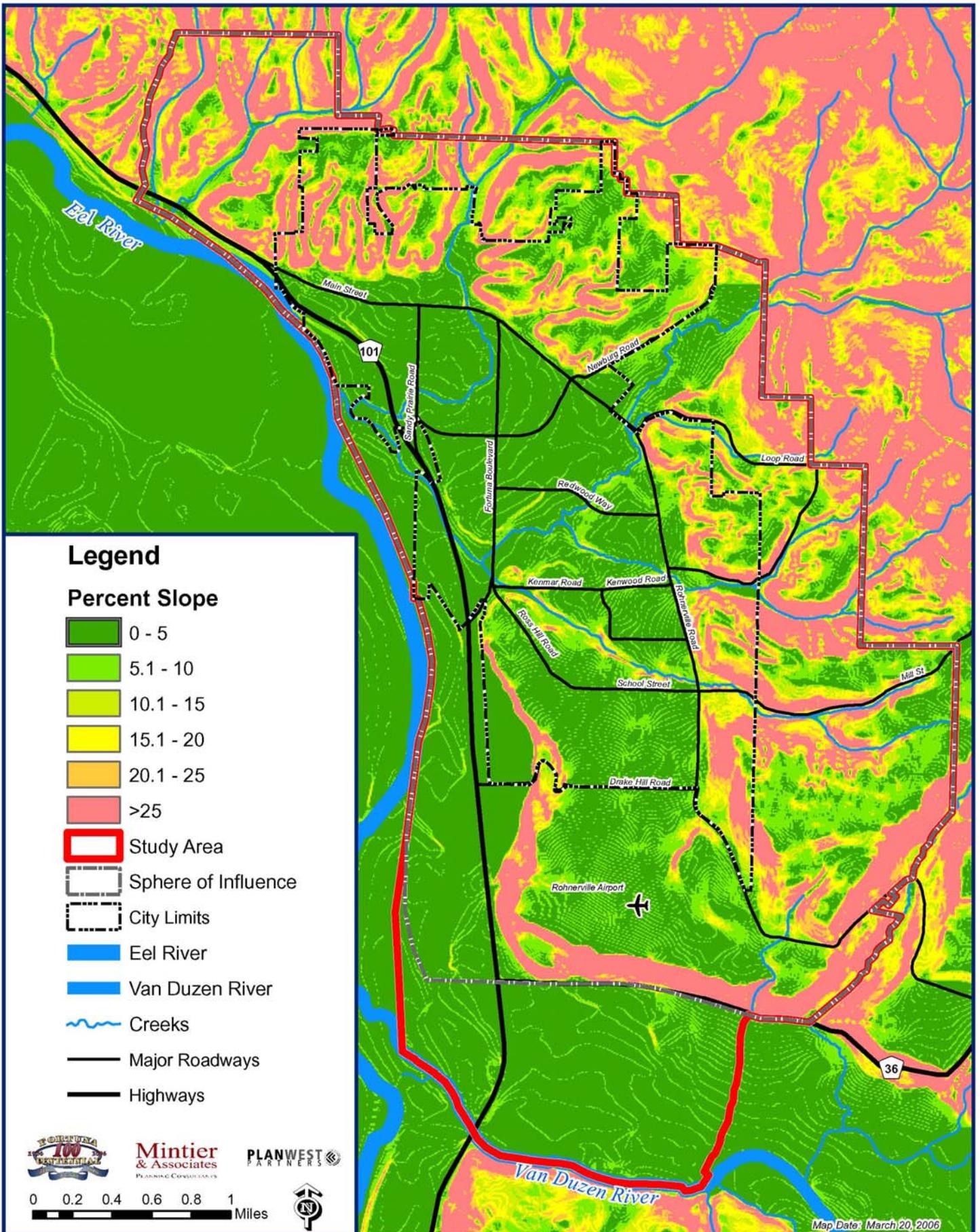
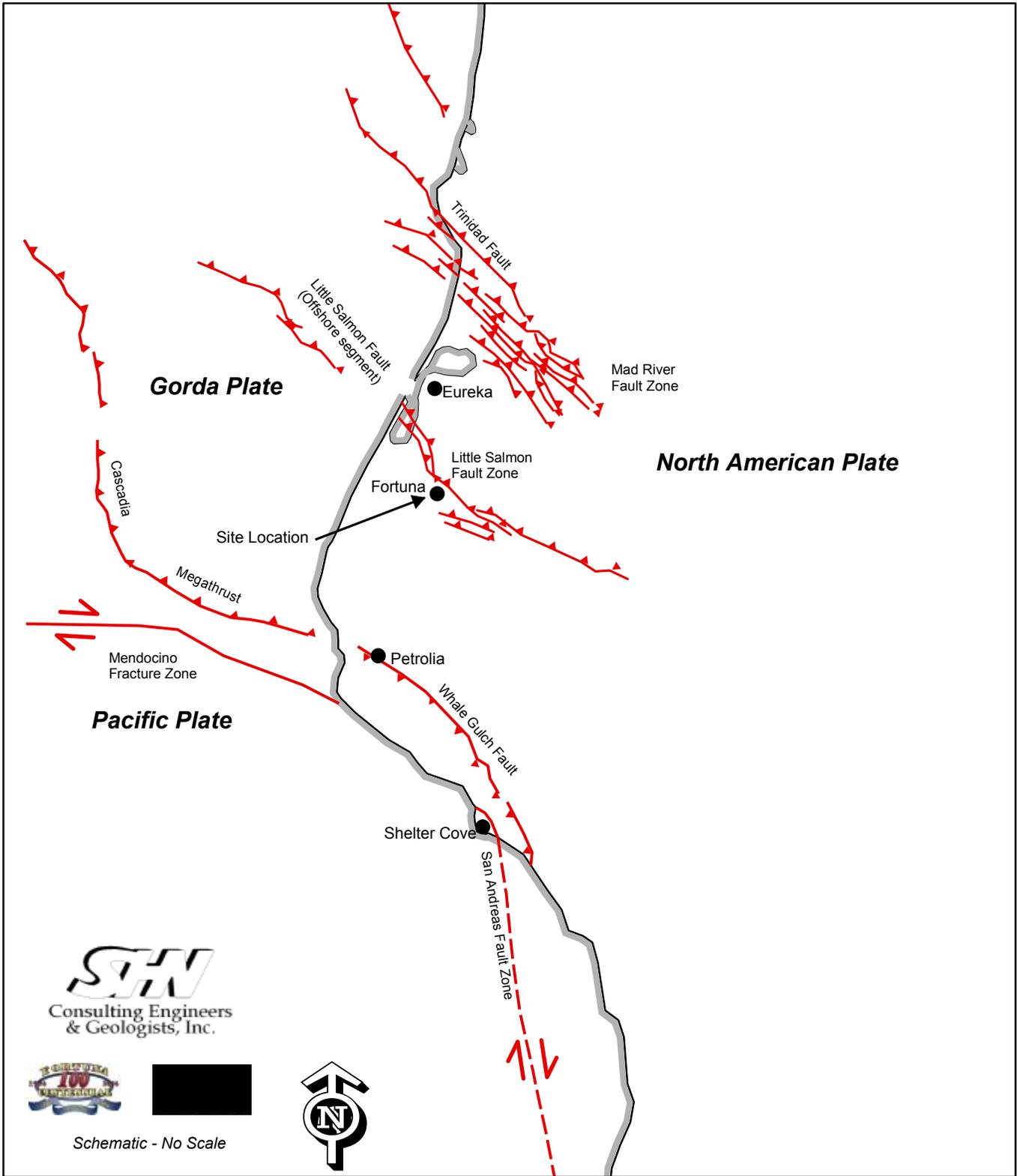


Figure 8-4
Slope

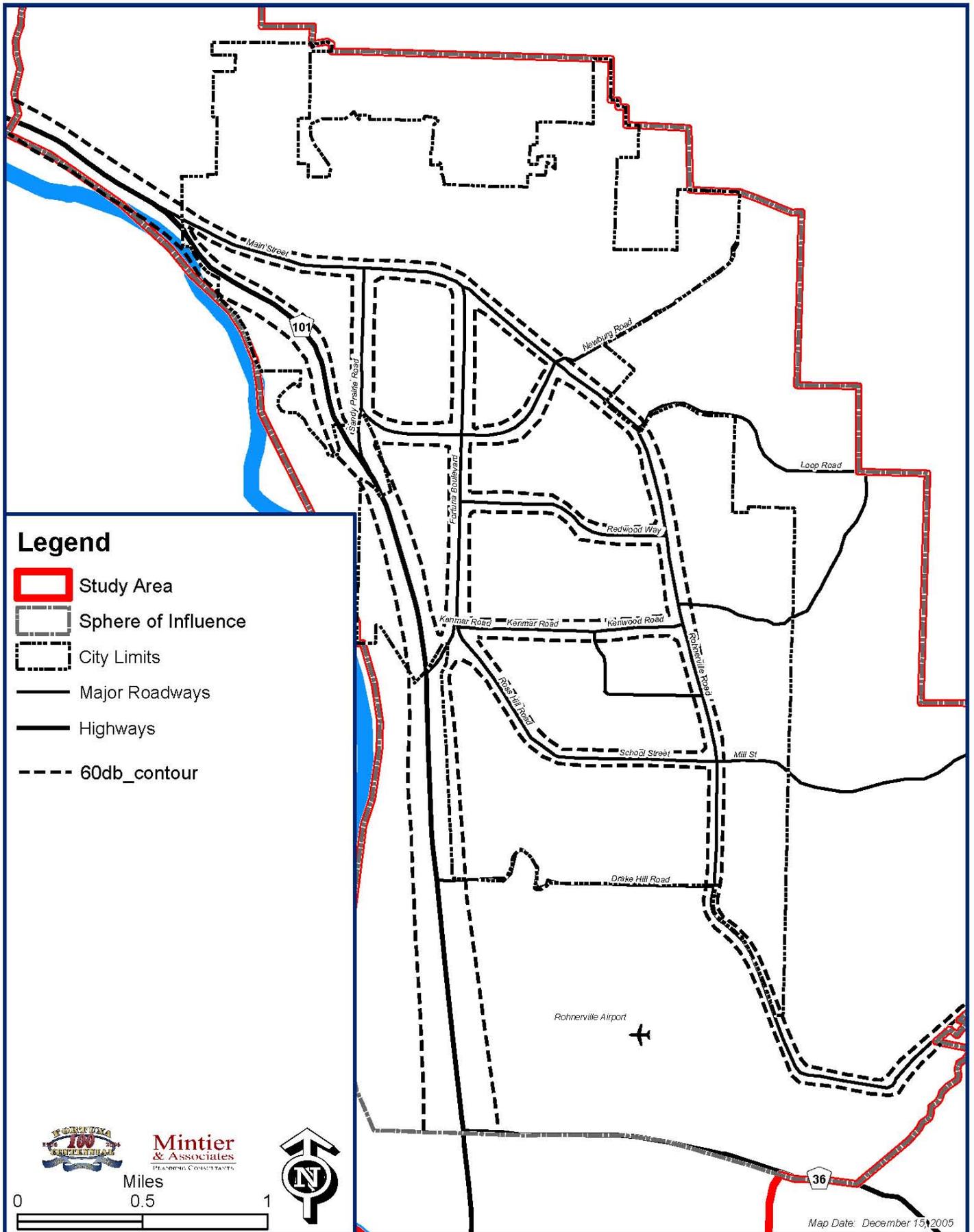


Modified from: USGS California - Nevada Active Fault Map
 from <http://quake.wr.usgs.gov/info/faultmaps>; San Andreas Fault
 location taken from Prentice et al., 1999.

Map Date: January 5, 2005



Figure 8-3
Regional Tectonic Map



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Figure 8-2
Existing Roadway Noise Contours

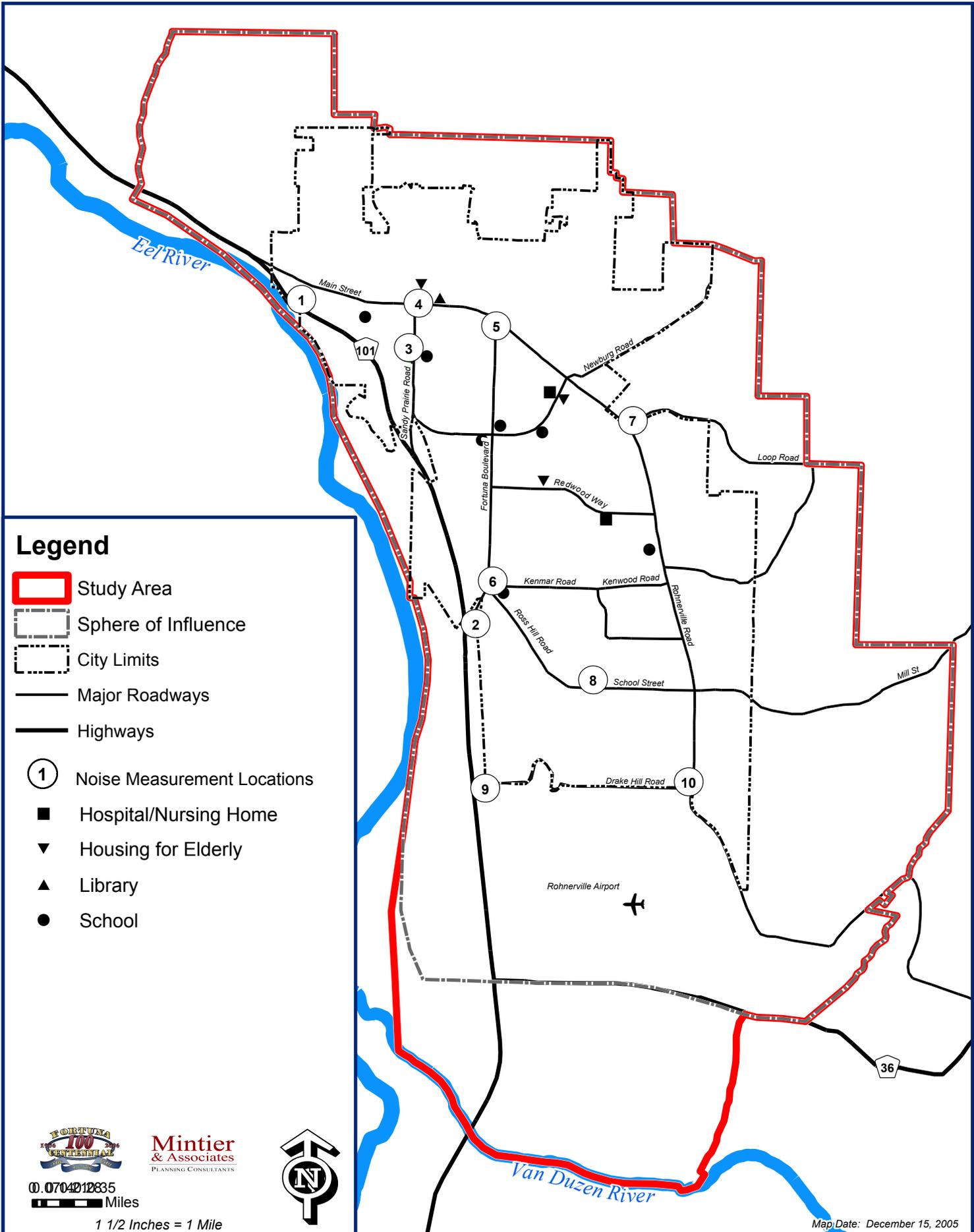
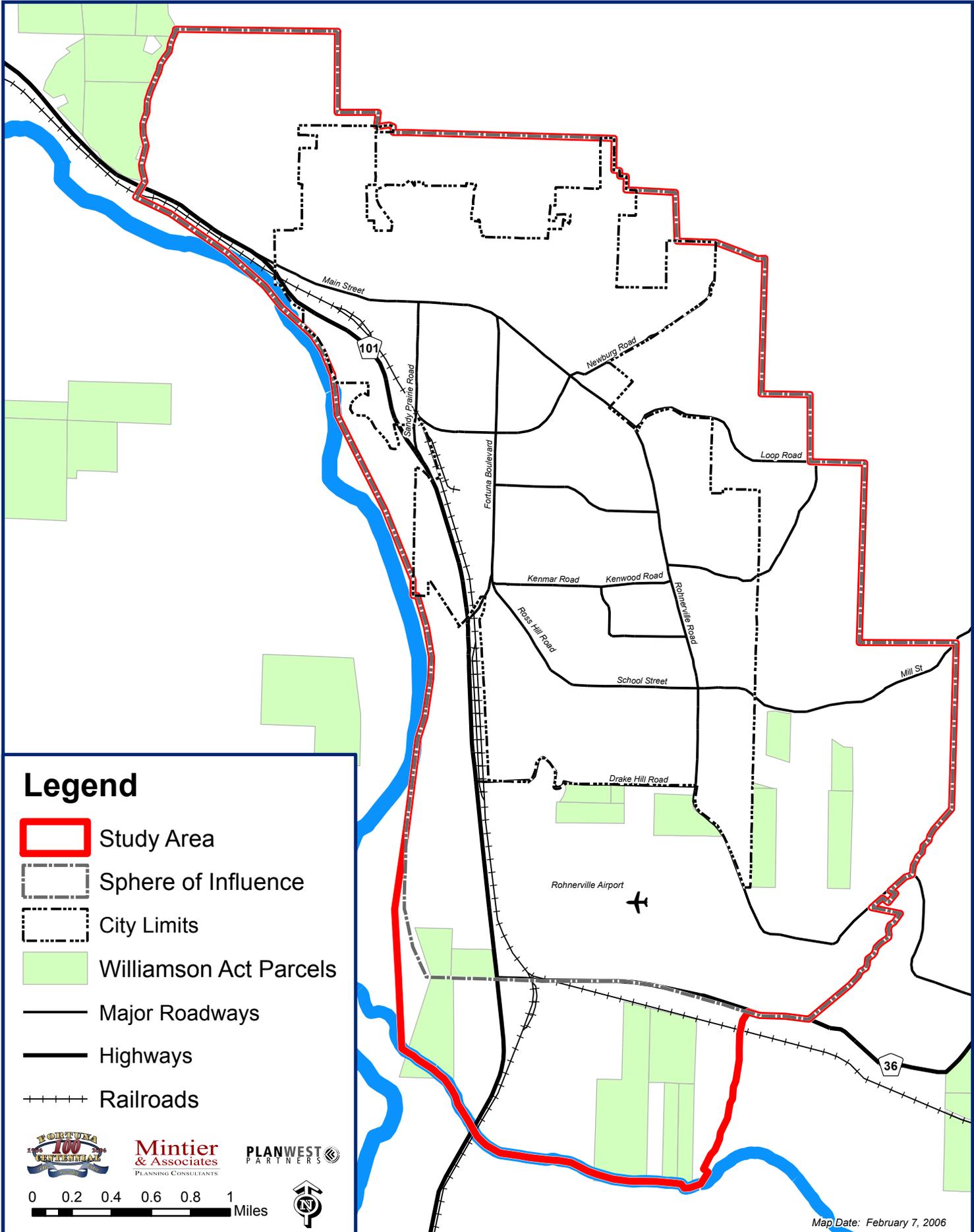


Figure 8-1
Noise Management Locations



Map Date: February 7, 2006

Legend

- Study Area
- Sphere of Influence
- City Limits
- Williamson Act Parcels
- Major Roadways
- Highways
- Railroads



Fortuna
100th Anniversary



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PLANWEST PARTNERS

0 0.2 0.4 0.6 0.8 1 Miles

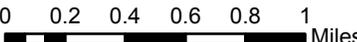






Figure 6-3
Williamson Act Subvention Parcels

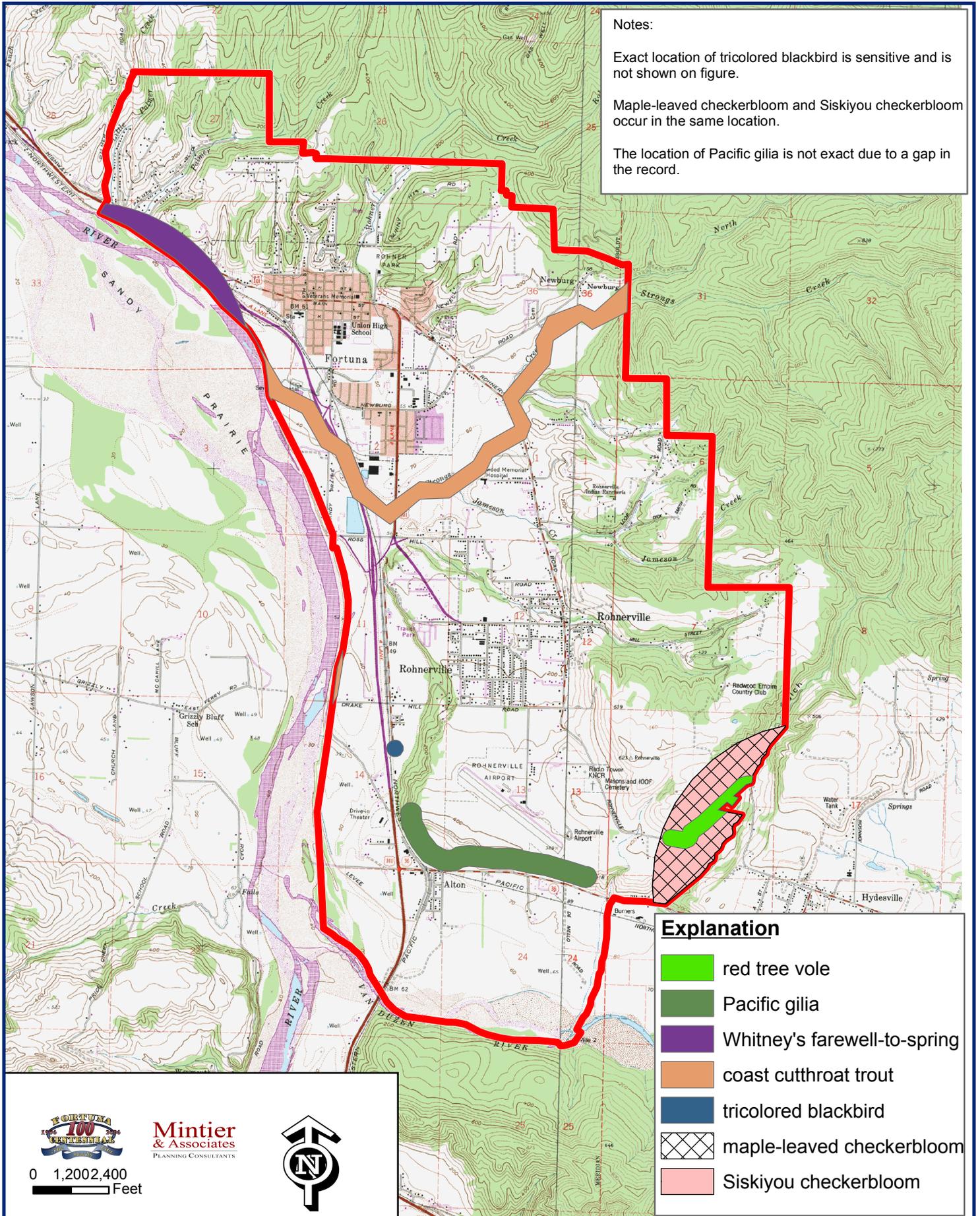
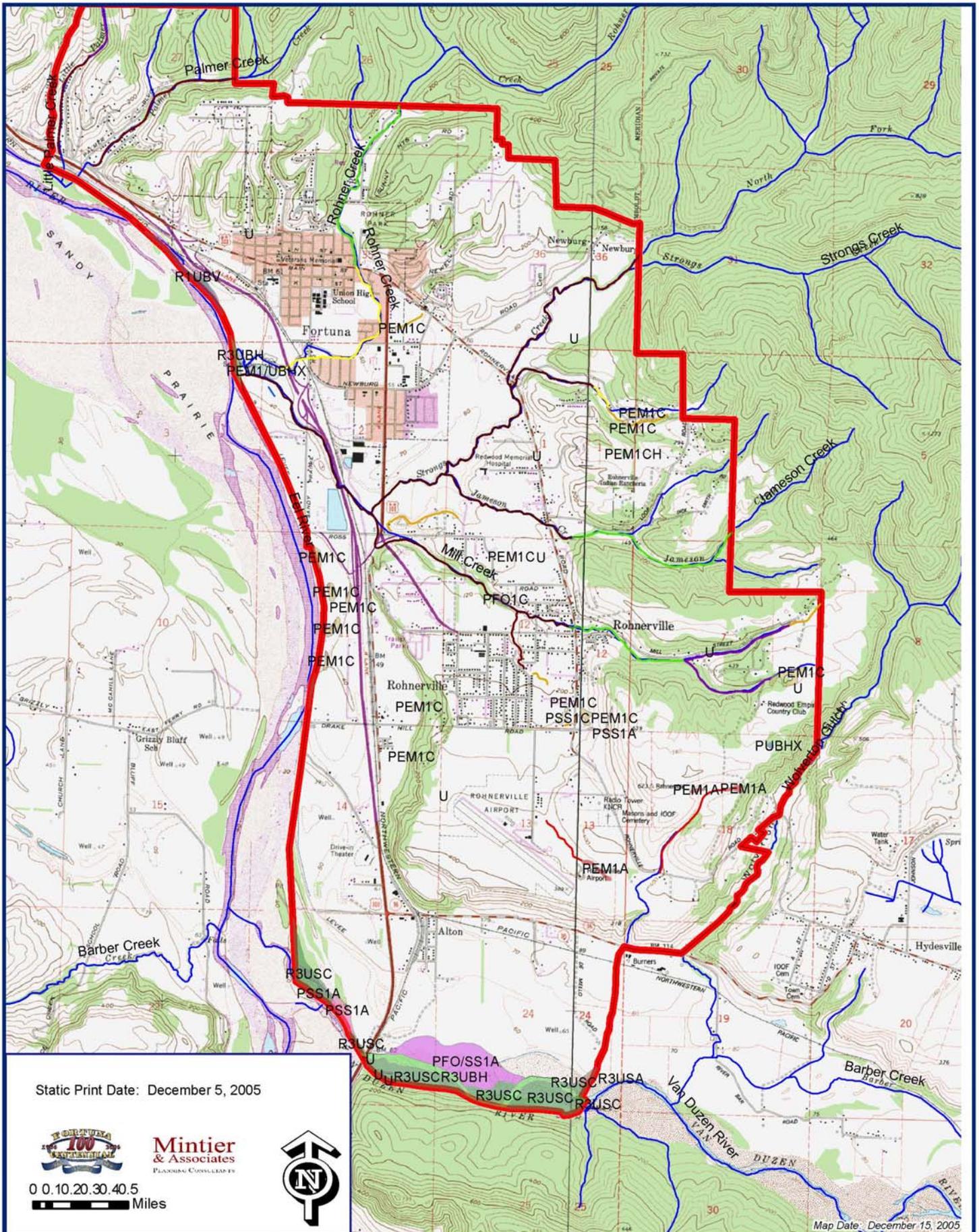


Figure 6-2
Special Status Species Occurrences within the Study Area



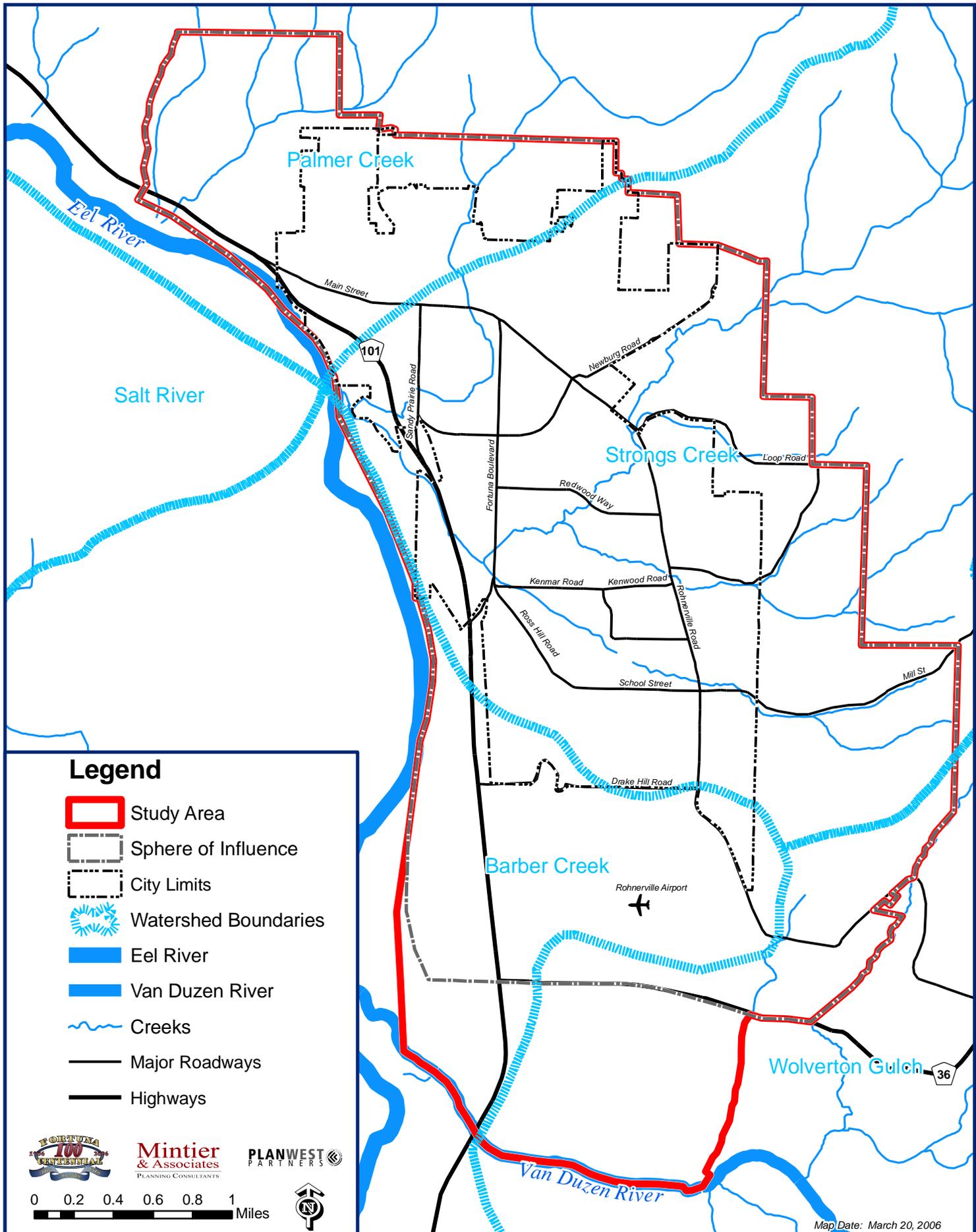
(Source: U. S. Department of Interior Fish and Wildlife Service National Wetland Inventory; Fortuna, Hydesville USGS 7.5 minute quadrangles)

Figure 6-1a

Wetlands Located within Study Area



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**Figure 6-1
Watersheds**

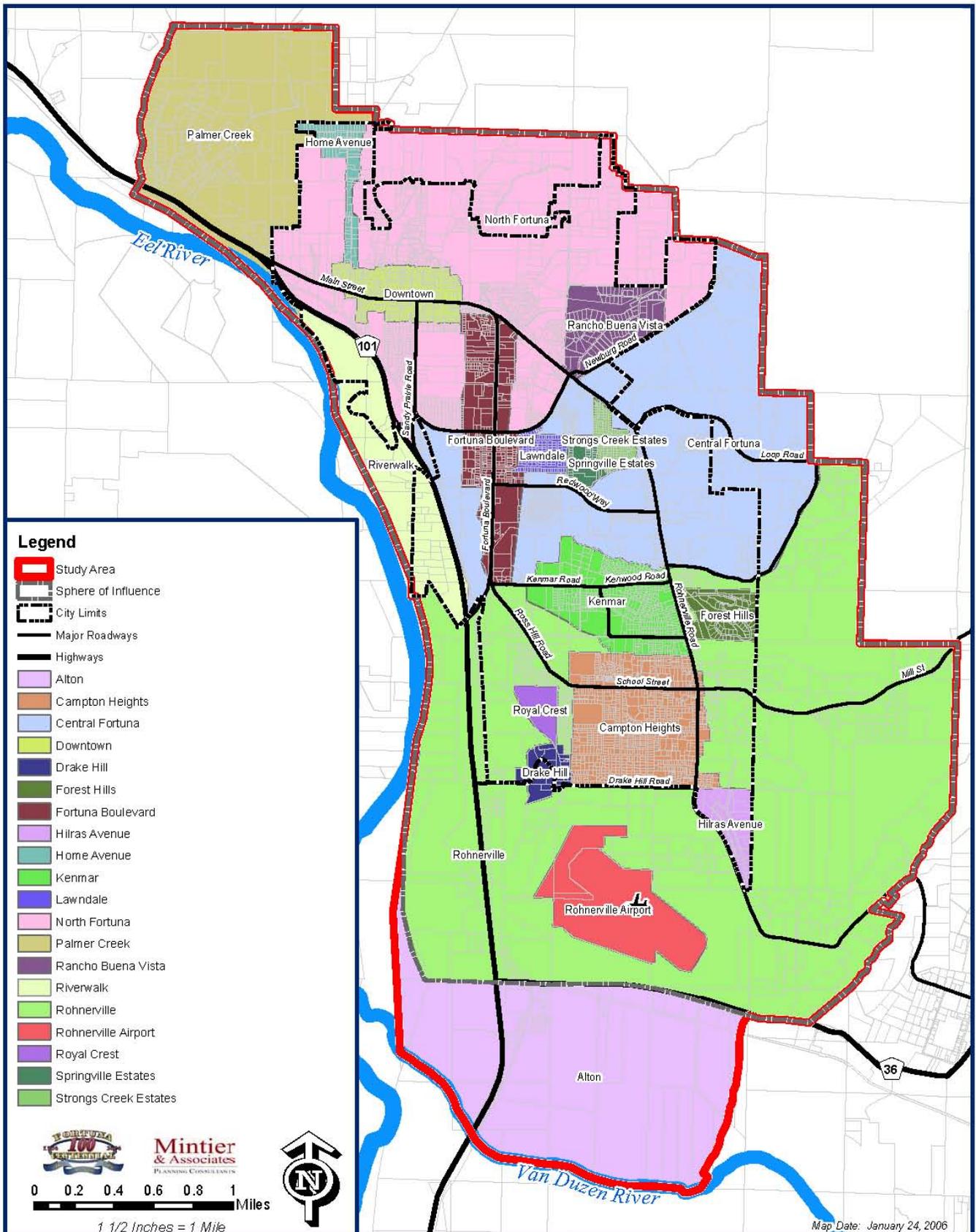
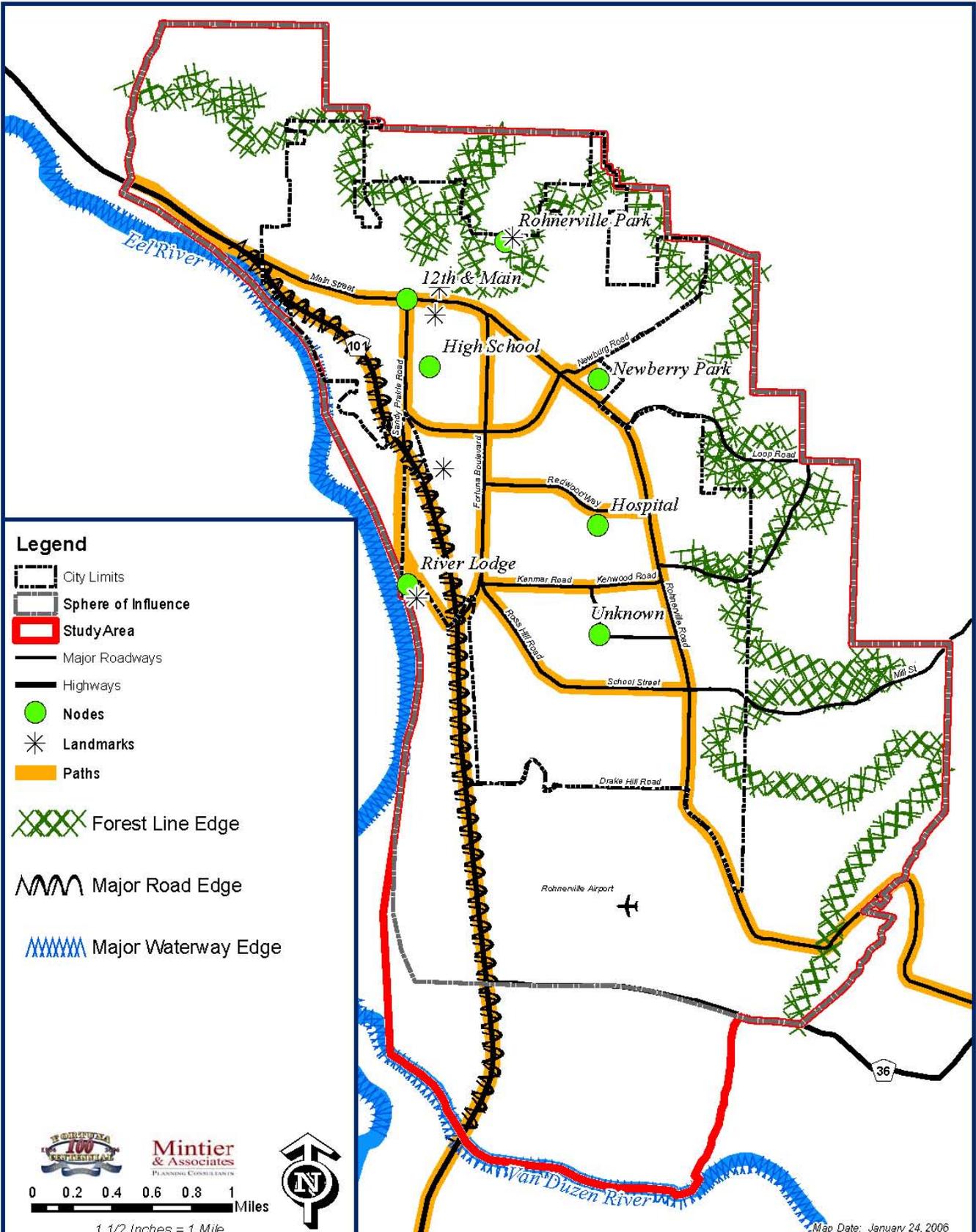


Figure 4-4
Neighborhoods & Districts



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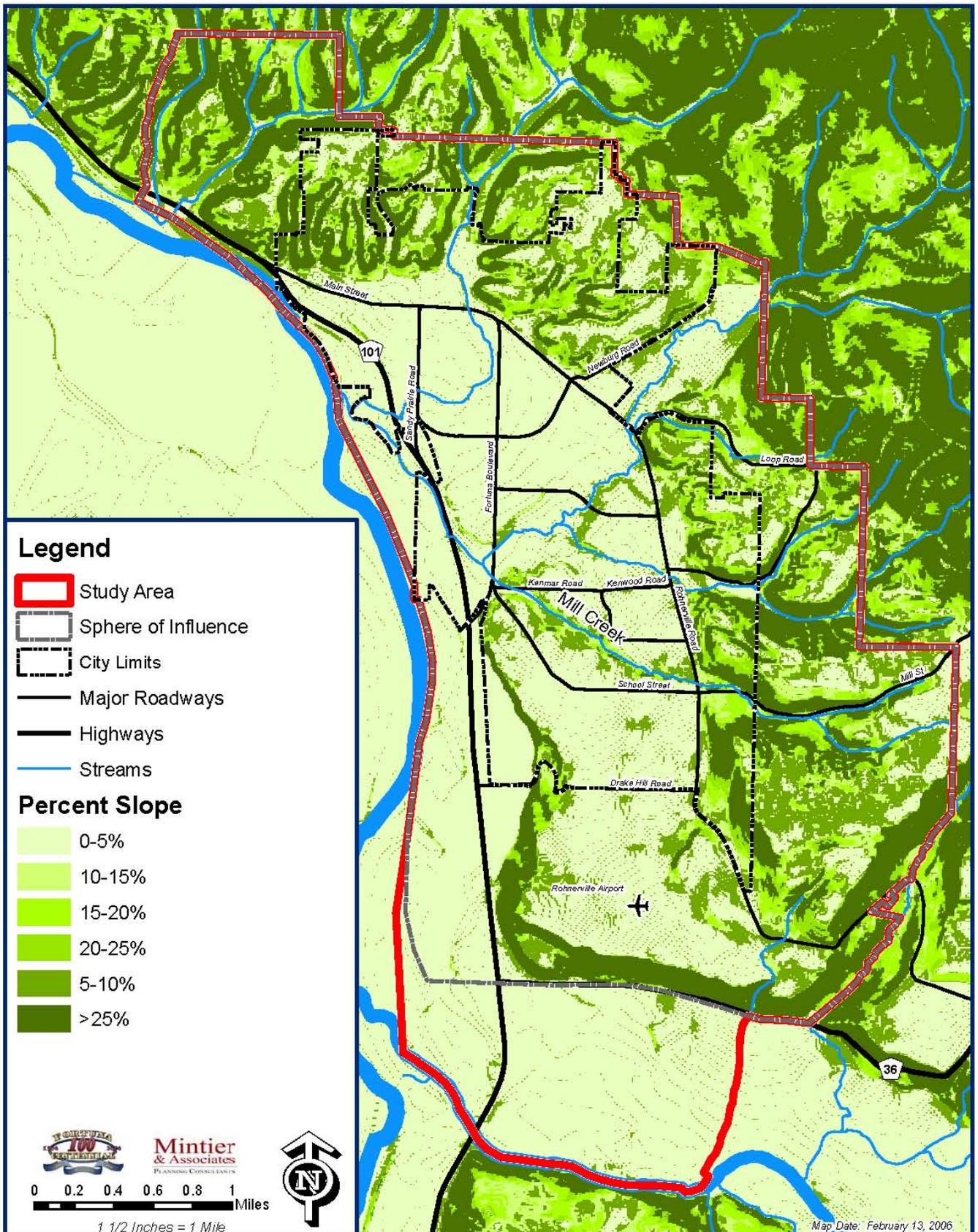
0 0.2 0.4 0.6 0.8 1 Miles

1 1/2 Inches = 1 Mile

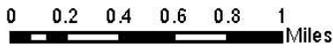


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Figure 4-3
Urban Form & Design



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1 1/2 Inches = 1 Mile



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Figure 4-2
Slope

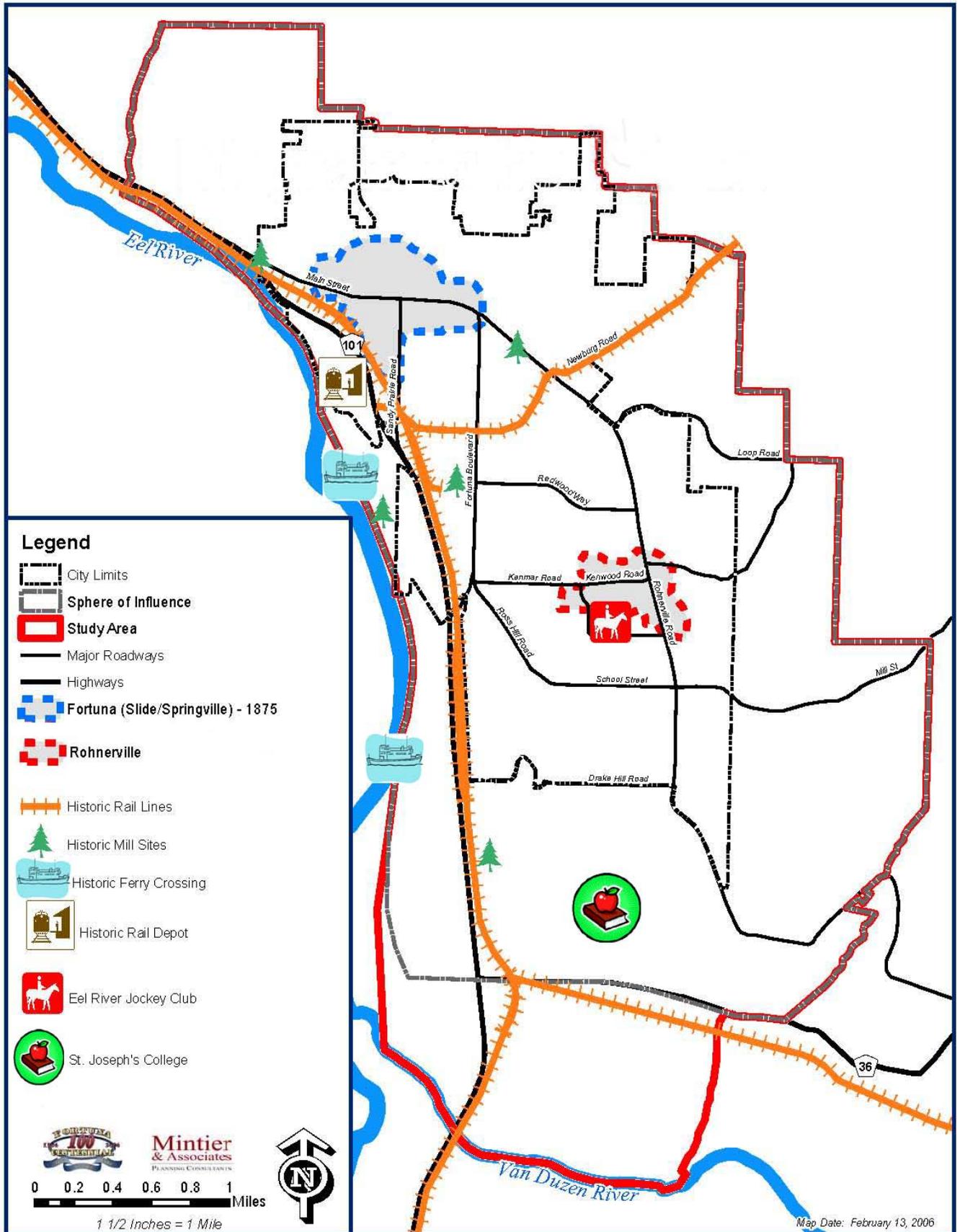
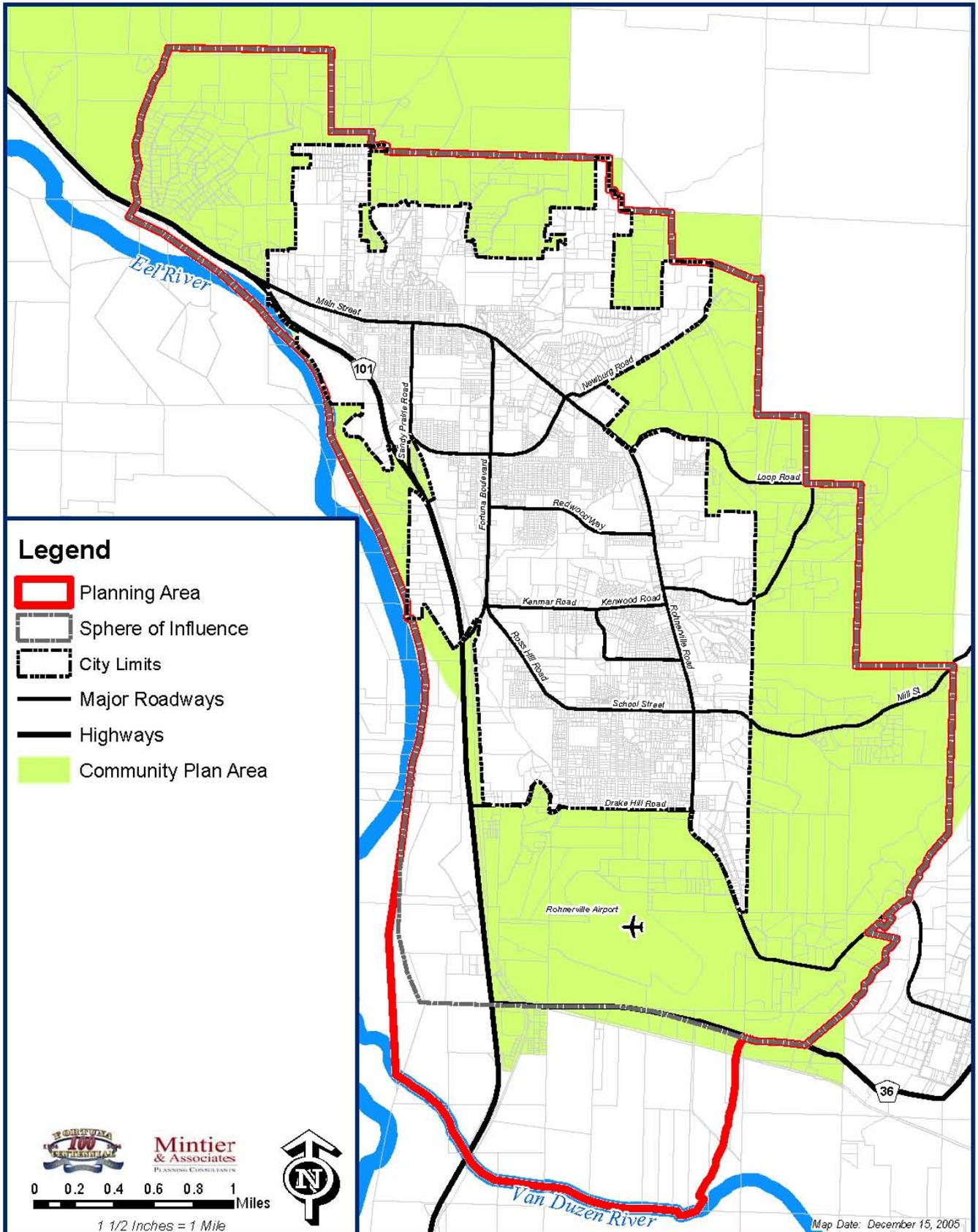


Figure 4-1
Historic Features



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Figure 3-5
Fortuna Community Plan

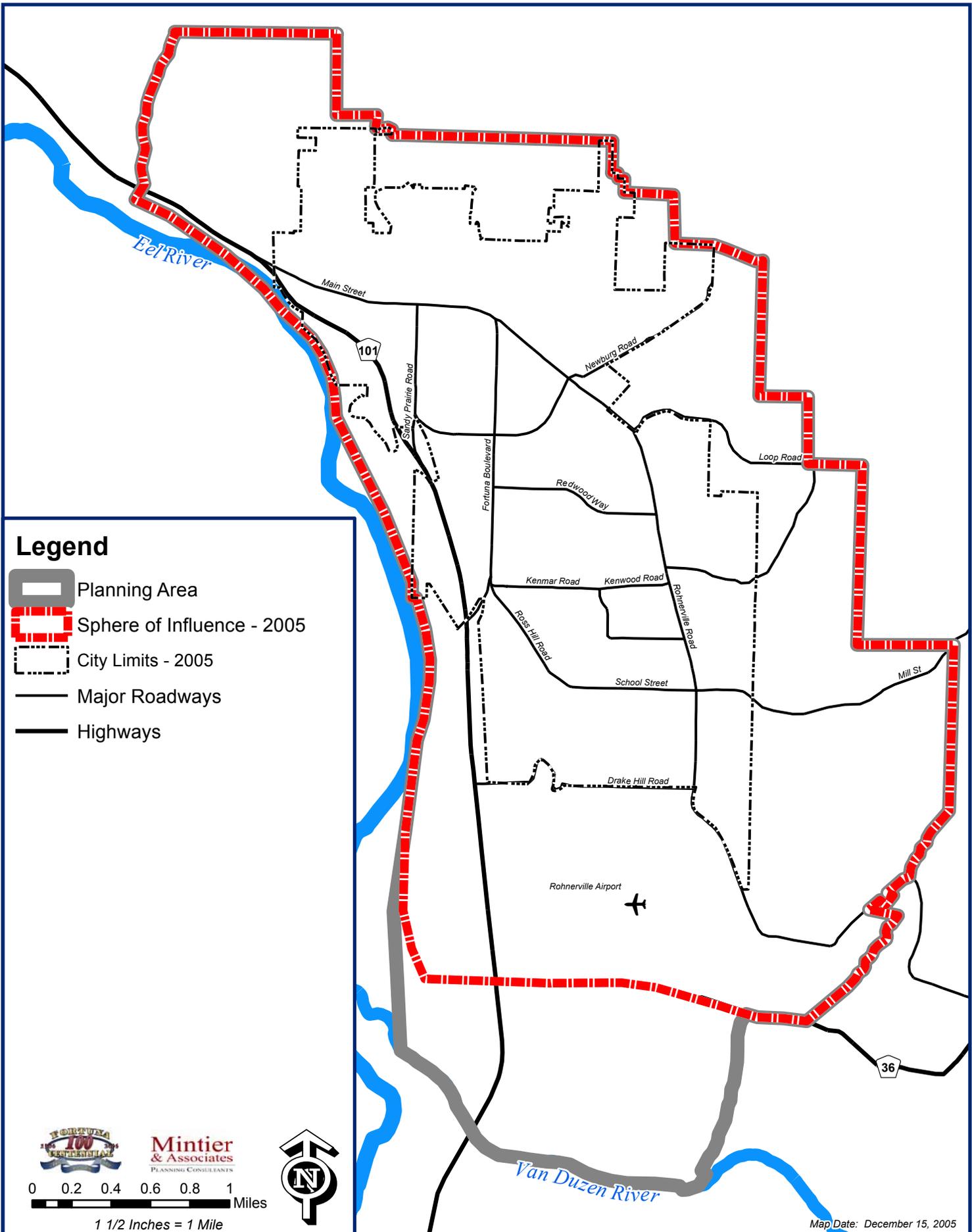


Figure 3-4
Sphere of Influence



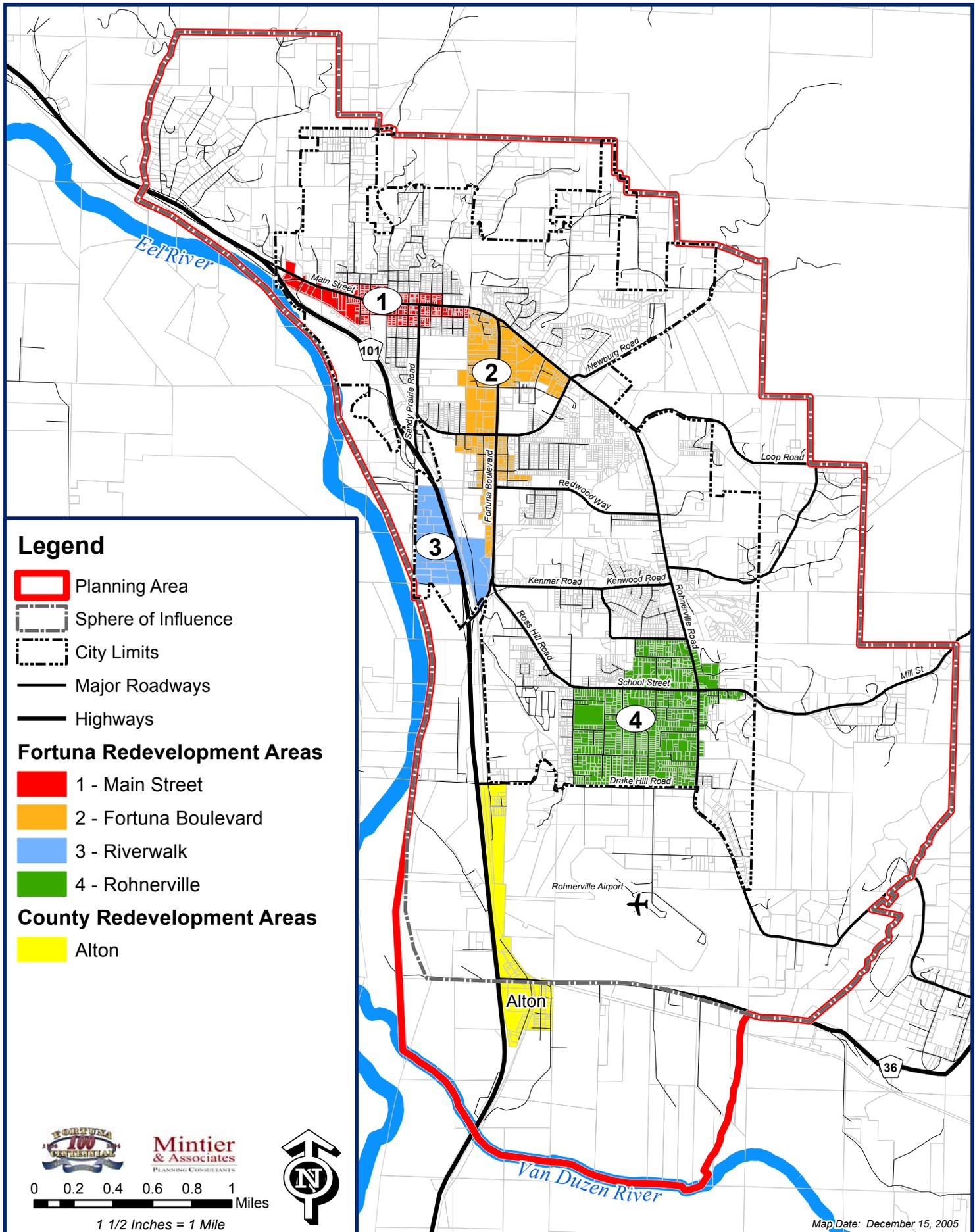


Figure 3-3
Redevelopment Areas within the Planning Area



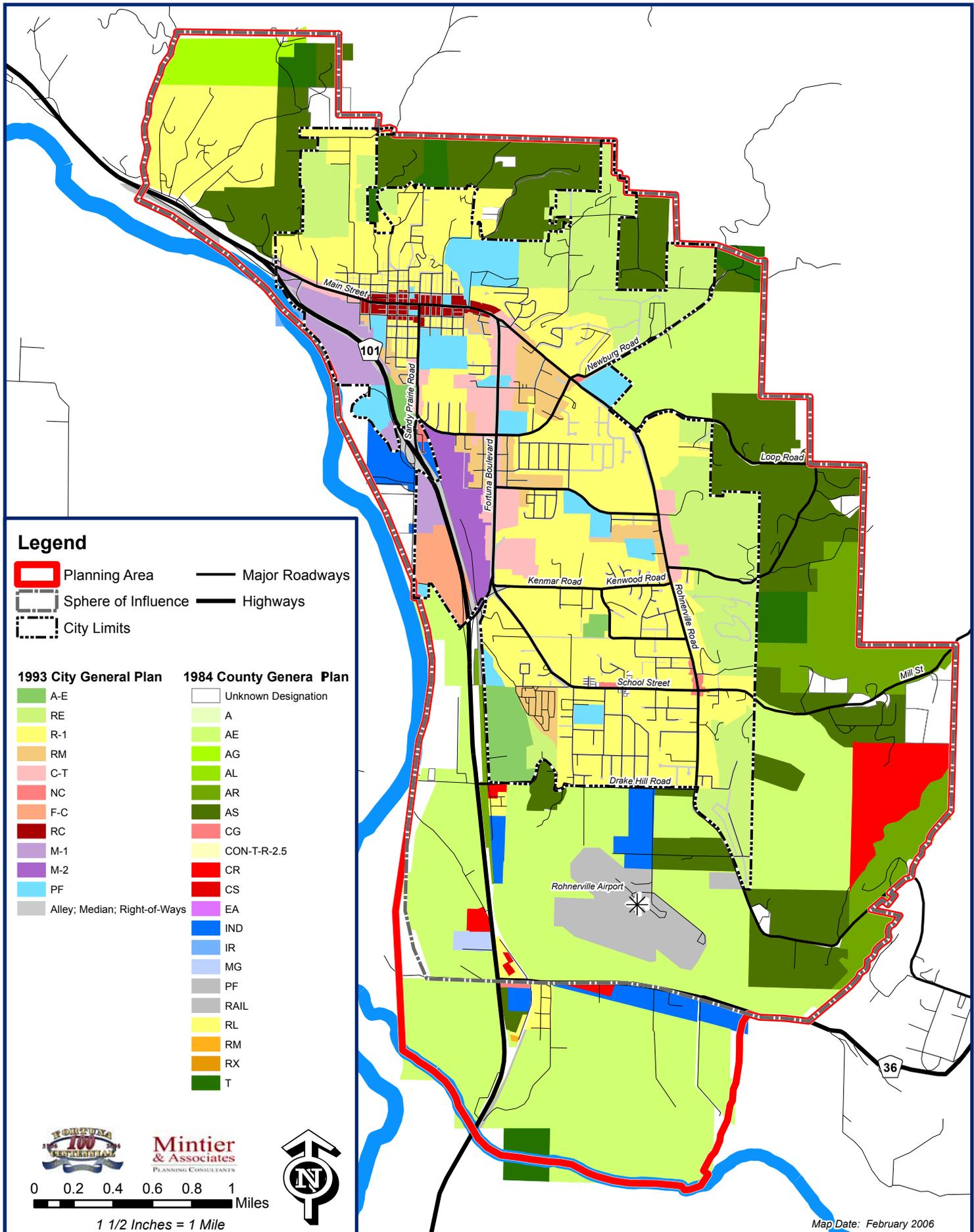


Figure 3-2
Existing General Plan Designations

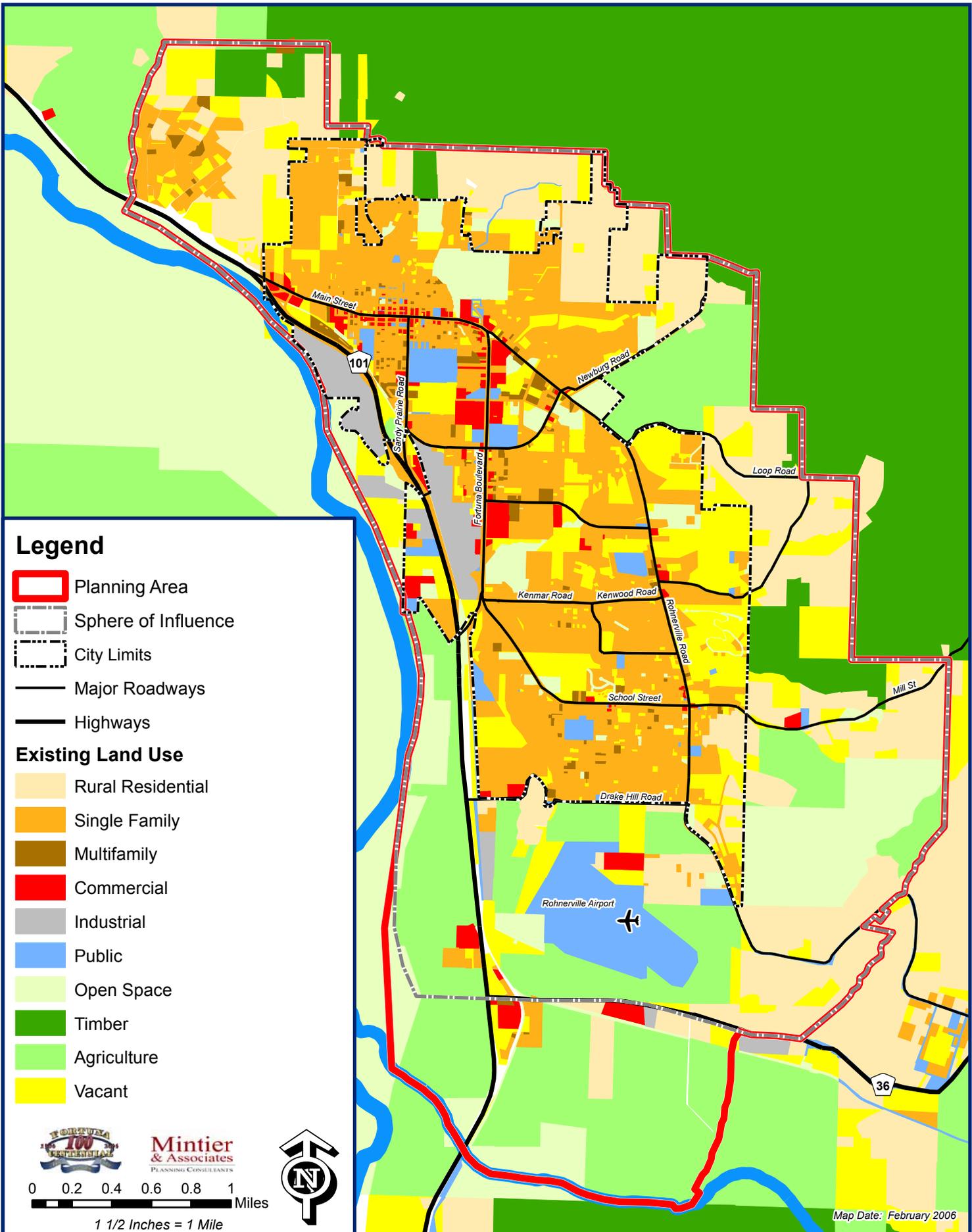


Figure 3-1
Existing Land Use

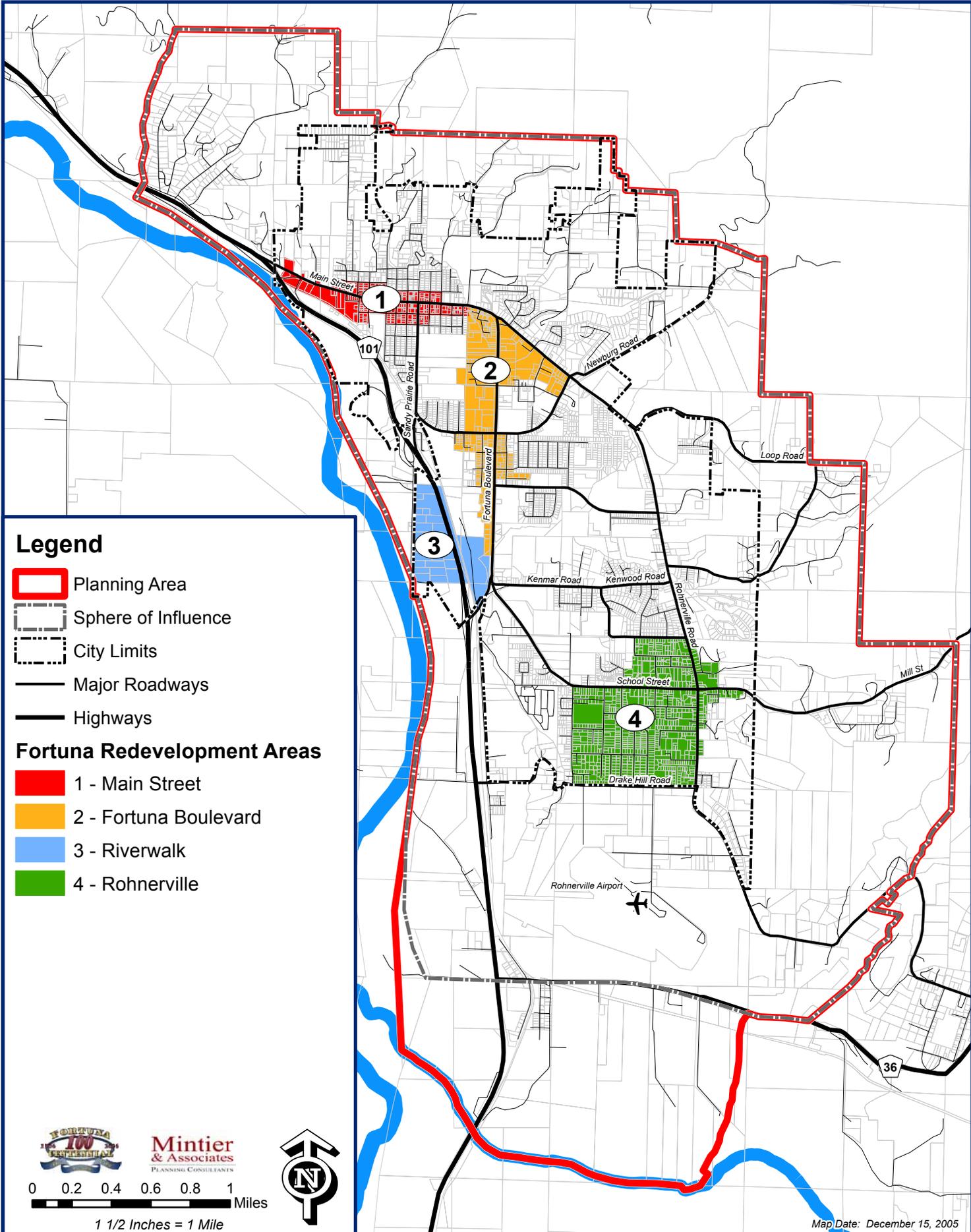
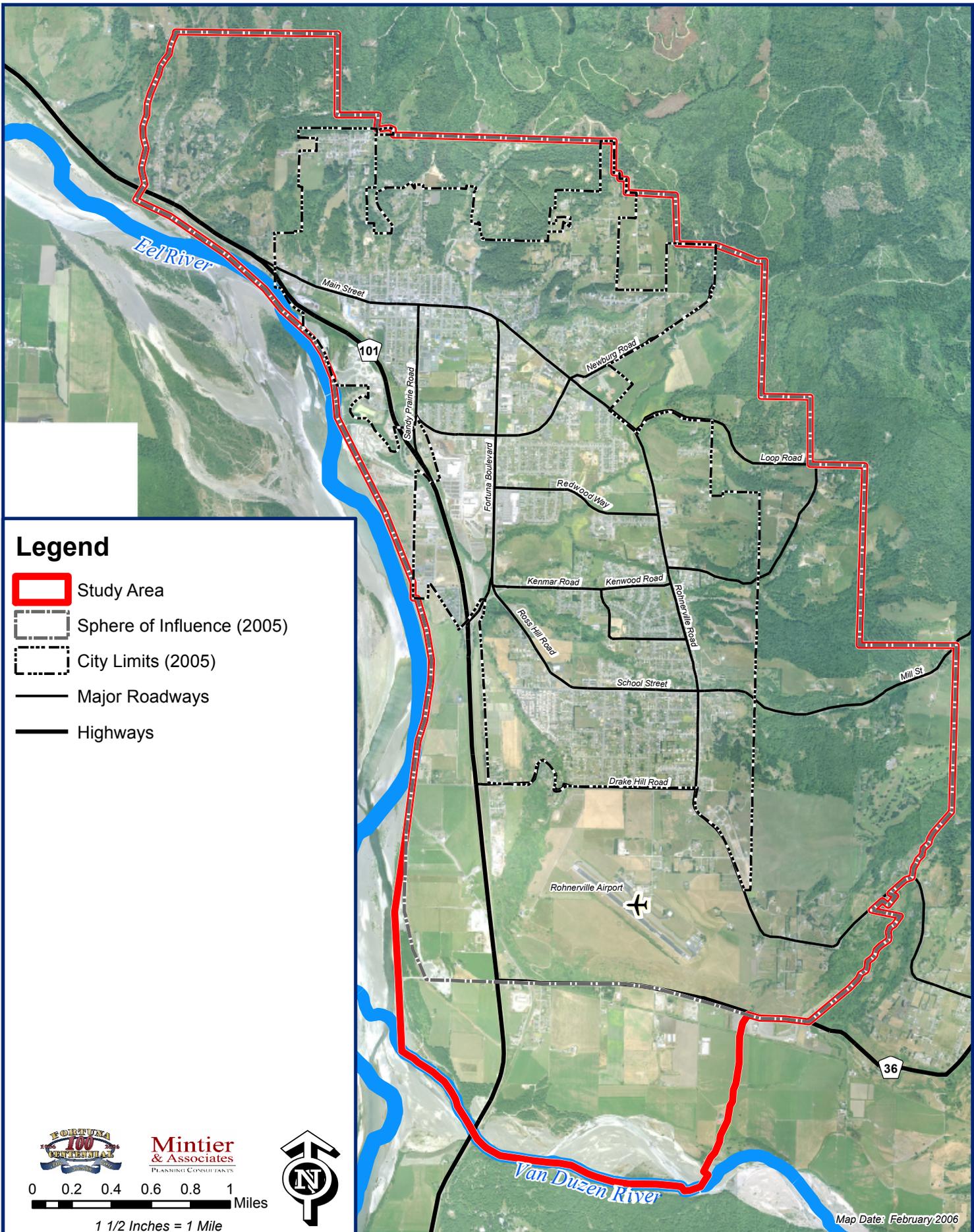


Figure 2-1
Redevelopment Areas



Legend

-  Study Area
-  Sphere of Influence (2005)
-  City Limits (2005)
-  Major Roadways
-  Highways



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0 0.2 0.4 0.6 0.8 1 Miles

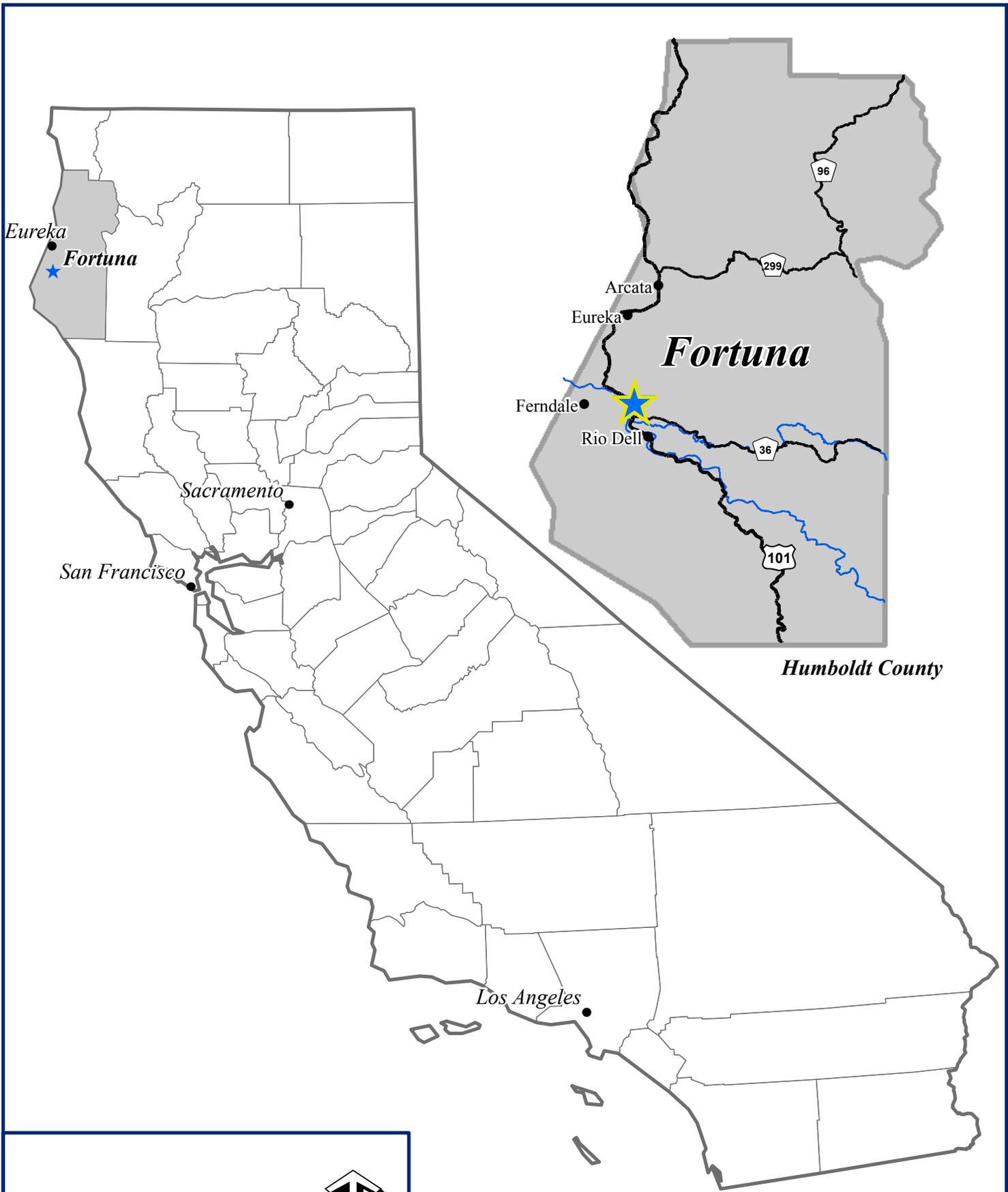
1 1/2 Inches = 1 Mile



Map Date: February 2006



Figure 1-2
Local Setting



Humboldt County



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Map Date: February 13, 2006



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Figure 1-1
Regional Setting