

# Cotati General Plan Update

## MEMORANDUM

**August 15, 2011**

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TO: Planning Commission Members

FROM: Vicki Parker, Community Development Director; Beth Thompson and Ben Ritchie, De Novo Planning Group

SUBJECT: Housing – Available Sites and Review of 2002 General Plan Goals, Policies, and Programs

DATE: August 15, 2011

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At the July 18, 2011 meeting, the Planning Commission did not receive the two figures (Figures 1 and 2) referenced in the Housing Background Information discussion and were not provided clear direction to review goals and policies of the City's 2002 Housing Element. So, although there was good discussion and prioritization of housing issues, the Commission requested additional time to study the missing information and an opportunity to continue the housing discussion.

Figures 1 and 2, as well as housing goals and policies excerpted from the current Housing Element, are now attached for Commission review. In addition, staff has included information from two visioning workshops which were held as part of this General Plan update. Attached are a Housing & Human Service Needs inventory and General Plan Guiding Principles, developed by the community during Visioning Workshops 2 and 3, respectively. This information should be helpful to the Commission while developing goals and policies for this Housing Element update.

### WORK EXERCISE

After reviewing Figures 1 and 2, as well as the available sites information from the July 16, 2011 packet, and the housing goals, policies, and programs of the 1998 General Plan please consider the following:

1. In reviewing the Goals, Objectives, Policies and Programs of the 2002 Housing Element, are your priorities and concerns related to housing addressed?
  - a. Which goals, objectives, and policies best address the priorities you identified?
  - b. Which priorities are not addressed in the current Housing Element?
2. Are there sites that are not appropriate for housing that are shown on Figures 1 and 2?
3. Should additional sites be identified for specific types of housing or housing affordability levels?

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# Cotati General Plan Update

## MEMORANDUM

**August 15, 2011**

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TO: Planning Commissioners

FROM: Vicki Parker, Community Development Director; Ben Ritchie and Beth Thompson, De Novo Planning Group

SUBJECT: Conservation and Open Space

DATE: August 15, 2011

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### INTRODUCTION

This meeting packet includes specific reading materials related to conservation and open space, and raises key issues to consider in preparation for the second General Plan Planning Commission meeting. Information regarding the existing setting related to these resources is provided with this packet. Please read these materials prior to the meeting. It is also recommended that the Commission consult the General Plan Guiding Principles developed during Visioning Workshop #3, which is included in this packet.

This Planning Commission meeting will focus on the topics of Conservation and Open Space. Pursuant to State planning law, these are mandatory topics that must be included in a General Plan Update.

As part of the Visioning process, City residents and stakeholders identified the following priorities:

- Maintaining open space resources in and around Cotati
- Protecting natural and native habitat
- Enhancing outdoor recreational opportunities
- Preserving and protecting clean water and clean air

The City's 1998 General Plan includes goals and policies specifically related to conservation and open space. It is anticipated that the Commission will review these policies for relevancy and scope, and if necessary, they will be expanded upon as part of this General Plan Update.

### REQUIRED READING

Prior to the meeting on August 15<sup>th</sup>, please read the following items:

1. Background Information: Conservation and Open Space (attached)

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2. Cotati 1998 General Plan: Pages 110-114; Goal 9 and all supporting objectives and policies. Pages 125-133; Goals 12-14 and all supporting objectives and policies (attached). The General Plan is also available on-line at the City's website and the General Plan Update website.

## **WORK EXERCISE**

After reading the materials identified for this meeting, please consider the following questions and be prepared to discuss:

1. In reviewing the 1998 General Plan policies related to conservation and open space:
  - a. Which 1998 goals, objectives, and policies best address the concerns you identified?
  - b. Which priorities are not addressed in the 1998 General Plan?
2. In developing an approach to conservation, what top three issues or actions should the City prioritize?
3. Is there a need for additional open space within the City's Sphere of Influence? If so, what are the characteristics of the needed open space; i.e., habitat preservation, water quality/recharge, hillside protection?
  - a. There is currently only one parcel, totaling approximately 0.9 acres, of Open Space designated within the City limits, as shown on the attached General Plan Land Use Map. There are no designated Open Space parcels within the City's Sphere of Influence.
4. Are there conservation and sustainability priorities not currently addressed in City policy that should be addressed in the General Plan Update?

## **ADDITIONAL BACKGROUND MATERIALS**

The Cotati General Plan Update website is an excellent source of information for this project. The entire 1998 General Plan and various background materials can be viewed and downloaded from the website located at: <http://cotati.generalplan.org>.



**Attachment 1**

**Visioning Workshop #3: General Plan Guiding Principals**



## **Visioning Workshop #3: General Plan Guiding Principals**

### **Priority Principals Voting Results**

Local food production/Local agriculture	5
Diversify and improve downtown businesses	10
Emphasis on culture and the arts	4
Maintain rural small-town feel	12
Bike and pedestrian connectivity	10
Business-friendly Climate	13
Open space protection	7
Citizen participation	6
Connection with Sonoma State and students	3
Integrate planning with SMART	2
Protect water quality	6
Increase tourism	2
Provide a range of housing options	1

### **Additional Principles**

5-day turnaround for permit applications	
Create viable destination for SSU students	
Famil friendly	
Social justice - protect public health through land use (locate tobacco, alcohol retailers appropriately and not at high densities)	2
Protect Laguna de Santa Rosa	
Protect local groundwater levels	
Improve overall health of Cotati and its citizens, air, water, noise, light pollution	
Consider adopting complete streets policy	
Address elder care issues comprehensively and creatively	
Protect city land use values from deteriorating due to neighboring community growth	
Include entire community in the process - provide day care and have information available in spanish	
Promote cultural and social diversity	



**Attachment 2**

**Visioning Workshop #2: Housing Needs and Priorities**



## **Workshop #2- Housing, Community Health and Wellness**

Participants were provided with an overview of the General Plan update process and an overview of issues related to housing, community health and wellness. Presentations were given by the Bay Area Air Quality Management District and the Sonoma County Department of Public Health.

### *HOUSING AND HUMAN SERVICES NEEDS ACTIVITY*

Workshop participants were asked to identify housing types needed in Cotati, population segments that may be underserved, barriers to providing affordable housing, and needs related to human services.

The top responses to these questions are identified below. Tabulated response results are provided on the following pages.

#### ***Housing Types***

- Affordable housing
- Single family workforce housing
- Affordable multifamily rental housing
- Mixed use (live, work, play) housing
- Higher density housing

#### ***Underserved Population Segments***

- Low income
- Median income
- Very low income

#### ***Barriers to Affordable Housing***

- Funding (high construction costs)
- Access to land
- Not enough affordable housing
- Not In My Backyard (NIMBY)

#### ***Human Services Needs - City***

- Affordable health care
- Language barrier

#### ***Human Services Needs - Regional***

- Improved transportation
- Cultural/diversity awareness, translation, education

## **Visioning Workshop #2: Housing and Human Service Needs**

### **Housing Types**

Affordable	3
"Healthy" multifamily housing (low VOCs, low pollen landscaping, etc.)	1
Single family workforce housing - permanently affordable	3
Senior housing	1
Affordable multifamily rental housing	2
Ecovillages (varied income levels)	1
Co-housing communities (varied income levels)	1
Single family workforce housing - permanently affordable	1
Mixed use (live, work, play)	2
Higher density	2
Rehabilitate foreclosures for low income housing	1
Mixed income housing (ecovillages, co-housing, neighborhoods)	1
Homeless	1
Apartments downtown near public transit and services	1

### **Population Segments**

Low income	5
Moderate	1
Median	2
Very low income	2
Market rate	1
Workforce housing	1
Single parents	1
Students	1

### **Barriers to Affordable Housing**

Not enough affordable housing	2
Access to land	2
Funding (high construction costs)	3
Concessions/Inclusionary Zoning	1
Cost	1
NIMBY	2
Financial management classes for lower income	1
Developer resistance to providing affordable housing	1
Community resistance	1
Developer greed	1



**City Human Services**

Affordable health care	3
Accessibility	1
Language barrier (translation, spanish)	3
Public transportation	1
Jobs	1
Employment referral	1
Health care	1
Affordable exercise facilities	1
Affordable dental care	1
More/better bike paths	1
Bike/Ped safety for disabled (wheelchair-accessible paths/sidewalks)	1

**Regional Human Services**

Improved transportation	6
Education	1
Language barrier (including diversity awareness/education for service providers)	2
County building permit process	1
Reduce permit fees for non-profit affordable housing developers	1
Affordable health and dental care	1
Affordable legal/mediation services	1



### **Attachment 3**

#### **Adopted Housing Element – Goals and Policies**



**Goal 5        Implement the Entire 2002 Housing Element as Certified by the State of California Department of Housing and Community Development**

Section 1: Housing Goals and Policies

- Goal H-1:    Conserve and improve the existing housing stock to provide adequate, safe, and decent housing for all Cotati residents.**
- Goal H-2:    Provide housing for all economic segments of the community.**
- Goal H-3:    Expand affordable housing opportunities for persons with special housing needs such as the elderly, households with very low to moderate incomes, and first time homebuyers.**
- Goal H-4:    Promote housing opportunities for all persons regardless of race, gender, age, sexual orientation, marital status or national origin.**
- Goal H-5:    Ensure public participation in the development of the City's housing policies.**

**Goal H-1        Conserve and improve the existing housing supply to provide adequate, safe, and decent housing for all Cotati residents.**

Policy H-1.1 Housing Rehabilitation: Continue and expand the housing rehabilitation and preservation program.

Policy H-1.2 Conversion of Residential Units: Discourage the conversion of residential units to other uses.

Policy H-1.3 Condominium Conversions: Limit conversion of existing rental housing units to market rate condominiums. Conversion to limited equity cooperatives, cohousing and other innovative housing proposals that are affordable to low and moderate-income households are permitted.

Policy H-1.4 Energy Conservation Improvements: Promote energy conservation improvements for existing and proposed residential units.

**Goal H-2        Provide housing for all economic segments of the community.**

Policy H-2.1 Regional Housing Needs: Ensure that adequate residentially designated land is available to accommodate ABAG's Regional Housing Needs.

Policy H-2.2 Mixed Use: Encourage the development of residential uses in commercial areas where the viability of the commercial activities would not be adversely affected.

Policy H-2.3 Live/Work Development: Encourage the construction of live/work units to facilitate combination of light industrial and residential uses.

Policy H-2.4 Inclusionary Housing: Continue to require the implementation of an inclusionary housing program.

Policy H-2.5 Large Scale Commercial and Office Projects: Consider the impacts on housing demand of large-scale commercial and office projects.

Policy H-2.6 Second Dwelling Units: Continue to facilitate the construction of second dwelling units pursuant to the City's Second Unit Ordinance.

Policy H-2.7 Manufactured Housing: Continue to allow placement of manufactured housing units on permanent foundations in residential zoning districts.

Policy H-2.8 Infill Housing: Encourage housing development on existing infill sites in order to efficiently utilize existing infrastructure. (Refer to Programs 2.2.1 to 2.2.3.)

Policy H-2.9 Redevelopment Agency: Utilize Redevelopment Agency funds to implement housing programs, particularly those affordable by very low to moderate-income households.

Policy H-2.10 Mobile Home Parks: Encourage the preservation and maintenance of the community's mobile home parks.

**Goal H-3      Expand affordable housing opportunities for persons with special housing needs such as the elderly, the disabled, households with very low to moderate incomes, and first time home buyers.**

Policy H-3.1 Available Funding Sources: Utilize County, State and Federal programs and other funding sources that provide housing opportunities for low- and moderate-income households.

H-3.2 Additional Senior Housing: Continue to allow senior housing projects to be developed with density bonuses and parking and setback requirements less stringent than those specified in the Zoning Ordinance, where found to be consistent with maintaining the character of the surrounding neighborhood. Maintain a requirement for sidewalks for senior housing projects.

Policy H-3.3 House Sharing: Encourage and facilitate house sharing programs for seniors.

Policy H-3.4 Density Bonus: Provide density bonuses to projects that provide a required percentage of total units affordable to very low and low-income households and for units meeting the special housing needs identified in this Element.

Policy H-3.5 Large Families: Encourage housing for large families.

Policy H-3.6 Planned Development: Continue to use the Planned Unit Development Combining Zone to promote flexibility in the application of development standards.

Policy H-3.7 Housing for the Disabled: Continue to facilitate barrier-free housing in new development.

H-3.8 Emergency and Transitional Housing: Allow emergency and transitional shelter within the City as a permitted use on APN 144-282-01 and 144-272-011 as indicated in Map 1.

H-3.9 First Time Home buyers: Encourage affordable housing for first time homebuyers, and young families.

**Goal H-4      Promote housing opportunities for all persons regardless of race, gender, age, sexual orientation, marital status or national origin.**

Policy H-4.1 Equal Housing Opportunity: Continue to facilitate non-discrimination in housing in Cotati.

**Goal H-5      Ensure public participation in the development of the City's housing policies.**

H-5.1 Public Participation: Continue to encourage and facilitate public participation in the formulation and review of the City's housing and development policies.

*The Housing Element was prepared with an extensive public participation program to encourage the involvement of all economic segments of the community. A Housing Issues Report was prepared and the Planning Commission conducted two public workshops, and additional public hearings. A variety of methods were used to ensure the community was informed of the Housing Element revision: press releases; advertisements in local newspapers; a banner on Old Redwood Highway downtown; and a flyer with the utility bill was sent to every household in the community.*

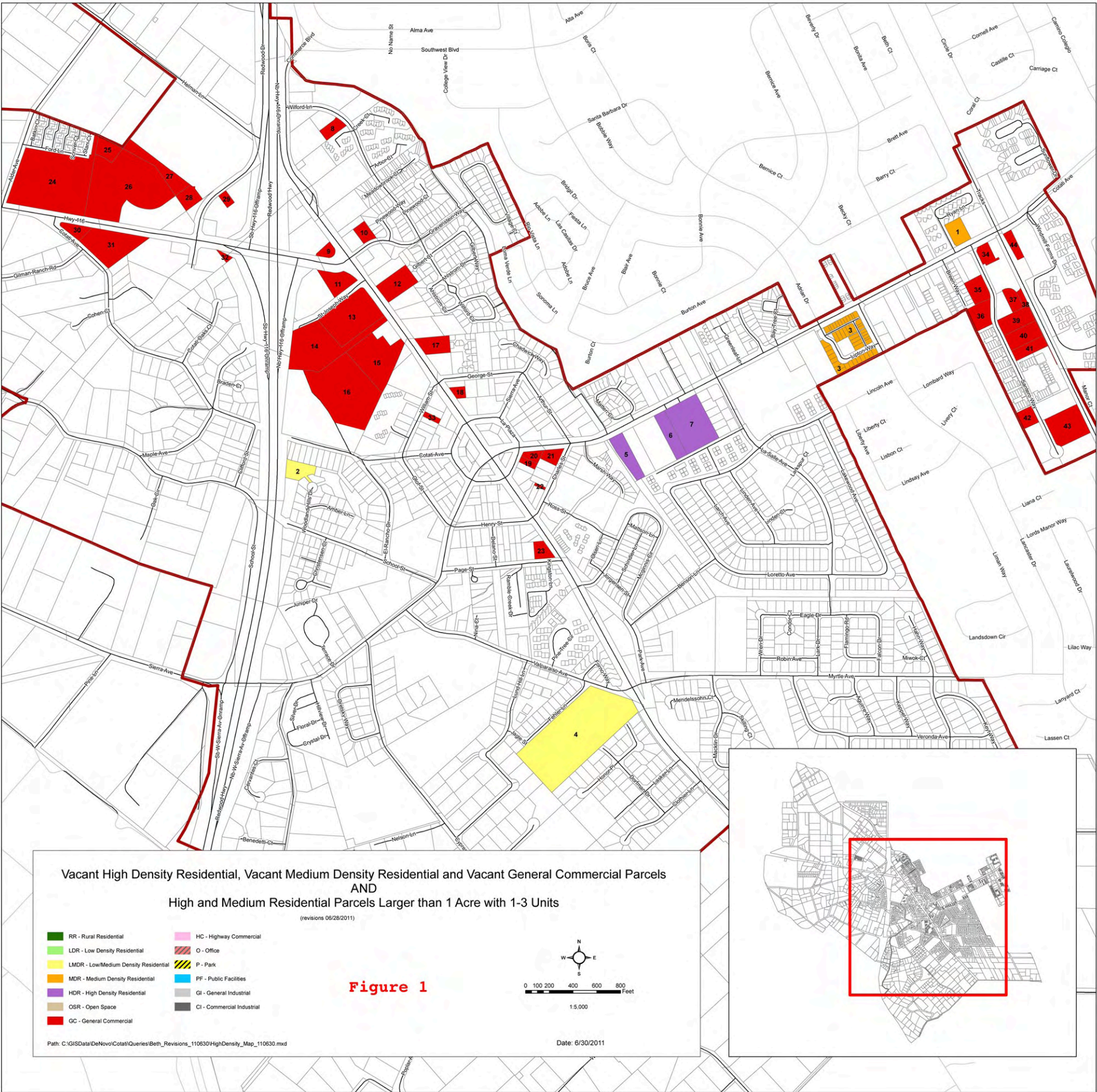
H-5.2 Annual Review of Housing Element Implementation: Carry out an annual report of progress in implementing the Housing Element.



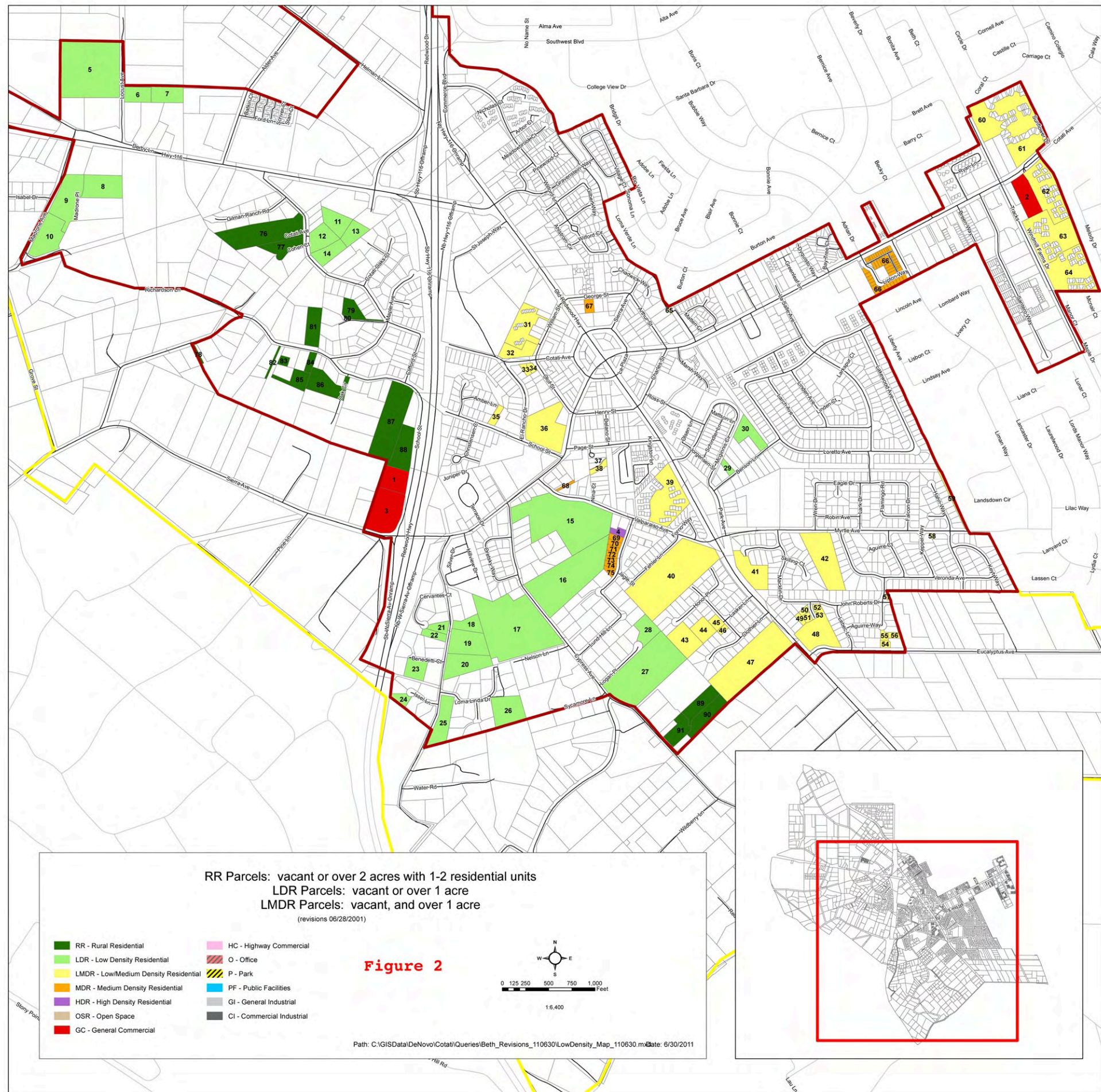


**Attachment 4**  
**Housing Sites Figures**









**Attachment 5**

**Cotati General Plan Background Report:  
Conservation and Open Space Chapter**



## 9. CONSERVATION AND NATURAL RESOURCES

Natural resources form an important part of the City's unique character. In an effort to identify and understand the key natural resources of the Planning Area, this chapter is divided into the following sections:

- Cultural Resources (9.1)
- Biological Resources(9.2)
- Hydrology and Water Quality (9.3)
- Scenic Resources (9.4)
- Air Quality and Climate Change (9.5)

### 9.1 CULTURAL RESOURCES

Cultural Resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, cultural, or scientific importance. Preservation of the City's cultural heritage should be considered when planning for the future.

#### KEY TERMS

**Archaeology.** The study of historic or prehistoric peoples and their cultures by analysis of their artifacts and monuments.

**Paleontology.** The science of the forms of life existing in former geologic periods, as represented by their fossils.

**Ethnography.** The study of contemporary human cultures.

**Complex.** A patterned grouping of similar artifact assemblages from two or more sites, presumed to represent an archaeological culture.

**Midden.** A deposit marking a former habitation site and containing such materials as discarded artifacts, bone and shell fragments, food refuse, charcoal, ash, rock, human remains, structural remnants, and other cultural leavings.

#### REGULATORY SETTING

##### *FEDERAL REGULATIONS*

#### **National Historic Preservation Act**

Most regulations at the federal level stem from the National Environmental Policy Act (NEPA) and historic preservation legislation such as the National Historic Preservation Act (NHPA) of 1966, as amended. NHPA established guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." The NHPA includes regulations specifically for federal land-holding agencies, but also includes regulations (Section 106) which pertain to all projects that are funded, permitted, or approved by any federal agency and which have the potential to affect cultural resources. All projects that are subject to NEPA are also subject to compliance with Section 106 of the NHPA and NEPA requirements concerning cultural resources. Provisions of NHPA establish a National Register of Historic Places (The National Register) maintained by the National Park Service, the Advisory Councils on Historic Preservation, State Historic Preservation Offices, and grants-in-aid programs.



### **American Indian Religious Freedom Act and Native American Graves and Repatriation Act**

The American Indian Religious Freedom Act recognizes that Native American religious practices, sacred sites, and sacred objects have not been properly protected under other statutes. It establishes as national policy that traditional practices and beliefs, sites (including right of access), and the use of sacred objects shall be protected and preserved. Additionally, Native American remains are protected by the Native American Graves and Repatriation Act of 1990.

### **Other Federal Legislation**

Historic preservation legislation was initiated by the Antiquities Act of 1966, which aimed to protect important historic and archaeological sites. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbance of archaeological sites on federal land. New permits are currently issued under the Archeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands. The Historic Sites Act of 1935 declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance."

#### *STATE REGULATIONS*

### **California Register of Historic Resources (CRHR)**

California State law also provides for the protection of cultural resources by requiring evaluations of the significance of prehistoric and historic resources identified in documents prepared pursuant to the California Environmental Quality Act (CEQA). Under CEQA, a cultural resource is considered an important historical resource if it meets any of the criteria found in Section 15064.5(a) of the CEQA Guidelines. Criteria identified in the CEQA Guidelines are similar to those described under the NHPA. The State Historic Preservation Office (SHPO) maintains the CRHR. Historic properties listed, or formally designated for eligibility to be listed, on The National Register are automatically listed on the CRHR. State Landmarks and Points of Interest are also automatically listed. The CRHR can also include properties designated under local preservation ordinances or identified through local historical resource surveys.

### **California Environmental Quality Act (CEQA)**

CEQA requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. This determination applies to those resources which meet significance criteria qualifying them as "unique," "important," listed on the California Register of Historical Resources (CRHR), or eligible for listing on the CRHR. If the agency determines that a project may have a significant effect on a significant resource, the project is determined to have a significant effect on the environment, and these effects must be addressed. If a cultural resource is found not to be significant under the qualifying criteria, it need not be considered further in the planning process.

CEQA emphasizes avoidance of archaeological and historical resources as the preferred means of reducing potential significant environmental effects resulting from projects. If avoidance is not feasible, an excavation program or some other form of mitigation must be developed to mitigate the impacts. In order to adequately address the level of potential impacts, and thereby design appropriate mitigation measures, the significance and nature of the cultural resources must be determined. The following are



steps typically taken to assess and mitigate potential impacts to cultural resources for the purposes of CEQA:

- identify cultural resources,
- evaluate the significance of the cultural resources found,
- evaluate the effects of the project on cultural resources, and
- develop and implement measures to mitigate the effects of the project on cultural resources that would be significantly affected.

### **State Laws Pertaining to Human Remains**

Section 7050.5 of the California Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the California Native American Heritage Commission. CEQA Guidelines (Section 15064.5) specify the procedures to be followed in case of the discovery of human remains on non-federal land. The disposition of Native American burials falls within the jurisdiction of the Native American Heritage Commission.

### **Senate Bill 18 (Burton, Chapter 905, Statutes 2004)**

SB 18, authored by Senator John Burton and signed into law by Governor Arnold Schwarzenegger in September 2004, requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places (“cultural places”) through local land use planning. This legislation, which amended §65040.2, §65092, §65351, §65352, and §65560, and added §65352.3, §65352.4, and §65562.5 to the Government Code; also requires the Governor’s Office of Planning and Research (OPR) to include in the General Plan Guidelines advice to local governments for how to conduct these consultations. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places. These consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

## **ENVIRONMENTAL SETTING**

### **Prehistory**

Archeological evidence shows that California was inhabited at least 12,000 years ago and possibly as much as 15,000 years ago (Erlandson et al. 2007), with people living along the Laguna de Santa Rosa west of Cotati by 11,000 years ago (Dowdall and Origer 1997).

Information generated by numerous regional site investigations provided Fredrickson (1974, 1994) with data used to develop one of the more recent chronologies applicable to this portion of California’s North Coast Ranges. The following chronology is based largely on Fredrickson’s (1974, 1994) research with modifications based on recent research.

#### *PALEO-INDIAN PERIOD (CA. 8,000 – 12,000+ YEARS AGO)*

This is the time when humans first entered California. Lakeside sites established with probable emphasis on hunting. Milling technology is lacking. Exchange of goods on a one to one basis and not regularized.

Social units consisted of extended families that were largely self-reliant, and moved to resources as they became available and were needed.

### *ARCHAIC PERIOD (CA. 1,000 – 8,000 YEARS AGO)*

Lower Archaic Period characteristics include lakes drying due to climatic changes. Abundant milling stones suggest emphasis on plants/small seeds for food, and little hunting occurred. Limited exchange took place, and there was a reliance on the use of local materials. Wealth was not emphasized, and the dominant social unit appears to be the extended family.

Middle Archaic Period characteristics include a change in the climate, which became more benign. Economy became more diverse. Acorn use was introduced as suggested by mortars and pestles. Hunting was important as evidenced by the abundance of dart tips. Sedentism began along with increased population and expansion.

Upper Archaic Period characteristics include the growth of social-political complexity with status distinctions based on wealth. Shell beads gain importance and they appear to serve as indicators of both exchange and wealth. Group-oriented religious organizations emerge with possible origin of Kuksu religious system. Exchange systems became more complex with regularized sustained exchanges occurring between groups. Territorial boundaries were fluid.

### *EMERGENT PERIOD (CA. 200 – 1,000 YEARS AGO)*

Lower Emergent Period characteristics included the introduction of the bow and arrow, which largely replaced the dart and atlatl. South coast marine adaptations flourished. Territorial boundaries became well established, and regularized exchange between groups continued with increased goods being exchanged. Increasing evidence is found of distinctions in social status linked to wealth.

Upper Emergent Period characteristics include the appearance of the clam disk bead money economy. Increasingly, more goods were moved farther. Local specialization with regard to production and exchange of goods grew. South and central exchange systems were interpenetrated.

## **Ethnology**

### *COAST MIWOK*

At the time of European incursion, the Coast Miwok occupied a territory that extended from the Golden Gate north into southern Sonoma County, and from the Pacific Ocean to the ridge dividing Sonoma and Napa counties. Over 40 named villages were identified within this territory during the early 20<sup>th</sup> century (Kroeber 1925). This area encompassed what is now the City of Cotati, which takes its name from the Miwok village that was located north of the current town.

Politically, the Coast Miwok were organized in “territorial, multi-family, landholding communities” or tribelets, each with multiple villages of relatively even size (Milliken 2010). Territories were vaguely defined, but included fishing and gathering areas used by the group. Tribelets had a headman, who advised the people. This was not a hereditary position. Two female leaders saw to the co-ordination and execution of major group activities such as dances, ceremonial activities, and construction of a new dance house. One of these was said to be in charge of everyone, even the headman (Kelly 1978:419).

Fish, mussels, clams, and seaweeds were major food sources, with winter runs of salmon and steelhead being especially important. Land mammals including deer, bears, rabbits, wood rats, and gophers were

also eaten. Acorns were a staple food source, with tan oak (*Lithocarpus densiflora*) being preferred for mush, and valley oak (*Quercus lobata*) for bread.

### Historic Period Background

The earliest attempt at non-native settlement in the area was by John Reed in 1827, who built a house and planted a grain crop. However, his crop fell victim to the Native American practice of seasonally burning the grassland to improve the seed production. Reed left the area, settling in Marin County and becoming quite successful.

The Cotate Rancho remained relatively intact during Page's lifetime despite the fact that some 4,500 acres of land was siphoned off by squatters, some of whom eventually paid Page for their land. Upon his death in 1872, Page left his heirs the Cotate grant stipulating that the rancho could not be divided until his youngest son, William, reached the age of 25. When William Page reached the appointed age in 1892 the sons were ready to begin dividing the rancho. Settlement in this southern Sonoma County community centered on newly formed Cotati, whose town plan was designed by Newton Smyth circa 1892. Unique for its hexagonal form, this was one of only two such town plats in the United States. In the 1898 county atlas (Reynolds and Proctor 1898:36), the San Francisco-based Cotati Company advertised 8,000 acres of the rancho for sale.

During the latter part of the nineteenth century, there was a notable trend toward division of large holdings in and around the Cotati General Plan area. The earliest of these subdivisions broke large tracts of land into smaller farm parcels "large enough to accommodate a successful farming venture" (Praetzellis *et al.* 1989:18). The Cotati Company capitalized on this trend beginning in 1892 as the Page heirs divided the rancho lands into progressively smaller farm lots, with town lots focused around the plaza.

As the twentieth century progressed, lots created through these subdivisions were generally too small to provide a family's primary source of income. Work outside the home became increasingly necessary to sustain a family's economic viability, and there was greater reliance on goods sold at retail outlets. Where, in the past, large farms and ranches were relatively self-sufficient, families living on these small farms could not meet all their own needs.

A boon to the Cotati Company was the chicken ranching phenomenon that swept southern Sonoma County at the end of the 19th and beginning of the 20th centuries. While it was always a farming community, many families were drawn to the area by contemporary booster literature proclaiming poultry raising to be a profitable and near effortless pursuit. During the early part of the twentieth century, small-scale family-owned chicken ranches appeared throughout the southern part of the county, and Cotati, following on the heels of Petaluma, was a prime poultry area. The following excerpt appeared in a brochure published by The California Promotion Committee during the early part of the twentieth century.

*"Cotati's chief industry is poultry and eggs. Cotati ships over 500 cases of eggs weekly, while from her outskirts and suburbs, many other hundreds are shipped. On every side and slope, in sun and shade, by brook and glade, can be heard and seen the lay of the Leghorn hen. In Cotati every phase of the chicken industry is carried on as its profitable side appeals to the person so engaged. Here can be seen ranches varying in size from 5 to 50 acres, and from 500 to 10,000 or 12,000 hens. The widow, the spinster, the bachelor, the man of family can all be found in Cotati, and all engaged in the poultry business [The California Promotion Committee circa 1900]."*

Division of rural lands also brought with it an increase in the number of people living in areas isolated from amenities readily found in town. As families began moving into the newly created rural subdivisions, the need for nearby groceries and supplies also grew. It was during this time frame that many small rural stores and shops opened their doors to provide needed supplies and services.

During the early years of the 20th century, the nearest railroad access for Cotati farmers was the Petaluma and Santa Rosa electric railroad that traveled along Stony Point Road, west of town. Farmers were forced to leave their products on the side of the track to await shipment because there was no depot. A group known as The Cotati Progressive League convinced the Northwestern Pacific Railroad that a depot was needed in Cotati, and in 1907 the Cotati Depot was opened at the former 'Page's Station' (Breen 1914). For a while, it looked like the Petaluma & Santa Rosa line might send a spur into Cotati but the plan eventually was dropped.

In the next decade, work on State Highway 1 (now 101) commenced, and by 1929 the Redwood Highway was paved from the Sausalito Ferry terminal to Cloverdale (LeBaron and Mitchell 1993:35). For a while it was not clear whether Cotati would profit from the highway, as an alternate route was proposed that would have shifted the present-day alignment to the east. Once the decision was made to route the new road through Cotati, local businesses rallied to make the town an interesting stop, if not the largest along the Redwood Highway. Old businesses were expanded, and new shops sprang up in Cotati, many incorporating the Spanish Revival architecture promoted for use along the highway.

In the early 1960s, two important events occurred in the Cotati area: the state chose a tract of land at the end of East Cotati Avenue as the site of a new state college, and Cotati incorporated as a city. When Sonoma State University opened the doors of its new campus in 1966, Cotati saw an immediate increase in its population, and the town became a popular gathering area for students. During the 1970s, it was a magnet for counter culture groups, and many downtown businesses catered to the student crowd.

### **Cultural Resources in Cotati**

There have been 75 cultural resources studies completed within the Sphere of Influence (SOI). These studies cover approximately ten percent of the Planning Area. Twenty-three buildings in downtown Cotati are considered noteworthy by local residents, and have been included in a self-guided walking tour brochure. These buildings are not sufficiently closely grouped or thematically related to be considered as a historic district; however, they do comprise a substantial concentration of early 20<sup>th</sup> century structures in a relatively localized area. Additional buildings old enough to be potentially eligible for inclusion on the California Register are found in the greater downtown area. Only the Plaza itself has been formally determined to be a historical resource.

Table 9.1-1 lists 47 buildings from the late 19<sup>th</sup> and early 20<sup>th</sup> centuries that have the potential to meet criteria for inclusion on the California Register of Historical Resources. Those with an HPD notation in the 'Notes' column have been evaluated for the National Register of Historic Places, but have not been considered for state or local listing. The buildings at 100 Valparaiso were evaluated and the house appeared eligible for listing on the California Register, however, a fire destroyed much of the historic fabric, and its eligibility has been compromised. The remaining buildings have not been evaluated for any form of listing. In each case, these buildings should be formally evaluated prior to substantial changes or development of the properties. In addition, the land surrounding these buildings (the "toft" or area around the building complex) should be considered sensitive for historical archaeological deposits.

**TABLE 9.1-1: BUILDINGS POTENTIALLY ELIGIBLE FOR THE CALIFORNIA REGISTER**

House	Street	Year Built	Notes
8167	Arthur Street	1920	Not evaluated
8186	Arthur Street	1920	Not evaluated
7582	Commerce Blvd	1927	Not evaluated
7560	Commerce Blvd	1947	HPD 6Y
7600	Commerce Blvd	1920	HPD 6Y
8779	Cypress Ave	1885	Not evaluated
7400	Gravenstein Hwy	1909	HPD 6Y
7960	Gravenstein Hwy	1927	HPD 6Y
8028	Gravenstein Hwy	1910	HPD 6Y
8260	Gravenstein Hwy	1900	Not evaluated
363	Helman Lane	1910	Not evaluated
45	Henry Street	1904	Not evaluated
85	La Plaza	1910	7N
8140	La Plaza	1910	Not evaluated
8150	La Plaza	1910	Not evaluated
8200	La Plaza	1954	Not evaluated
896	Madrone Ave	1905	Not evaluated
355	Maple Ave	1915	Not evaluated
8154	Olaf Street	1910	Not evaluated
8156	Olaf Street	1920	Not evaluated
800	Old Redwood Hwy	1905	Not evaluated
8015	Old Redwood Hwy	1910	Not evaluated
8045	Old Redwood Hwy	1910	Not evaluated
8201	Old Redwood Hwy	1915	Not evaluated
8220	Old Redwood Hwy	1923	Not evaluated
8480	Park Ave	1905	HPD 6J
855	Richardson Lane	1920	Not evaluated
490	School Street	1910	Not evaluated
550	School Street	1921	Not evaluated
100	Valparaiso Ave	1914	Severely damaged by fire
301	Valparaiso Ave	1925	Not evaluated
50	W Cotati Ave	1910	Not evaluated
65	W Cotati Ave	1916	Not evaluated
70	W Cotati Ave	1905	Not evaluated
79	W Cotati Ave	1905	Not evaluated
683	W Cotati Ave	1924	Not evaluated
36	W Sierra Ave	1924	Not evaluated
61	W Sierra Ave	1914	Not evaluated
78	W Sierra Ave	1920	Not evaluated
175	W Sierra Ave	1905	Not evaluated
425	W Sierra Ave	1910	Not evaluated
8655	Water Road	1903	HPD 6Y
8750	Water Road	1914	Not evaluated
21	William Street	1910	Not evaluated
50	William Street	1915	Not evaluated
58	William Street	1914	Not evaluated
70	William Street	1908	Not evaluated

SOURCE: SOURCE: NORTHWEST INFORMATION CENTER, SONOMA STATE UNIVERSITY, 2011

La Plaza is listed as a California Historical Landmark (number 879) for its hexagonal shape. It is one of only two town centers in the U.S designed on the six-sided form.

Thirty-six resources have been recorded within the SOI. Of these seven are prehistoric Native American archaeological sites, two are historic-period archaeological sites, and 27 are built environment resources. All but five of these resources are within the city limits.

It has been generally held that prehistoric Native American sites are most likely to occur where several environmental factors combine to provide readily available resources, such as at the interface between valley and hills. However, recent work has shown that sites do occur on the plain between US 101 and Petaluma Hill Road, where the soil drains poorly, and previous wisdom would not have anticipated such deposits. This suggests that the entire Planning Area should be considered sensitive for prehistoric Native American archaeological sites.

Figure 9.1-1 shows the area considered sensitive for prehistoric Native American archaeological deposits, and the segment of the downtown area considered to have potential for historical interpretation.

### **Consultation**

Letters were sent to the Native American Heritage Commission, the Federated Indians of Graton Rancheria, and the Cotati Historical Society to request information regarding the Planning Area. The Native American Heritage Commission responded with a letter dated May 25, 2011 indicating that they had no specific information regarding cultural resources within the Planning Area.

The Federated Indians of Graton Rancheria responded in a letter dated May 23, 2011 indicating that because the General Plan Update falls under SB18 they would initiate consultation directly with the City.

We met with Ms. Prudence Draper, President of the Cotati Historical Society, who reiterated their concern for preservation of the historical character of downtown Cotati. She acknowledged that this could present challenges in terms of maintaining a viable commercial center, and expressed her hope to remain involved during the development of policies that could be sensitive to both needs.

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### 9.2 BIOLOGICAL RESOURCES

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 may affect biological resources in the Planning Area.

#### KEY TERMS

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The following key terms are used throughout this section to describe biological resources and the framework that regulates them:

**Hydric Soils.** One of the three wetland identification parameters, according to the federal definition of a wetland, hydric soils have characteristics that indicate they were developed in conditions where soil oxygen is limited by the presence of saturated soil for long periods during the growing season. There are approximately 2,000 named soils in the United States that may occur in wetlands.

**Hydrophytic Vegetation.** Plant types that typically occur in wetland areas. Nearly 5,000 plant types in the United States may occur in wetlands. Plants are listed in regional publications of the U.S. Fish and Wildlife Service (USFWS) and include such species as cattails, bulrushes, cordgrass, sphagnum moss, bald cypress, willows, mangroves, sedges, rushes, arrowheads, and water plantains.

**Sensitive Natural Community.** A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, are structurally complex, or are in other ways of special concern to local, state, or federal agencies. CEQA identifies the elimination or substantial degradation of such communities as a significant impact. The California Department of Fish and Game (CDFG) tracks sensitive natural communities in the California Natural Diversity Database (CNDDB).

**Special-Status Species.** Special-status species are those plants and animals that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special districts to meet local conservation objectives. These species are referred to collectively as "special status species" in this report, following a convention that has developed in practice but has no official sanction. For the purposes of this assessment, the term "special status" includes those species that are:

- Federally listed or proposed for listing under the Federal Endangered Species Act (50 CFR 17.11-17.12);
- Candidates for listing under the Federal Endangered Species Act (61 FR 7596-7613);
- State listed or proposed for listing under the California Endangered Species Act (14 CCR 670.5);
- Species listed by the U.S. Fish and Wildlife Service (USFWS) or the CDFG as a species of concern (USFWS), rare (CDFG), or of special concern (CDFG);
- Fully protected animals, as defined by the State of California (California Fish and Game Code Section 3511, 4700, and 5050);
- Species that meet the definition of threatened, endangered, or rare under CEQA (CEQA Guidelines Section 15380);

- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.); and
- Plants listed by the California Native Plant Society (CNPS) as rare, threatened, or endangered (List 1A and List 2 status plants in Skinner and Pavlik 1994).

**Waters of the U.S.** The federal government defines waters of the U.S. as "lakes, rivers, streams, intermittent drainages, mudflats, sandflats, wetlands, sloughs, and wet meadows" [33 C.F.R. §328.3(a)]. Waters of the U.S. exhibit a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" [33 C.F.R. §328.3(e)].

**Wetlands.** Wetlands are ecologically complex habitats that support a variety of both plant and animal life. The federal government defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. §328.3(b)]. Wetlands require wetland hydrology, hydric soils, and hydrophytic vegetation. Examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a hydrologic link to waters of the U.S.

## REGULATORY SETTING

There are a number of regulatory agencies whose responsibility includes the oversight of the natural resources of the state and nation including the CDFG, USFWS, USACE, and the National Marine Fisheries Service. These agencies often respond to declines in the quantity of a particular habitat or plant or animal species by developing protective measures for those species or habitat type. The following is an overview of the federal, state and local regulations that are applicable to implementing the General Plan.

### *FEDERAL REGULATIONS*

#### **Federal Endangered Species Act**

The Federal Endangered Species Act, passed in 1973, defines an endangered species as any species or subspecies that is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species or subspecies that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Once a species is listed it is fully protected from a "take" unless a take permit is issued by the United States Fish and Wildlife Service. A take is defined as the harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct, including modification of its habitat (16 USC 1532, 50 CFR 17.3). Proposed endangered or threatened species are those species for which a proposed regulation, but not a final rule, has been published in the Federal Register.

#### **Migratory Bird Treaty Act**

To kill, possess, or trade a migratory bird, bird part, nest, or egg is a violation of the Federal Migratory Bird Treaty Act (FMBTA: 16 U.S.C., §703, Supp. I, 1989), unless it is in accordance with the regulations that have been set forth by the Secretary of the Interior.

### **Bald and Golden Eagle Protection Act**

The Bald and Golden Eagle Protection Act (16 USC Section 668) protect these birds from direct take and prohibits the take or commerce of any part of these species. The USFWS administers the act, and reviews federal agency actions that may affect these species.

### **Clean Water Act – Section 404**

Section 404 of the CWA regulates all discharges of dredged or fill material into waters of the U.S. Discharges of fill material includes the placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §323.2(f)].

Waters of the U.S. include lakes, rivers, streams, intermittent drainages, mudflats, sandflats, wetlands, sloughs, and wet meadows [33 C.F.R. §328.3(a)]. Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. §328.3(b)]. Waters of the U.S. exhibit a defined bed and bank and ordinary high water mark (OHWM). The OHWM is defined by the USACE as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 C.F.R. §328.3(e)].

The USACE is the agency responsible for administering the permit process for activities that affect waters of the U.S. Executive Order 11990 is a federal implementation policy, which is intended to result in no net loss of wetlands.

### **Clean Water Act – Section 401**

Section 401 of the CWA (33 U.S.C. 1341) requires an applicant who is seeking a 404 permit to first obtain a water quality certification from the Regional Water Quality Control Board. To obtain the water quality certification, the Regional Water Quality Control Board must indicate that the proposed fill would be consistent with the standards set forth by the state.

### **Department of Transportation Act - Section 4(f)**

Section 4(f) has been part of Federal law since 1966. It was enacted as Section 4(f) of the Department of Transportation (DOT) Act of 1966 and set forth in Title 49 United States Code (U.S.C.), Section 1653(f). In January 1983, as part of an overall recodification of the DOT Act, Section 4(f) was amended and codified in 49 U.S.C. Section 303. This law established policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites as follows:

*It is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities. The Secretary of Transportation may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state,*



*or local significance, or land of a historic site of national, state, or local significance (as determined by the Federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if: a) There is no prudent and feasible alternative to using that land; and b) The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

#### STATE REGULATIONS

### **Fish and Game Code §2050-2097 - California Endangered Species Act**

The California Endangered Species Act (CESA) protects certain plant and animal species when they are of special ecological, educational, historical, recreational, aesthetic, economic, and scientific value to the people of the State. CESA established that it is State policy to conserve, protect, restore, and enhance endangered species and their habitats.

CESA was expanded upon the original Native Plant Protection Act and enhanced legal protection for plants. To be consistent with Federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the Act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Under State law, plant and animal species may be formally designated by official listing by the California Fish and Game Commission.

### **Fish and Game Code §1900-1913 California Native Plant Protection Act**

In 1977 the State Legislature passed the Native Plant Protection Act (NPPA) in recognition of rare and endangered plants of the state. The intent of the law was to preserve, protect, and enhance endangered plants. The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare, and to require permits for collecting, transporting, or selling such plants. The NPPA includes provisions that prohibit the taking of plants designated as "rare" from the wild, and a salvage mandate for landowners, which requires notification of the CDFG 10 days in advance of approving a building site.

### **Fish and Game Code §3503, 3503.5, 3800 - Predatory Birds**

Under the California Fish and Game Code, all predatory birds in the order Falconiformes or Strigiformes in California, generally called "raptors," are protected. The law indicates that it is unlawful to take, possess, or destroy the nest or eggs of any such bird unless it is in accordance with the code. Any activity that would cause a nest to be abandoned or cause a reduction or loss in a reproductive effort is considered a take. This generally includes construction activities.

### **Fish and Game Code §1601-1603 – Streambed Alteration**

Under the California Fish and Game Code, CDFG has jurisdiction over any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or stream. Private landowners or project proponents must obtain a "Streambed Alteration Agreement" from CDFG prior to any alteration of a lake bed, stream channel, or their banks. Through this agreement, the CDFG may impose conditions to limit and fully mitigate impacts on fish and wildlife resources. These agreements are usually initiated through the local CDFG warden and will specify timing and construction conditions, including any mitigation necessary to protect fish and wildlife from impacts of the work.

### **Public Resources Code § 21000 - California Environmental Quality Act**

The California Environmental Quality Act (CEQA) identifies that a species that is not listed on the federal or state endangered species list may be considered rare or endangered if the species meets certain criteria. Under CEQA public agencies must determine if a project would adversely affect a species that is not protected by FESA or CESA. Species that are not listed under FESA or CESA, but are otherwise eligible for listing (i.e. candidate, or proposed) may be protected by the local government until the opportunity to list the species arises for the responsible agency.

Species that may be considered for review are included on a list of “Species of Special Concern,” developed by the CDFG. Additionally, the California Native Plant Society (CNPS) maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. List 1A contains plants that are believed to be extinct. List 1B contains plants that are rare, threatened, or endangered in California and elsewhere. List 2 contains plants that are rare, threatened, or endangered in California, but more numerous elsewhere. List 3 contains plants where additional information is needed. List 4 contains plants with a limited distribution.

### **Public Resources Code § 21083.4 - Oak woodlands conservation**

In 2004, the California legislature enacted SB 1334, which added oak woodland conservation regulations to the Public Resources Code. This new law requires a County to determine whether a project, within its jurisdiction, may result in a conversion of oak woodlands that will have a significant effect on the environment. If a County determines that there may be a significant effect to oak woodlands, the County must require oak woodland mitigation alternatives to mitigate the significant effect of the conversion of oak woodlands. Such mitigation alternatives include: conservation through the use of conservation easements; planting and maintaining an appropriate number of replacement trees; contribution of funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements; and/or other mitigation measures developed by the County.

### **California Oak Woodland Conservation Act**

The California Legislature passed Assembly Bill 242, known as the California Oak Woodland Conservation Act, in 2001 as a result of widespread changes in land use patterns across the landscape that were fragmenting oak woodland character over extensive areas. The Act created the California Oak Woodland Conservation Program within the Wildlife Conservation Board. The legislation provides funding and incentives to ensure the future viability of California’s oak woodland resources by maintaining large scale land holdings or smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units. The Act acknowledged that the conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the state.

### **California Wetlands Conservation Policy**

In August 1993, the Governor announced the "California Wetlands Conservation Policy." The goals of the policy are to establish a framework and strategy that will:

- Ensure no overall net loss and to achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property.
- Reduce procedural complexity in the administration of State and federal wetland conservation programs.
- Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetland conservation and restoration.

The Governor also signed Executive Order W-59-93, which incorporates the goals and objectives contained in the new policy and directs the Resources Agency to establish an Interagency Task Force to direct and coordinate administration and implementation of the policy.

### *LOCAL*

## **City of Cotati General Plan**

The existing City of Cotati General Plan identifies the following policies related to biological resources:

### **1.5.2 The City shall encourage the clustering of residential units to preserve the continuity of open space, protect environmental features, enhance visual amenities, and insure public safety.**

- a) The Zoning Ordinance, Subdivision Regulations and Design Review Criteria shall continue to allow higher density residential clustered development.

### **7.2.2 All new developments in the city shall be designed to minimize vegetation removal, soil compaction, and site coverage.**

- a) Through the Zoning Ordinance, the City shall establish standards to be followed by developers which specify maximum permissible vegetation removal, soil compaction, and site coverage. There shall be on-site inspections by the Building Inspector to ensure compliance.

### **7.2.3 Adequate drainage and erosion control shall be provided during construction of all new developments.**

- a) As part of the permit process, developers shall be required to follow drainage and erosion standards established by the City Engineer and Sonoma County Water Agency for all developments. There shall be an on-site inspection by the City to ensure compliance.

### **9.2.3 A deciduous tree program that does not interfere with solar access, and is located on the park strip, shall be required in all new development.**

- a) The Subdivision Regulations shall be amended to require that new streets, or developments along existing streets, include an approved shade tree program. The Design Review Committee shall review plans for compliance.
- b) Applications for single family homes shall require participation in this program.

### **9.2.4 Encourage private sector participation in tree planting.**

- a) The City shall adopt a landscape and tree ordinance that will give preference to native and drought tolerant species and which includes guidelines and standards to preserve and protect historic trees. The Planning Department shall review and revise as necessary.

b) The City Council shall establish, with the help of civic and social groups, and in conjunction with local nurseries, an annual tree planting day.

### **9.5.2 Drought-tolerant and native plants shall be encouraged for use in landscaping.**

a) Amend the Subdivision Regulations and Design Review Criteria to include a list of drought-tolerant and native plants appropriate for use in Cotati. Adherence to this list in new development and other projects requiring design approval will be reviewed by the Design Review Committee.

### **12.1.5 Preserve agricultural use on lands designated as rural within the City of Cotati land use map, primarily in the western and southern sections of the City.**

a) Encourage cluster development to preserve agricultural uses in rural designated properties.

### **13.1.1 Open space land shall be protected from development. (See map 8).**

a) The City Planning Department shall work with the Sonoma County Planning Department to ensure that environmentally sensitive lands in the Cotati sphere of influence are zoned appropriately as agricultural preserves, parks, and other limited development or recreational uses.

### **13.1.4 Cotati's creeks and other biotic resources shall be protected from erosion, pollution and filling.**

a) Through the environmental review process, developments will be prohibited that erode, pollute or fill creeks, or significantly impact other biotic resources. The Planning Department shall review plans to ensure adherence to this regulation.

### **13.1.5 Culverts and other types of stormwater swales discharging into Cotati's creeks shall be designed to prevent erosion of the natural bed and bank material.**

a) Public Works Staff, working with the Sonoma County Water Agency and the City Engineer, shall determine which facilities are in need of repair and establish a timetable to complete the work. Public Works shall monitor the swales which flow into the creeks to ensure erosion is not a problem.

### **13.1.6 Protect Cotati's ridgelines (hill tops and steep hillsides) from erosion, slope failure and development. (See map 1).**

a) The Zoning Ordinance shall be amended so as to prohibit development of structures extending above the perceived skyline of the hills. The Design Review Committee shall monitor compliance.

### **13.4.1 Continue a no tree cutting policy throughout Cotati, except when a permit has been obtained.**

a) Continue implementing the City of Cotati Tree Protection Ordinance. The City Staff will monitor through a tree cutting permit process.

b) The City shall periodically undertake a citywide notification program to notify the citizen's of Cotati and tree surgeons doing business within the city limits on the City's tree cutting policy.

### **13.4.5 Protect native trees.**

a) Require tree replacement of native trees at a 3:1 ratio.

b) During the planning process, discourage the loss of native trees.

**15.2.3 The natural paths of creeks should not be disrupted as a consequence of development.**

- a) Channelization of creeks shall be prohibited unless deemed necessary for flood control in already developed areas. The Planning Department and City Engineer shall monitor all plans for development to insure compliance.
- b) Design Review Criteria shall be prepared to require that creeks, trees, views and features unique to the site be preserved and incorporated into design proposals. The Design Review Committee shall insure that new development meets this criteria.

**Cotati Creek Critters**

Cotati Creek Critters (CCC) is a grassroots citizens' group working to restore a section of the upper reach of the Laguna de Santa Rosa that runs through Cotati and a small section of Rohnert Park. CCC began as an all-volunteer group in 1998, and in 2005, they received a grant from the California Department of Water Resources to involve the local community in planting native trees and shrubs along a one-mile section of the Laguna de Santa Rosa. Over 2,000 volunteers and many partners, collaborators and supporters were involved in planting, caring for the plants and raising awareness. The volunteer group has included people of all ages from three year olds (the Cotati Co-op Nursery School) to high school students, to students from Santa Rosa Junior College (SRJC) and Sonoma State University (SSU), to professionals and retired people, and a range of community groups.

**Laguna de Santa Rosa Foundation**

The Laguna Foundation was formed in 1989 and incorporated as a tax-exempt nonprofit organization the following year. From 1990 to 2002 a volunteer group implemented small restoration projects, and actively participated in public policy dialogue concerning the Laguna. The volunteer effort included providing comments on policy issues, convening stakeholders to develop a Coordinated Resource Management Plan, and developing an educational program. In 2002 the Laguna Foundation hired staff to expand the education program and pursue larger restoration projects.

**ENVIRONMENTAL SETTING**

The City of Cotati is located in Sonoma County, California approximately 20 miles east of the Pacific Ocean, and 45 miles north of San Francisco. The Cotati city limits encompass approximately 1,217 acres. There is little biological diversity within the city limits, which is limited to agriculture (63 acres), annual grassland (87 acres), and freshwater emergent wetland (2 acres). Approximately 1,064 acres of the City is developed (87 percent).

The City's Sphere of Influence covers an additional 1,010 acres, of which approximately 646 acres are developed (64 percent). There is slightly more biological diversity within the Sphere of Influence, relatively speaking, which has agriculture (85 acres), annual grassland (279 acres), and freshwater emergent wetland (<1 acre).

The climate is mild with average high temperatures ranging from 58-83 degrees Fahrenheit (F), and average lows ranging from 38-52. The average annual precipitation is 25 inches, most of which comes in the form of winter rain. Summer coastal fog often reaches Cotati through the coastal valleys to the west.

**Geomorphic Provinces**

California's geomorphic provinces are naturally defined geologic regions that display a distinct landscape or landform. Earth scientists recognize eleven provinces in California. Each region displays unique,

defining features based on geology, faults, topographic relief and climate. These geomorphic provinces are remarkably diverse. They provide spectacular vistas and unique opportunities to learn about earth's geologic processes and history. (California Department of Conservation, 2002). The City of Cotati is located in portions of the Coast Range and Great Valley geomorphic provinces of California.

**Coast Ranges:** The Coast Ranges are northwest-trending mountain ranges (2,000 to 4,000, occasionally 6,000 feet elevation above sea level), and valleys. The ranges and valleys trend northwest, subparallel to the San Andreas Fault. Strata dip beneath alluvium of the Great Valley. To the west is the Pacific Ocean. The coastline is uplifted, terraced and wave-cut. The Coast Ranges are composed of thick Mesozoic and Cenozoic sedimentary strata. The northern and southern ranges are separated by a depression containing the San Francisco Bay. The northern Coast Ranges are dominated by irregular, knobby, landslide-topography of the Franciscan Complex. The eastern border is characterized by strike-ridges and valleys in Upper Mesozoic strata. In several areas, Franciscan rocks are overlain by volcanic cones and flows of the Quien Sabe, Sonoma and Clear Lake volcanic fields. The Coast Ranges are subparallel to the active San Andreas Fault. The San Andreas is more than 600 miles long, extending from Pt. Arena to the Gulf of California. West of the San Andreas is the Salinian Block, a granitic core extending from the southern extremity of the Coast Ranges to the north of the Farallon Islands. (California Department of Conservation, 2002).

### Bioregions

The City of Cotati county is located within the Bay Area/Delta bioregion. A brief description of the Bay Area/Delta bioregion is presented below.

**Bay Area/Delta Bioregion:** The Bay Area/Delta Bioregion extends from the Pacific Ocean to the Sacramento Valley and San Joaquin Valley bioregions to the northeast and southeast, and a short stretch of the eastern boundary joins the Sierra Bioregion at Amador and Calaveras counties. The bioregion is bounded by the Klamath/North Coast on the north and the Central Coast Bioregion to the south. The Bay Area/Delta Bioregion is one of the most populous areas of the state, encompassing the San Francisco Bay Area and the Sacramento-San Joaquin River Delta. The water that flows through the Delta supplies two-thirds of California's drinking water, irrigating farmland, and sustaining fish and wildlife and their habitat. The bioregion fans out from San Francisco Bay in a jagged semi-circle that takes in all or part of 12 counties: Alameda, Contra Costa, Marin, Napa, San Francisco, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and parts of Sacramento, and Yolo. The habitats and vegetation of the Bay Area/Delta Bioregion are as varied as the geography.

### CALIFORNIA WILDLIFE HABITAT RELATIONSHIP SYSTEM

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The California Wildlife Habitat Relationship (CWHR) habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly-occurring birds, mammals, reptiles and amphibians. When first published in 1988, the classification scheme had 53 habitats. At present, there are 59 wildlife habitats in the CWHR System: 27 tree, 12 shrub, 6 herbaceous, 4 aquatic, 8 agricultural, 1 developed, and 1 non-vegetated.

According to the California Wildlife Habitat Relationship System there are four cover types (wildlife habitat classifications) in the City of Cotati out of 59 found in the state. These include: Agricultural, Annual Grassland, Fresh Emergent Wetland, and Urban. An additional three cover types are located in the vicinity, but outside the City Sphere of Influence. These include: Barren, Eucalyptus, and Riverine. Table 9.2-1 identifies the total area by acreage for each cover type (wildlife habitat classification) found

in the City of Cotati. Figure 9.2-1 illustrates the location of each cover type (wildlife habitat classification) within the City of Cotati. A brief description of each cover type follows.

**TABLE 9.2-1: COVER TYPES - PALIFORNIA WILDLIFE HABITAT RELATIONSHIP SYSTEM**

Cover Types	Acres within City	Acres within SOI	Acres with UGB
Agriculture	63.46	148.89	324.75
Annual Grassland	87.29	366.01	523.17
Freshwater Emergent Wetland	1.97	2.47	2.47
Urban	1064.80	1710.29	1723.56
<b>Total Acres</b>	<b>1217.53</b>	<b>2227.66</b>	<b>2573.95</b>

SOURCE: SOURCE: CASIL GIS DATA, 2011, CALIFORNIA WILDLIFE HABITAT RELATIONSHIP SYSTEM, 2011

## Developed

**Agricultural** land may be defined broadly as land used primarily for production of food and fiber. This habitat can generally be broken into the following categories: cropland, dryland grain crops, irrigated grain crops, irrigated hayfield, irrigated row and field crops, rice, orchard - vineyard, deciduous orchard, evergreen orchard, and vineyard. On satellite imagery, the chief indications of agricultural activity are distinctive geometric field and road patterns on the landscape and the traces produced by livestock or mechanized equipment. However, pasture and other lands where such equipment is used infrequently may not show as well-defined shapes as other areas. The number of building complexes is smaller and the density of the road and highway network is much lower in Agricultural land than in Urban land.

**Urban** habitats are not limited to any particular physical setting. Three urban categories relevant to wildlife are distinguished: downtown, urban residential, and suburbia. The heavily-developed downtown is usually at the center, followed by concentric zones of urban residential and suburbs. There is a progression outward of decreasing development and increasing vegetative cover. Species richness and diversity is extremely low in the inner cover. The structure of urban vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. A distinguishing feature of the urban wildlife habitat is the mixture of native and exotic species.

## Herbaceous

**Annual Grassland** habitat occurs mostly on flat plains to gently rolling foothills. Climatic conditions are typically Mediterranean, with cool, wet winters and dry, hot summers. The length of the frost free season averages 250 to 300 days (18 to 21 fortnights). Annual precipitation is highest in northern California.

**Fresh emergent wetland** habitats occur on virtually all exposures and slopes, provided a basin or depression is saturated or at least periodically flooded. They are most common on level to gently rolling topography. They are found in various depressions or at the edge of rivers or lakes. Soils are predominantly silt and clay, although coarser sediments and organic material may be intermixed. In some areas organic soils (peat) may constitute the primary growth medium. Climatic conditions are highly variable and range from the extreme summer heat to winter temperatures well below freezing.

## Other Habitats in the Vicinity of Cotati

**Barren** habitat is defined by the absence of vegetation. Any habitat with <2% total vegetation cover by herbaceous, desert, or nonwildland species and <10% cover by tree or shrub species is defined this way.

The physical settings for permanently barren habitat represent extreme environments for vegetation. An extremely hot or cold climate, a near-vertical slope, an impermeable substrate, constant disturbance by either human or natural forces, or a soil either lacking in organic matter or excessively saline can each contribute to a habitat being inhospitable to plants.

**Eucalyptus** habitats have been extensively planted throughout the state since their introduction in 1856. They are found in highly variable site characteristics, but generally on relatively flat or gently rolling terrain, occasionally in the foothills. Climatic conditions are typically Mediterranean, characterized by hot, dry summers and cool, mild winters. Precipitation ranges from approximately 12 to 24 inches. Temperature regimes range from a 43 F to 73 F.

**Riverine** habitats can occur in association with many terrestrial habitats. Riparian habitats are found adjacent to many rivers and streams. Riverine habitats are also found contiguous to lacustrine and fresh emergent wetland habitats. This habitat requires intermittent or continually running water generally originating at some elevated source, such as a spring or lake, and flows downward at a rate relative to slope or gradient and the volume of surface runoff or discharge. Velocity generally declines at progressively lower altitudes, and the volume of water increases until the enlarged stream finally becomes sluggish. Over this transition from a rapid, surging stream to a slow, sluggish river, water temperature and turbidity will tend to increase, dissolved oxygen will decrease and the bottom will change from rocky to muddy.

### SPECIAL-STATUS SPECIES

The following discussion is based on a background search of special-status species that are documented in the CNDDb, the CNPS Inventory of Rare and Endangered Plants, and the USFWS endangered and threatened species lists. The background search was regional in scope and focused on the documented occurrences within 10 miles of the City of Cotati.

### Special Status Plants

The search revealed documented occurrences of the 51 special status plant species (including one non-vascular plant) within 10 miles of the City of Cotati. Table 9.2-2 provides a list of special-status plant species that are documented within 10 miles of the City of Cotati, their habitat, and current protective status. Figure 9.2-2 illustrates the special status species located within one mile of the City of Cotati. Figure 9.2-3 illustrates the special status species located within 10 miles of the City of Cotati.

TABLE 9.2-2: SPECIAL STATUS PLANTS PRESENT OR POTENTIALLY PRESENT		
Species	Status	Habitat
<b>Plants</b>		
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	--;--;1B	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine. Dry hillsides. 100-300M.
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	FE;--;1B	Freshwater marshes and swamps, riparian scrub. Wet areas, marshes, and riparian banks with other wetland species. 5-360M.
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	--;--;1B	Broadleaved upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2000M
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	--;--;1B	Cismontane woodland, valley and foothill grassland. 50-500M.



**TABLE 9.2-2: SPECIAL STATUS PLANTS PRESENT OR POTENTIALLY PRESENT**

Species	Status	Habitat
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	--;--;1B	Alkali playa, valley and foothill grassland, vernal pools. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 1-170M.
<i>Arctostaphylos canescens</i> ssp. <i>sonomensis</i> Sonoma canescent manzanita	--;--;1B	Chaparral, lower montane coniferous forest. Sometimes found on serpentine. 180-1700M.
<i>Arctostaphylos densiflora</i> Vine Hill manzanita	--;CE;1B	Chaparral. Acid marine sand. 50-100M.
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i> Rincon Ridge manzanita	--;--;1B	Chaparral. Highly restricted endemic to red rhyolites in Sonoma County. 75-310M.
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i> Big-scale balsamroot	--; --;1B	Chaparral, cismontane woodland, and valley and foothill grassland (Open, grassy slopes, and valleys, sometimes on serpentine soils)
<i>Blennosperma bakeri</i> Sonoma sunshine	FE;CE;1B	Vernal pools, valley and foothill grassland. Vernal pools and swales. 10-100M.
<i>Brodiaea californica</i> var. <i>leptandra</i> narrow-anthered California brodiaea	--;--;1B	Broadleaved upland forest, chaparral, lower montane coniferous forest. 110-915M.
<i>California macrophylla</i> round-leaved filaree	--;--;1B	Cismontane woodland, valley and foothill grassland. Clay soils. 15-1200M.
<i>Campanula californica</i> swamp harebell	--;--;1B	Bogs and fens, closed-cone coniferous forest, coastal prairie, meadows, freshwater marsh, N. Coast coniferous forest. Bogs and marshes in a variety of habitats; uncommon where it occurs. 1-405M.
<i>Carex albida</i> white sedge	FE;CE;1B	Freshwater marsh, bogs and fens, meadows and seeps. Wet meadow and marshes. 35-55M.
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	--;--;1B	Closed-cone coniferous forest, chaparral, cismontane woodland. Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065M.
<i>Ceanothus divergens</i> Calistoga ceanothus	--;--;1B	Chaparral, cismontane woodland. Rocky, serpentine or volcanic sites. 165-950M.
<i>Ceanothus foliosus</i> var. <i>vineatus</i> Vine Hill ceanothus	--;--;1B	Chaparral. Sandy, acidic soil in chaparral. 45-85M.
<i>Ceanothus masonii</i> Mason's ceanothus	--;CR;1B	Chaparral. Serpentine ridges or slopes in chaparral or transition zone. 180-460M.
<i>Ceanothus purpureus</i> holly- leaved ceanothus	--;--;1B	Chaparral. Rocky, volcanic slopes. 120-640M.
<i>Ceanothus sonomensis</i> Sonoma ceanothus	--;--;1B	Chaparral. Sandy, serpentine or volcanic soils. 210-800M.

**TABLE 9.2-2: SPECIAL STATUS PLANTS PRESENT OR POTENTIALLY PRESENT**

Species	Status	Habitat
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	--;--;1B	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland. Vernal mesic, often alkaline sites. 2-420M.
<i>Chorizanthe valida</i> Sonoma spineflower	FE;CE;1B	Coastal prairie. Sandy soil. 10-50M.
<i>Delphinium bakeri</i> Baker's larkspur	FE;CE;1B	Coastal scrub, grasslands. Only occurs on NW-facing slope, on decomposed shale. Historically known from grassy areas along fence lines too. 90-205M.
<i>Delphinium luteum</i> golden larkspur	FE;CR;1B	Chaparral, coastal prairie, coastal scrub. North-facing rocky slopes. 0-100M.
<i>Downingia pusilla</i> dwarf downingia	--;--;2	Valley and foothills grasslands (mesic sites), vernal pools. Erna Lake and pool margins with a variety of associates. In several types of vernal pools. 1-485M.
<i>Erigeron greenei</i> Greene's narrow-leaved daisy	--;--;1B	Chaparral. Serpentine and volcanic substrates, generally in shrubby vegetation. 75-1060M.
<i>Fritillaria liliacea</i> fragrant fritillary	--;--;1B	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410M.
<i>Gilia capitata</i> ssp. <i>tomentosa</i> woolly-headed gilia	--;--;1B	Coastal bluff scrub. Rocky outcrops on the coast. 15-155M.
<i>Hemizonia congesta</i> ssp. <i>congesta</i> seaside tarplant	--;--;1B	Coastal scrub, valley and foothill grassland. Grassy valleys and hills, often in fallow fields. 25-200M.
<i>Horkelia tenuiloba</i> thin-lobed horkelia	--;--;1B	Coastal scrub, chaparral. Sandy soils; mesic openings. 45-500M.
<i>Lasthenia burkei</i> Burke's goldfields	FE;CE;1B	Vernal pools, meadows and seeps. Most often in vernal pools and swales. 15-580M.
<i>Lasthenia californica</i> ssp. <i>bakeri</i> Baker's goldfields	--;--;1B	Closed-cone coniferous forest, coastal scrub. Openings. 60-520M.
<i>Lasthenia conjugens</i> Contra Costa goldfields	FE;--;1B	Valley and foothill grassland, vernal pools, cismontane woodland. Extirpated from most of its range; Extremely endangered. Vernal pools, swales, low depressions, in open grassy areas. 1-445M.
<i>Legenere limosa</i> legenere	--; --;1B	Vernal pools. Many historical occurrences are extirpated. In beds of vernal pools. 1-880M.
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	--;--;1B	Chaparral, cismontane woodland. Open to partially shaded grassy slopes. On volcanic or the periphery of serpentine substrates. 100-500M.
<i>Lilium pardalinum</i> ssp. <i>pitkinense</i> Pitkin Marsh lily	FE;CE;1B	Cismontane woodland, meadows and seeps, freshwater marsh. Saturated, sandy soils w/ grasses and shrubs. 35-65M.
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	FE;CE;1B	Mesic meadows, vernal pools, valley and foothill grassland. Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clay and sandy loam. 15-115M.

**TABLE 9.2-2: SPECIAL STATUS PLANTS PRESENT OR POTENTIALLY PRESENT**

Species	Status	Habitat
<i>Microseris paludosa</i> marsh microseris	--;--;2	Closed-cone coniferous forest cismontane woodland, coastal scrub, valley and foothill grassland. 5-300M.
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	--;--;1B	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Vernal pools and swales, adobe or alkaline soils. 5-950M.
<i>Plagiobothrys mollis</i> var. <i>vestitus</i> Petaluma popcorn-flower	--;--;1A	Presumed extinct. Valley and foothill grassland, coastal salt marsh. Wet sites in grassland, possibly coastal marsh margins. 10-50M.
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	--;CT;1B	Broadleaved upland forest, meadows and seeps, north-coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 10-1150M.
<i>Potentilla uliginosa</i> Cunningham Marsh cinquefoil	--;--;1A	Presumed extinct. Freshwater marshes and swamps. Found in oligotrophic wetlands. 30-40 M.
<i>Rhynchospora californica</i> California beaked-rush	--;--;1B	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps. Freshwater seeps and open marshy areas. 45-1000M.
<i>Rhynchospora capitellata</i> brownish beaked-rush	--;--;2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest. Mesic sites. 455-2000M.
<i>Rhynchospora globularis</i> var. <i>globularis</i> round-headed beaked-rush	--;--;2	Marshes and swamps, freshwater marsh. 45-60M.
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i> Point Reyes checkerbloom	--;--;1B	Marshes and swamps. Freshwater marshes near the coast. 5-75(245)M.
<i>Sidalcea oregana</i> ssp. <i>valida</i> Kenwood Marsh checkerbloom	FE;CE;1B	Marshes and swamps. Edges of freshwater marshes. 115-150M.
<i>Triquetrella californica</i> coastal triquetrella	--;--;1B	Coastal bluff scrub, coastal scrub, valley and foothill grasslands. Grows within 30 M from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, and rocky slopes.
<i>Trifolium amoenum</i> showy rancheria clover	FE;--;1B	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently sited on roadside and eroding cliff face. 5-560M.
<i>Trifolium hydrophilum</i> saline clover	--;--;1B	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0-300M.
<i>Viburnum ellipticum</i> oval-leaved viburnum	--;--;2	Chaparral, cismontane woodland, lower montane coniferous forest. 215-1400M.

SOURCE: DFG CNDDDB 2011

## ABBREVIATIONS:

FE FEDERAL ENDANGERED  
 FT FEDERAL THREATENED  
 CE CALIFORNIA ENDANGERED SPECIES  
 CT CALIFORNIA THREATENED

## 9 CONSERVATION AND NATURAL RESOURCES

CR	CALIFORNIA RARE (PROTECTED BY NATIVE PLANT PROTECTION ACT)
1B	CNPS - TARE, THREATENED, OR ENDANGERED
2	CNPS - DARE, THREATENED, OR ENDANGERED IN CALIFORNIA, BUT MORE COMMON ELSEWHERE
4	CNPS - SLANTS OF LIMITED DISTRIBUTION - STRATCH LIST

### Special Status Animals

The search revealed documented occurrences of the 26 special status animal species within 10 miles of the City of Cotati. This includes: three amphibians, eight birds, two fish, eight invertebrates, four mammals, and one reptile. Table 9.2-3 provides a list of the special-status animal species that are documented within 10 miles of the City of Cotati, their habitat, and current protective status. Figure 9.2-3 illustrates the location of each documented occurrence.

TABLE 9.2-3: SPECIAL STATUS ANIMALS PRESENT OR POTENTIALLY PRESENT IN COLUSA COUNTY		
Species	Status	Habitat
<b>Amphibians</b>		
<i>Ambystoma californiense</i> California tiger salamander	FT/CT	Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.
<i>Rana aurora draytoni</i> California red-legged frog	FT/CSC	Permanent and semi-permanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.
<i>Rana boylei</i> foothill yellow-legged frog	FSC;CSC	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.
<b>Birds</b>		
<i>Agelaius tricolor</i> tricolored blackbird	FSC;CSC	Highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.
<i>Athene cuniculari</i> Burrowing owl	FSC; CSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo	FSC/FC; CE	Nesting restricted to river bottoms and other mesic habitats where humidity is high.
<i>Elanus leucurus</i> white-tailed kite	MBTA; CP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated dense-topped trees for nesting and perching.
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	FSC; CSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.
<i>Laterallus jamaicensis coturniculus</i> California black rail	--/CT	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	--; CSC	Resident of salt marshes along the north side of San Francisco and San Pablo Bays. Inhabits tidal sloughs in the salicornia marshes; nests in grindelia bordering slough channels.
<i>Rallus longirostris obsoletus</i>	FE;CE	Salt-water and brackish marshes traversed by tidal sloughs in the

**TABLE 9.2-3: SPECIAL STATUS ANIMALS PRESENT OR POTENTIALLY PRESENT IN COLUSA COUNTY**

Species	Status	Habitat
California clapper rail		vicinity of San Francisco Bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.
<b>Fish</b>		
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	--/CSC	Endemic to the lakes and rivers of the central valley, but now confined to the Delta, Suisun Bay and associated marshes. Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.
<i>Oncorhynchus mykiss irideus</i> steelhead - central California coast DPS	FT/--	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.
<b>Invertebrates</b>		
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	--;--	This bee is oligolectic on vernal pool blennosperma. Bees nest in the uplands around vernal pools.
<i>Caecidotea tomalensis</i> Tomales isopod	--;--	Inhabits localized fresh-water ponds or streams with still or near-still water in several Bay Area Counties.
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle	--;--	Aquatic.
<i>Hydroporus leechi</i> Leech's skyline diving beetle	--;--	Aquatic.
<i>Lindleriella occidentalis</i> California linderiella	--;--	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS.
<i>Syncaris pacifica</i> California freshwater shrimp	FE;FE	Shallow Pools away from main streamflow. Winter: undercut banks w/exposed roots. Summer: leafy branches touching water. Endemic to Marin, Napa, and Sonoma Counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy.
<i>Speyeria zerene myrtleae</i> Myrtle's silverspot	FE;--	Restricted to the foggy, coastal dunes/hills of the Point Reyes Peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be <i>Viola adunca</i> .
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	--;--	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.
<b>Mammals</b>		
<i>Arborimus pomo</i> Sonoma tree vole	--;CSC	North coast fog belt from Oregon border to Sonoma Co. in Douglas-fir, redwood and montane hardwood-conifer forests. Feeds almost exclusively on Douglas-fir needles. Will occasionally take needles or grand-fir, hemlock or spruce.
<i>Antrozous pallidus</i> Pallid bat	--;CSC	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	FE;CE	Only in saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat. Do not burrow, build

**TABLE 9.2-3: SPECIAL STATUS ANIMALS PRESENT OR POTENTIALLY PRESENT IN COLUSA COUNTY**

Species	Status	Habitat
		loosely organized nests. Require higher areas for flood escape.
<i>Taxidea taxus</i> American badger	--;CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Need sufficient food, friable soils and open, uncultivated ground. Prey on burrowing rodents. Dig burrows.
<b>Reptiles</b>		
<i>Actinemys marmorata</i> western pond turtle	--;CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg-laying.

SOURCE: DFG CNDDDB 2011

ABBREVIATIONS:

FE	FEDERAL ENDANGERED
FT	FEDERAL THREATENED
FC	FEDERAL CANDIDATE
FSC	FEDERAL SPECIES OF CONCERN
FD	FEDERAL DELISTED
MBTA	PROTECTED BY MIGRATORY BIRD TREATY ACT
CE	CALIFORNIA ENDANGERED SPECIES
CT	CALIFORNIA THREATENED
CP	CALIFORNIA FULLY PROTECTED UNDER §3511, 4700, 5050 AND 5515 FG CODE
CSC	CDFG SPECIES OF SPECIAL CONCERN

### Sensitive Natural Communities

The search revealed 16 documented occurrences of the five sensitive natural communities within 10 miles of the City of Cotati. This includes Coastal and Valley Freshwater Marsh, Coastal Brackish Marsh, Northern Hardpan Vernal Pool, Northern Vernal Pool, and Valley Needlegrass Grassland. Of these 16 documented occurrences, none are located within the Urban Growth Boundary for the City of Cotati. A brief description of each sensitive natural community follows. Figure 9.2-3 illustrates the location of each sensitive natural community.

**Coastal and Valley Freshwater Marsh.** Coastal and Valley Freshwater Marsh is found along the coast and in coastal valleys near river mouths and around the margins of lakes and springs, and they are the most extensive in the upper portion of the Sacramento-San Joaquin River Delta. This natural community is common in the river oxbows and other areas of a flood plain. This natural community is found in areas that lack significant stream/river current and are permanently flooded by fresh water (rather than brackish, alkaline, or variable). Prolonged saturation permits accumulation of deep, peaty soils. Perennial, emergent monocots up to 4-5m tall dominate this habitat. They often form completely closed canopies. (Holland, 1986).

There are no documented occurrences of Coastal and Valley Freshwater Marsh within the City of Cotati, or its Urban Growth Boundary. While this sensitive natural community is not documented within the CNDDDB, it occurs throughout the region along the margins of creeks sometimes as small isolated marshes, and sometimes as a more expansive marsh. The more expansive marshes are generally well documented, while the smaller isolated marshes can be discovered in areas that have not been previously surveyed, which may include parcels within the Urban Growth Boundary.

**Coastal Brackish Marsh.** Coastal brackish marsh is usually at the interior edges of coastal bays and estuaries or in coastal lagoons, and adjacent to salt marshes. They are most extensive around Suisun Bay at the mouth of the Sacramento-San Joaquin Delta. This natural community is dominated by perennial, emergent, herbaceous monocots to 2m tall. Cover is often complete and dense with some plants characteristic of freshwater marsh and salt marsh. Water salinity may vary considerably, and may increase at high tide or during seasons of low freshwater runoff. (Holland, 1986).

There are no documented occurrences of Coastal Brackish Marsh within the City of Cotati, or its Urban Growth Boundary. There are several factors preclude this sensitive natural community from occurring in the City of Cotati.

**Northern Hardpan Vernal Pool.** Northern hardpan vernal pool is typically found on old, very acidic, Fe-Si cemented hardpan soils. The microrelief on these soils typically is hummocky, with mounds intervening between localized depressions. Winter rainfall perches on the hardpan, forming pools in the depressions and evaporation empties the pools in spring. Vegetation is a low, amphibious, herbaceous plant community that is dominated by annual herbs and grasses. Germination and growth begin with winter rains, often continuing even when inundated. Rising spring temperatures evaporate the pools, leaving concentric bands of vegetation that colorfully encircle the drying pool. (Holland, 1986).

There are no documented occurrences of Northern Hardpan Vernal Pool within the City of Cotati, or its Urban Growth Boundary. While this sensitive natural community is not documented within the CNDDB, it occurs throughout the region and can vary in size (small isolated vernal pools to large vernal pool complexes). The larger complexes are generally well documented, while the smaller isolated vernal pools can be discovered in areas that have not been previously surveyed, which may include parcels within the Urban Growth Boundary.

**Northern Vernal Pool.** Northern vernal pool is a general classification of vernal pools that may occur on a variety of soil types and in a variety of plant communities. Northern vernal pool can occur singly or in complexes, but requires an impervious substrate that varies from hardpan or claypan to basalt or other materials that prevent percolation of water. Winter rainfall perches on the impervious substrate, forming pools in the depressions and evaporation empties the pools in spring. Vegetation varies, but is typically low, amphibious, herbaceous plant community that is dominated by annual herbs. Germination and growth begin with winter rains, often continuing even when inundated. Rising spring temperatures evaporate the pools, leaving concentric bands of vegetation that encircle the drying pool. (Holland, 1986).

There are no documented occurrences of Northern Vernal Pool within the City of Cotati, or its Urban Growth Boundary. Similar to the Northern Hardpan Vernal Pool, the Northern Vernal Pool occurs throughout the region and can vary in size (small isolated vernal pools to large vernal pool complexes). The larger complexes are generally well documented, while the smaller isolated vernal pools can be discovered in areas that have not been previously surveyed, which may include parcels within the Urban Growth Boundary.

**Valley Needlegrass Grassland.** Valley Needlegrass Grassland is a mid-height (to 2 feet) grassland dominated by perennial, tussock-forming purple needlegrass (*Nassella pulchra*). Native and introduced annuals occur between the perennials, often exceeding the bunchgrasses in cover. They are usually found on fine-textured (often clay) soils, moist or even waterlogged during the winter, but very dry in the summer. Often associated with Oak Woodlands on moister, better drained sites. (Holland, 1986).

There are no documented occurrences of Valley Needle Grassland within the City of Cotati, or its Urban Growth Boundary. While Valley Needle Grassland is not documented within the CNDDDB, there are 523.17 acres of annual grassland documented within the Urban Growth Boundary, and it is not uncommon to find small patches of Valley Needle Grassland in areas that are documented as annual grassland. This sensitive natural community may be present in the Urban Growth Boundary where the ground is relatively undisturbed and has not been surveyed on foot.

### Other Special Habitat

**Laguna de Santa Rosa.** The Laguna de Santa Rosa is the largest freshwater wetlands complex on the northern California coast. The Laguna's fourteen-mile channel forms the largest tributary to the Russian River, draining a 254-square-mile watershed which encompasses nearly the entire Santa Rosa Plain. This includes parts of the communities of Windsor, Santa Rosa, Rohnert Park, Cotati, Forestville, and Sebastopol.

Laguna de Santa Rosa is important in maintaining water quality and flood control for the region. It provides an important overflow area for the Russian River during periods of heavy winter rain, serving as a natural holding basin which captures and slows floodwaters, easing their impact on lower Russian River communities. Additionally, Laguna de Santa Rosa provides a unique ecological system for the region. With over 30,000 acres, the Laguna provides a mosaic of creeks, open water, perennial marshes, seasonal wetlands, riparian forests, oak woodland and grassland. It is home to hundreds of species of birds, mammals, fish, amphibians, reptiles, and invertebrates, including several rare and endangered species. (Laguna de Santa Rosa Foundation, 2011).

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### 9.3 HYDROLOGY AND WATER QUALITY

This section addresses hydrology and water quality in the City of Cotati. The discussion of water and storm water infrastructure is located in the Community Services and Facilities section of this Background Report (Section 6).

#### REGULATORY SETTING

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##### *FEDERAL REGULATIONS*

##### **Clean Water Act (CWA)**

The CWA, initially passed in 1972, regulates the discharge of pollutants into watersheds throughout the nation. Section 402(p) of the act establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) Program. Section 402(p) requires that stormwater associated with industrial activity that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit.

The State Water Resources Control Board (SWRCB) is responsible for implementing the Clean Water Act and does so through issuing NPDES permits to cities and counties through regional water quality control boards. Federal regulations allow two permitting options for storm water discharges (individual permits and general permits). The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2003-0005-DWQ) for small Municipal Separate Storm Sewer Systems (MS4s) covered under the CWA to efficiently regulate numerous storm water discharges under a single permit. Permittees must meet the requirements in Provision D of the General Permit, which require the development and implementation of a Storm Water Management Plan (SWMP) with the goal of reducing the discharge of pollutants to the maximum extent practicable. The SWMP must include the following six minimum control measures:

- 1) Public Education and Outreach on Storm Water Impacts
- 2) Public Involvement/Participation
- 3) Illicit Discharge Detection and Elimination
- 4) Construction Site Storm Water Runoff Control
- 5) Post-Construction Storm Water Management in New Development
- 6) Redevelopment and Pollution Prevention/Good Housekeeping for Municipal Operations

##### **National Pollutant Discharge Elimination System (NPDES)**

National Pollutant Discharge Elimination System (NPDES) permits are required for discharges of pollutants to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, the ocean, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal Clean Water Act, Title IV, Permits and Licenses, Section 402 (33 USC 466 et seq.)

The RWQCB issues these permits in lieu of direct issuance by the Environmental Protection Agency, subject to review and approval by the EPA Regional Administrator (EPA Region 9). The terms of these NPDES permits implement pertinent provisions of the Federal Clean Water Act and the Act's implementing regulations, including pre-treatment, sludge management, effluent limitations for specific industries, and anti-degradation. In general, the discharge of pollutants is to be eliminated or reduced

as much as practicable so as to achieve the Clean Water Act's goal of "fishable and swimmable" navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWC.

These NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years or less, and are therefore to be updated regularly. The rapid and dramatic population and urban growth in the Central Valley Region has caused a significant increase in NPDES permit applications for new waste discharges. To expedite the permit issuance process, the RWQCB has adopted several general NPDES permits, each of which regulates numerous discharges of similar types of wastes. The SWRCB has issued general permits for stormwater runoff from construction sites statewide. Stormwater discharges from industrial and construction activities in the North Coast Region can be covered under these general permits, which are administered jointly by the SWRCB and RWQCB.

### *STATE REGULATIONS*

#### **California Water Code**

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code) (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and each of the Regional Water Quality Control Boards (RWQCBs) power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

#### **Water Quality Control Plan for the Central Valley Region**

The Water Quality Control Plan for the North Coast Region (Basin Plan) includes a summary of beneficial water uses, water quality objectives needed to protect the identified beneficial uses, and implementation measures. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The term "water quality standards," as used in the Federal Clean Water Act, includes both the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the RWQCB and others that are necessary to achieve and maintain the water quality standards.

The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along

with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. The Basin Plan reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code and the Clean Water Act.

### *LOCAL REGULATIONS*

#### **City of Cotati General Plan**

The existing City of Cotati General Plan identifies the following policies related to hydrology and water quality:

##### **1.1.2 All new development within the 100-year flood plain shall be built according to Federal Flood Insurance Agency standards. (See Map 1.)**

a) The Municipal Code shall be amended to set standards that meet or exceed those set by the Federal Flood Insurance Agency for development in the flood plain. The Planning Department will evaluate and amend the standards as necessary.

b) By use of a permit process the Building Department shall enforce these standards.

##### **1.1.3 Continue efforts to eliminate flooding, by upgrading and expanding the storm drainage system.**

a) Work with the Sonoma County Water Agency to expand flood channels.

b) Unimproved drainage may be maintained on a periodic basis by Public Works.

##### **7.2.1 New development or governmental action shall not compound the potential for flooding. (See map 1)**

a) As part of the permit process, developers shall be required to make hydrological studies for all new developments as required by the City Engineer. Studies shall encompass the project site as well as the entire drainage area.

##### **7.2.2 All new developments in the city shall be designed to minimize vegetation removal, soil compaction, and site coverage.**

a) Through the Zoning Ordinance, the City shall establish standards to be followed by developers which specify maximum permissible vegetation removal, soil compaction, and site coverage. There shall be on-site inspections by the Building Inspector to ensure compliance.

##### **7.2.3 Adequate drainage and erosion control shall be provided during construction of all new developments.**

a) As part of the permit process, developers shall be required to follow drainage and erosion standards established by the City Engineer and Sonoma County Water Agency for all developments. There shall be an on-site inspection by the City to ensure compliance.

##### **7.3.3 Remedial measures are to be employed to reduce erosion.**

a) When a change in natural grade or removal of existing vegetation is necessary, appropriate vegetative cover to stabilize slopes and reduce erosion will be required. This shall be accomplished through the permit and design review process.

### **9.5.1 Promote water conservation among residential and commercial water users.**

a) The Public Works Staff shall establish a water consumption budget for each type of structure depending on size and use, and maintain two rates for water consumption, with a significantly higher rate for those customers exceeding their established budget, and a lower rate for those using less water. Adherence to this shall be monitored by the Public Works billing department.

b) The City Engineer shall develop a guide on appropriate re- use and conservation of water. This guide shall be made readily available to residents through local commercial outlets, City Hall, senior centers, churches, and through local school curriculum.

### **13.1.4 Cotati's creeks and other biotic resources shall be protected from erosion, pollution and filling.**

a) Through the environmental review process, developments will be prohibited that erode, pollute or fill creeks, or significantly impact other biotic resources. The Planning Department shall review plans to ensure adherence to this regulation.

### **13.1.5 Culverts and other types of stormwater swales discharging into Cotati's creeks shall be designed to prevent erosion of the natural bed and bank material.**

a) Public Works Staff, working with the Sonoma County Water Agency and the City Engineer, shall determine which facilities are in need of repair and establish a timetable to complete the work. Public Works shall monitor the swales which flow into the creeks to ensure erosion is not a problem.

### **13.1.6 Protect Cotati's ridgelines (hill tops and steep hillsides) from erosion, slope failure and development. (See map 1).**

a) The Zoning Ordinance shall be amended so as to prohibit development of structures extending above the perceived skyline of the hills. The Design Review Committee shall monitor compliance.

### **13.1.8 Development involving earth-moving shall not take place where excessive disruption of drainage patterns or excessive runoff will result.**

a) For all new development on hillsides, specific measures on erosion control shall be taken (e.g. berms, interceptor ditches, terraces, sediment traps) by the developer, as required and determined by the City Engineer.

### **15.2.3 The natural paths of creeks should not be disrupted as a consequence of development.**

a) Channelization of creeks shall be prohibited unless deemed necessary for flood control in already developed areas. The Planning Department and City Engineer shall monitor all plans for development to insure compliance.

b) Design Review Criteria shall be prepared to require that creeks, trees, views and features unique to the site be preserved and incorporated into design proposals. The Design Review Committee shall insure that new development meets this criteria.

### **Sonoma County Water Agency**

Sonoma County Water Agency was created as a special district in 1949 by the California Legislature to provide flood protection and water supply services. The Sonoma County Water Agency currently manages and maintains a water transmission system that provides naturally filtered Russian River water to nine cities and special districts that in turn delivers drinking water to more than 600,000 residents in portions of Sonoma and Marin counties.

The Sonoma County Water Agency is responsible for providing flood protection to much of Sonoma County. They have partnered with federal agencies to build and manage a variety of flood protection projects, including Warm Springs Dam, Spring Lake, Coyote Valley Dam, Matanzas Creek Reservoir, Piner Creek Reservoir, Brush Creek Middle Fork Reservoir and Spring Creek Reservoir. They also manage a proactive stream maintenance program that maintains more than 80 miles of creeks throughout the County.

In 1995 the Sonoma County Water Agency assumed responsibility from the County of Sonoma for managing the county sanitation zones and districts, which provide wastewater collection and treatment, and recycled water distribution and disposal services for approximately 22,000 residences and businesses. The zones include Airport/Larkfield/Wikiup, Geyserville, Penngrove and Sea Ranch. The sanitation districts include the Occidental, Russian River, Sonoma Valley, and South Park County Sanitation Districts. (Sonoma County Water Agency, 2011).

## **ENVIRONMENTAL SETTING**

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### **Location and Climate**

The City of Cotati is located in Sonoma County, California approximately 20 miles east of the Pacific Ocean, and 45 miles north of San Francisco. The Cotati city limits encompass approximately 1,217 acres. The City's Sphere of Influence covers an additional 1,010 acres.

The climate in Cotati is mild with average high temperatures ranging from 58-83 degrees Fahrenheit (F), and average lows ranging from 38-52. The average annual precipitation is 25 inches, most of which comes in the form of winter rain. Summer coastal fog often reaches Cotati through the coastal valleys to the west.

### **Watersheds**

A watershed is a region that is bound by a divide that drains to a common watercourse or body of water. Watersheds serve an important biological function, oftentimes supporting an abundance of aquatic and terrestrial wildlife including special-status species and anadromous and native local fisheries. Watersheds provide conditions necessary for riparian habitat.

The State of California uses a hierarchical naming and numbering convention to define watershed areas for management purposes. This means that boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds. Table 9.3-1 shows the primary watershed classification levels used by the State of California. The second column indicates the approximate size that a watershed area may be within a particular classification level, although variation in size is common.

**TABLE 9.3-1: STATE OF CALIFORNIA WATERSHED HIERARCHY NAMING CONVENTION**

Watershed Level	Approximate Square Miles (Acres)	Description
Hydrologic Region (HR)	12,735 (8,150,000)	Defined by large-scale topographic and geologic considerations. The State of California is divided into ten HRs.
Hydrologic Unit (HU)	672 (430,000)	Defined by surface drainage; may include a major river watershed, groundwater basin, or closed drainage, among others.
Hydrologic Area (HA)	244 (156,000)	Major subdivisions of hydrologic units, such as by major tributaries, groundwater attributes, or stream components.
Hydrologic Sub-Area (HSA)	195 (125,000)	A major segment of an HA with significant geographical characteristics or hydrological homogeneity.

SOURCE: CALWATER, CALIFORNIA INTERAGENCY WATERSHED MAPPING COMMITTEE 2008

### HYDROLOGIC REGIONS

The majority of the City of Cotati is located within the North Coast Hydrologic Region. A portion of the southern part of the City of Cotati is located within the San Francisco Bay Hydrologic Region. (CalWater, 2008).

**North Coast Hydrologic Region:** The North Coast hydrologic region covers approximately 19,500 square miles and includes all or portions of Modoc, Siskiyou, Del Norte, Trinity, Humboldt, Mendocino, Lake, and Sonoma counties, and small areas of Shasta, Tehama, Glenn, Colusa, and Marin counties. (California Department of Water Resources, 2009).

**San Francisco Bay Hydrologic Region:** The San Francisco Bay hydrologic region covers approximately 4,506 square miles and includes all or portions of Marin, Napa, Sonoma, Solano, San Mateo, Santa Clara, Contra Costa, Santa Cruz, and Alameda counties. (California Department of Water Resources, 2009).

### HYDROLOGIC UNITS

Within the City of Cotati there are two hydrologic units. These include the Russian and San Pablo. The majority of the City of Cotati is located in the Russian Hydrologic Unit, which covers approximately 950,249 acres. A small portion of the southern part of the City of Cotati is located in the San Pablo Hydrologic Unit, which covers approximately 785,049 acres. Figure 9.3-1 illustrates the boundaries of the Sphere of Influence and City Limits relative to the boundaries of the hydrologic units.

### HYDROLOGIC AREAS

For purposes of planning on a region-wide basis, hydrologic areas are generally considered to be the appropriate watershed planning level. As a planning area becomes smaller the hydrologic area level may be too large in terms of scale, and a hydrologic subarea may be considered more appropriate. The City of Cotati is located within 2 hydrologic subareas. These include: Upper Laguna de Santa Rosa subarea (Russian) and the Petaluma River subarea (San Pablo). Table 9.3-2 and 9.3-3 provides a breakdown of the acreages of each watershed within the City of Cotati.

**TABLE 9.3-2: WATERSHED INFORMATION--RUSSIAN**

Hydrologic Information	Description	Acres	Square Miles	Percent of Watershed
HUC8 (Catalog Unit)	Russian	950,249	1,485	100%
HUC10 (Hydrologic Area)	Mark West Creek	162,784	254	17%
HUC12 (Hydrologic Sub Area)	Upper Laguna de Santa Rosa	39,712	62	4%

SOURCE: CALWATER 2.1.1, NATIONAL RESOURCES CONSERVATION SERVICE, IWMC.

**TABLE 9.3-3: WATERSHED INFORMATION--SAN PABLO**

Hydrologic Information	Description	Acres	Square Miles	Percent of Watershed
HUC8 (Catalog Unit)	San Pablo	785,049	1,227	100%
HUC10 (Hydrologic Area)	Petaluma River - Frontal San Pablo Bay Estuaries	126,657	198	16%
HUC12 (Hydrologic Sub Area)	Petaluma River	28,711	45	4%

SOURCE: CALWATER 2.1.1, NATIONAL RESOURCES CONSERVATION SERVICE, IWMC.

## Water Quality

### IMPAIRED WATER BODIES

Section 303(d) of the federal Clean Water Act requires States to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." Once listed, Section 303(d) mandates prioritization and development of a Total Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish Water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

The City of Cotati has one water body listed on the 2010 Section 303(d) list of impaired water bodies. The Laguna de Santa Rosa is listed as a Category 5 segment, which means it is a water segment where standards are not met and a TMDL is required, but not yet completed, for at least one of the pollutants being listed for this segment. The pollutants listed for the segment and their list date include: indicator bacteria (2008), mercury (2006), nitrogen (1992), dissolved oxygen (1990), phosphorous (1992), sedimentation/siltation (1998), and temperature (2002). The TMDL is scheduled for completion on each of these pollutants in 2012, except for mercury, which is scheduled for 2019. (Department of Water Resources, 2010).

## Water Purveyors

### SONOMA COUNTY WATER AGENCY

The City of Cotati is one of eight water contractors that have entered into a water supply agreement with the Sonoma County Water Agency for the delivery of Russian River water to its customers through a transmission system. The Water Agency's diversion facilities extract Russian River underflow, which is reported under the Water Agency's surface water rights.

The Sonoma County Water Agency's transmission system extends from the their Russian River diversion facilities located near Forestville to the Santa Rosa, Petaluma, and Sonoma valleys. The transmission system consists of over 85 miles of pipelines that range in diameter from 16 to 54 inches, seven booster pump stations, and 18 storage tanks with a combined storage capacity of 129 million gallons. The major pipelines that comprise the system are known as the Santa Rosa Aqueduct (built in 1959), the Sonoma



Aqueduct (built in 1963), the Petaluma Aqueduct (built in 1962), and the Russian River to Cotati Intertie (built in 1977). The City receives water directly from two turnouts located on the Russian River to Cotati Intertie.

Since 1999 the Sonoma County Water Agency has added a groundwater supply source to supplement the Russian River supply that it delivers to its customers, including Cotati. The Sonoma County Water Agency is expected to augment its groundwater supply source in future years to supplement the Russian River supply.

The water rights by which the City of Cotati obtains Russian River water are held by the SCWA and permitted by the California State Water Resources Control Board (SWRCB). The SCWA has the right to divert up to a total of 75,000 acre-feet per year for its water contractors and customers. Under the water supply agreement with the SCWA, the City is entitled to receive up to 1,520 acre-feet per year.

#### *CITY OF COTATI*

In addition to the water supply from Sonoma County Water Agency, the City uses local groundwater supply from three municipal well sites located within the city limits. Prior to 1992, the City used groundwater to supply more than half of its demands; however, more recently, the City's water strategy has been to supply its demands by use of its Sonoma County Water Agency water supply and to use its local groundwater supplies to supplement demands during peak periods and also during periods of drought. The City's local groundwater supply is a key element of its drought contingency plan and is planned to remain as such throughout the foreseeable future.

### **Water Source**

The City's water comes from both surface water and groundwater. Prior to 1992, the City of Cotati used groundwater to supply more than half of its demands. More recently, the City's water strategy has been to supply its demands by use of its Sonoma County Water Agency water supply and to use its local groundwater supplies to supplement its needs during peak periods and also during periods of drought. The City's local groundwater supply is a key element of its drought contingency plan and is planned to remain as such throughout the planning horizon.

Most of the City's water is purchased from the Sonoma County Water Agency, which operates an extensive water supply distribution system in the region. Most of the water in the Sonoma County Water Agency distribution system is obtained from the Russian River, although they are beginning to blend groundwater into their system.

#### *SURFACE WATER*

**Russian River:** The Russian River watershed drains an area of 1,485 square miles that includes much of Sonoma and Mendocino counties. The headwaters of the Russian River are located in central Mendocino County, approximately 15 miles north of Ukiah. The Russian River is approximately 110 miles in length and flows generally southward to Mirabel Park, where it changes course and flows westward to the discharge point at the Pacific Ocean near Jenner, approximately 20 miles west of Santa Rosa. (Sonoma County Water Agency, 2011).

Two federal projects impound water in the Russian River watershed: the Coyote Valley Dam on the Russian River east of the city of Ukiah in Mendocino County (forming Lake Mendocino), and the Warm Springs Dam on Dry Creek (a tributary of the Russian River) northwest of the City of Healdsburg in Sonoma County (forming Lake Sonoma). Because the Sonoma County Water Agency was the local

sponsor for the dams and partially financed their construction, the Sonoma County Water Agency has the right to control releases from the water supply pools of both reservoirs. The Water Agency diverts water from the Russian River near Forestville and conveys the water via its transmission system (including diversion facilities, treatment facilities, aqueducts, pipelines, water storage tanks, and booster pump stations) to its customers, which includes the City of Cotati. (Sonoma County Water Agency, 2011).

### *GROUNDWATER*

**Santa Rosa Plain Subbasin:** The Santa Rosa Plain is a subbasin of the Santa Rosa Valley Basin. The Santa Rosa Plain drains northwest toward the Russian River, and is thus part of the North Coast Hydrologic Region. Several small hills near Cotati mark a drainage divide that separate the Santa Rosa Valley Basin from the Petaluma Valley Groundwater Basin, which drains to the southeast toward the San Francisco Bay.

The geology of the Santa Rosa Plain Subbasin is complex and the stratigraphic relationships are the subject of recent and continuing studies. Recent studies by the USGS have revealed that the basin is subdivided into two primary compartments termed the Windsor sub-basin in the north and the Cotati sub-basin in the south, which are separated by the Trenton fault. These two areas represent the deepest parts of the basin and range from 6,000 to 10,000 feet deep.

Both unconfined and confined aquifers are found within the Santa Rosa Plain subbasin depending upon locations in the basin with respect to relatively continuous clay layers, folding and faulting. The waterbearing deposits underlying the basin include the Wilson Grove Formation, the Glen Ellen Formation, the Petaluma Formation, and a younger and older alluvium. The Wilson Grove Formation is the major water-bearing unit in the western part of the basin and ranges in thickness from 300 feet to 1,500 feet. Deposited during the Pliocene, it is a marine deposit of fine sand and sandstone with thin interbeds of clay, silty-clay and some lenses of gravel. Interbedded and interfingered with the Wilson Grove Formation are Sonoma Volcanic sediments in the eastern basin separating the water-bearing units. Aquifer continuity and water quality are considered good based on the most current and detailed reference on the hydrogeology of the subbasin.

In 1982, a Department of Water Resources study concluded that groundwater levels in the south part of the Santa Rosa Plain (near Cotati and Rohnert Park) had decreased; however, recent studies indicate that groundwater levels in this area have either stabilized or exhibited trends of recovery, as both the City of Cotati and Rohnert Park have increased the use of surface water provided by the Sonoma County Water Agency. This recovery trend in groundwater levels in the southern Santa Rosa Plain began around 2003 and has continued to the present. An estimated 10,500 permitted water-supply wells are located within the Santa Rosa Plain. These wells provide irrigation water for agriculture, industrial water supplies, rural residential, as well as municipal water supplies (i.e. City of Cotati). (Sonoma County Water Agency, 2011).

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## 9.4 SCENIC RESOURCES

This section addresses the scenic resources in and around the City of Cotati. The discussion of community character is located in the Land Use and Community Character section of this Background Report (Section 1).

### REGULATORY SETTING

#### *STATE*

#### **California Department of Transportation – California Scenic Highway Program**

California's Scenic Highway Program was created by the Legislature in 1963 to preserve and protect scenic highway corridors from change, which would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq.

The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code. A list of California's scenic highways and map showing their locations may be obtained from the Caltrans Scenic Highway Coordinators.

If a route is not included on a list of highways eligible for scenic highway designation in the Streets and Highways Code Section 263 et seq., it must be added before it can be considered for official designation. A highway may be designated scenic depending on the extent of the natural landscape that can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view.

When a local jurisdiction nominates an eligible scenic highway for official designation, it must identify and define the scenic corridor of the highway. A scenic corridor is the land generally adjacent to and visible from the highway. A scenic highway designation protects the scenic values of an area. Jurisdictional boundaries of the nominating agency are also considered, and the agency must also adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

To receive official designation, the local jurisdiction must follow the same process required for official designation of State Scenic Highways. The minimum requirements for scenic corridor protection include:

- Regulation of land use and density of development;
- Detailed land and site planning;
- Control of outdoor advertising (including a ban on billboards);
- Careful attention to and control of earthmoving and landscaping; and
- Careful attention to design and appearance of structures and equipment.

#### *LOCAL*

#### **City of Cotati General Plan**

The existing City of Cotati General Plan identifies the following policies related to visual resources:

**1.5.2 The City shall encourage the clustering of residential units to preserve the continuity of open space, protect environmental features, enhance visual amenities, and insure public safety.**

- a) The Zoning Ordinance, Subdivision Regulations and Design Review Criteria shall continue to allow higher density residential clustered development.

**13.1.7 Commercial and industrial development in scenic resource areas shall be prohibited. (See map 8).**

- a) The Zoning Ordinance shall be amended to prohibit commercial and industrial development in designated scenic resources areas.

**13.1.10 Recognize the role of the County General Plan in the preservation of Cotati's scenic resources.**

- a) The Planning Department shall evaluate all proposals involving County land, within or adjacent to our Sphere of Influence, to ensure adequate preservation of open space and scenic resources.

**13.1.11 Preserve existing scenic resources both inside and outside of the Cotati City limits as resources critical to Cotati's community identity and character.**

- a) City staff will work with the County of Sonoma to discourage parcelization and/or land divisions within the City of Cotati Sphere of Influence.
- b) Work with Sonoma County Planning staff to discourage any industrial and commercial development in these areas.

**13.2.1 Site lay-out, fencing and materials used on lots adjacent to scenic roads shall be consistent with the natural character of the such roads.**

- a) The Design Review Criteria shall be prepared to include comprehensive design standards (including setback of buildings, fences, landscaping requirements, pedestrian/bicycle paths, parking bays, width of lanes) for scenic roadways in Cotati. The Design Review Committee will monitor compliance with design standards for all improvements and new construction.
- b) City Council shall hold local public meetings in conjunction with the General Plan standards for scenic residential roads to allow neighborhoods situated along a proposed scenic residential road to provide input on its status.

**13.4.1 Continue a no tree cutting policy throughout Cotati, except when a permit has been obtained.**

- a) Continue implementing the City of Cotati Tree Protection Ordinance. The City Staff will monitor through a tree cutting permit process.
- b) The City shall periodically undertake a citywide notification program to notify the citizen's of Cotati and tree surgeons doing business within the city limits on the City's tree cutting policy.

**13.4.2 Landscaping in parking areas shall be designed to achieve visual screening, while maintaining the ability of the Police Department to provide adequate security.**

- a) Through the use of public funds, where available, provide for the screening of public parking areas through the use of trees, shrubs, berms and evergreen plants. The Planning Staff shall work with the

Police Department to ensure that the landscaping will not inhibit the ability of the Police Department to provide adequate security.

#### **14.1.1 Depict local history through the use of murals.**

a) The City Council shall designate possible sites around the community that are suitable for murals. All murals shall be approved by the Design Review Committee. The Design Review Committee shall evaluate the mural for cultural and artistic quality.

#### **14.3.3 Plant a combination of deciduous native trees and more flower beds consisting of native flowers, if possible, so that there is a continuous show of flowers throughout the year in La Plaza Park.**

a) Redevelopment funds and other funding sources will be used to pay for the acquisition of trees and flowers for the park which Public Works Staff will plant and maintain.

### **ENVIRONMENTAL SETTING**

Sonoma County possesses numerous scenic resources, many of which are found in the natural areas within the unincorporated county, while they are visible from both unincorporated and incorporated areas. These resources not only enhance the quality of life for residents, but are a significant attraction that brings tourists to the region. Landscapes can be defined as a combination of four visual elements: landforms, water, vegetation, and man-made structures. Scenic resource quality is an assessment of the uniqueness or desirability of a visual element.

The City of Cotati is located in the Cotati Valley, north of Petaluma, and south of Rohnert Park. The Cotati Valley is the northern portion of a north-south valley that extends from the San Pablo Bay to Santa Rosa. The southern portion of the valley is called the Petaluma Valley. The Cotati Valley is bordered by the Sonoma Mountains to the east, and a series of low hills to the west. Farther to the west are the Estero Lowlands (aka Petaluma Gap), which opens to the Pacific Ocean.

### **Community Identity**

Every community has an identity. An identity distinguishes a community from its neighbors, and is an important component of the culture and history of each community. It also provides a sense of place and is what causes people to remember the community. The community identity is largely defined by the visual elements that are present, including natural amenities and the design of man-made amenities.

The City of Cotati is largely defined by its small town atmosphere, that combines rural openness and a vibrant blend of urban amenities. Residents and visitors alike, have long appreciated Cotati for the scenic beauty of its rolling hillsides. The areas to the south and west of Cotati serve an important function by providing a visual break from Petaluma and Penngrove to the south and Sebastopol to the west. These open spaces areas function as a community separator, and provide important open space elements to the community experience. These open space elements are both agricultural and natural.

Cotati has established itself as the "Hub" of Sonoma County. The community is showcased by its hexagonal plaza and street layout that was designed in the 1890s by Newton Smyth as an alternative to the traditional grid layout. This design is one of only two hexagonal town layouts in the United States, and is designated as a California Historical Landmark (Number 879). The hexagonal plaza serves as the center of the community and is followed by concentric zones of urban development. There is a general progression outward of decreasing development and increasing vegetative cover. The structure of urban

vegetation varies, with five types of vegetative structure defined: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. A distinguishing feature of the urban wildlife habitat is the mixture of native and exotic species.

### Open Space

There is a variety of open space in and around the City of Cotati. They include: agricultural land, grassland, chaparral, woodlands, riverine, and wetlands, as well as improved urban parkland. Below is a brief description of each of these open space types.

**Agricultural** land is predominately intended to be used for production of food and fiber. This land can generally be broken into the following categories: cropland, dryland grain crops, irrigated grain crops, irrigated hayfield, irrigated row and field crops, rice, orchard - vineyard, deciduous orchard, evergreen orchard, and vineyard. The number of building complexes in agricultural areas is smaller and the density of the road and highway network is much lower in these areas.

**Grassland** occurs mostly on flat plains to gently rolling foothills. These areas are often, but not always, used for livestock grazing. Similar to agricultural lands, the number of building complexes in annual grassland areas is smaller and the density of the road and highway network is much lower in these areas.

**Chaparral** is dominated by shrubs, but often includes grasses, herbs, and trees. Chaparral is often the result of natural disturbance, such as fire or livestock browsing, in an area that might otherwise be a woodland or forest. Chaparral is commonly found on slopes where soils are thin with little accumulation of organic materials.

**Woodlands** are a low-density forest that forms from trees in open habitats with plenty of sunlight and limited shade. Woodlands often support an understory of shrubs and herbaceous plants including those found in an annual grassland.

**Riverine** environments can occur in association with many terrestrial habitats. Riparian areas are found adjacent to many rivers and streams. Riverine environments are also found contiguous to lacustrine (lakes) and wetlands. This environment requires intermittent or continually running water generally originating at some elevated source, such as a spring or lake, and flows downward.

**Wetlands** occur on virtually all exposures and slopes, provided a basin or depression is saturated or at least periodically flooded. They are most common on level to gently rolling topography. They are found in various depressions or at the edge of rivers or lakes.

### Scenic Highways

The Cotati Valley offers a variety of scenic views, many of which are visible from roadways. The California Department of Transportation maintains and implements a Scenic Highway Program for California.

The State of California has officially designated two Scenic Highways in Sonoma County that have a total length of approximately 40 miles. The criteria for official designation and eligibility includes the scenic quality of the landscape, how much of the natural landscape can be seen by travelers, and the extent to which development intrudes upon the traveler's enjoyment of the view. Below is a brief summary of each designated scenic highway, neither of which is located in the City of Cotati.



**Officially Designated Scenic Highway**

1. SR 12 from Danielli Avenue (east of Santa Rosa) to London Way (near Aqua Caliente) (post mile 22.450 to 34.02). This segment is 11.6 miles long and was designated on December 17, 1974. This highway segment includes travel through the Valley of the Moon, where there are mountains to the north, east, and southwest, and extensive vineyards and oak trees. .
2. SR 116 from SR 1 to the south city limit of Sebastopol (post mile 0.0 to 27.817). This segment is 27.8 miles long and was designated on September 20, 1988. This highway segment includes travel along the Russian River, and passes a historic resort area, redwood forests, and eucalyptus groves.

**County Scenic Corridor**

Sonoma County has also designated various highways and roadways throughout the unincorporated County as Scenic Corridors. Below is a list of designated scenic corridors by Sonoma County that are located in the vicinity of Cotati.

**County Designated Scenic Corridor**

- State Route 101
- State Route 116 (Gravenstein Highway)
- Petaluma Hill Road
- Crane Canyon Road
- Adobe Road

**REFERENCES**

The primary sources of data referenced for this section is derived from the following:

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<http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm>

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### 9.5 AIR QUALITY

This section discusses the overall regulatory framework for air quality management in California and the region, including national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), and describes existing air quality conditions in the City of Cotati. This section also includes a discussion of climate change and greenhouse gasses. Information presented in this section is based in part on information gathered from the Bay Area Air Quality Management District (BAAQMD) and the California Air Resources Board (CARB).

#### REGULATORY SETTING

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##### *FEDERAL REGULATIONS*

##### **Clean Air Act**

The Federal Clean Air Act (FCAA) was first signed into law in 1970. In 1977, and again in 1990, the law was substantially amended. The FCAA is the foundation for a national air pollution control effort, and it is composed of the following basic elements: NAAQS for criteria air pollutants, hazardous air pollutant standards, state attainment plans, motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions.

The EPA is responsible for administering the FCAA. The FCAA requires the EPA to set NAAQS for several problem air pollutants based on human health and welfare criteria. Two types of NAAQS were established: primary standards, which protect public health, and secondary standards, which protect the public welfare from non-health-related adverse effects such as visibility reduction.

##### **Energy Policy and Conservation Act**

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the U.S. Department of Transportation (USDOT), is responsible for establishing additional vehicle standards and for revising existing standards.

Since 1990, the fuel economy standard for new passenger cars has been 27.5 mpg. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 mpg. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards. Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by the EPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

##### **Energy Policy Act of 1992 (EPAct)**

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty

AFVs capable of running on alternative fuels each year. In addition, financial incentives are included in EPCA. Federal tax deductions will be allowed for businesses and individuals to cover the incremental cost of AFVs. States are also required by the act to consider a variety of incentive programs to help promote AFVs.

### **Energy Policy Act of 2005**

The Energy Policy Act of 2005 was signed into law on August 8, 2005. Generally, the act provides for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for a clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

### **Federal Climate Change Policy**

According to the EPA, “the United States government has established a comprehensive policy to address climate change” that includes slowing the growth of emissions; strengthening science, technology, and institutions; and enhancing international cooperation. To implement this policy, “the Federal government is using voluntary and incentive-based programs to reduce emissions and has established programs to promote climate technology and science.” The federal government’s goal is to reduce the greenhouse gas (GHG) intensity (a measurement of GHG emissions per unit of economic activity) of the American economy by 18 percent over the 10-year period from 2002 to 2012. In addition, the EPA administers multiple programs that encourage voluntary GHG reductions, including “ENERGY STAR”, “Climate Leaders”, and Methane Voluntary Programs. However, as of this writing, there are no adopted federal plans, policies, regulations, or laws directly regulating GHG emissions.

#### *STATE REGULATIONS*

### **California Clean Air Act**

The California Clean Air Act (CCAA) was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state’s air quality goals, planning and regulatory strategies, and performance. CARB is the agency responsible for administering the CCAA. CARB established ambient air quality standards pursuant to the California Health and Safety Code [§39606(b)], which are similar to the federal standards.

### **Air Quality Standards**

NAAQS are determined by the EPA. The standards include both primary and secondary ambient air quality standards. Primary standards are established with a safety margin. Secondary standards are more stringent than primary standards and are intended to protect public health and welfare. States have the ability to set standards that are more stringent than the federal standards. As such, California established more stringent ambient air quality standards.

Federal and state ambient air quality standards have been established for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, suspended particulates (PM<sub>10</sub>) and lead. In addition, California has created standards for pollutants that are not covered by federal standards. The state and federal primary standards for major pollutants are shown in Table 9.5-1.

Like the EPA, CARB also designates areas within California as either attainment or nonattainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as nonattainment for a pollutant in air quality data shows that a State standard for the

pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard, and are not used as a basis for designating areas as nonattainment.

### **CARB Mobile-Source Regulation**

The State of California is responsible for controlling emissions from the operation of motor vehicles in the state. Rather than mandating the use of specific technology or the reliance on a specific fuel, the CARB's motor vehicle standards specify the allowable grams of pollution per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved. Towards this end, the CARB has adopted regulations which required auto manufacturers to phase in less polluting vehicles.

### **Tanner Air Toxics Act**

California regulates Toxic Air Contaminants (TACs) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and has adopted EPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

The AB 2588 requires that existing facilities that emit toxic substances above a specified level prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures. CARB has adopted diesel exhaust control measures and more stringent emission standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). In February 2000, CARB adopted a new public-transit bus-fleet rule and emission standards for new urban buses. These rules and standards provide for (1) more stringent emission standards for some new urban bus engines, beginning with 2002 model year engines; (2) zero-emission bus demonstration and purchase requirements applicable to transit agencies; and (3) reporting requirements under which transit agencies must demonstrate compliance with the urban transit bus fleet rule. Upcoming milestones include the low-sulfur diesel-fuel requirement, and tighter emission standards for heavy-duty diesel trucks (2007) and off-road diesel equipment (2011) nationwide.

### **California Strategy to Reduce Petroleum Dependence (AB 2076)**

In response to the requirements of AB 2076 (Chapter 936, Statutes of 2000), the CEC and the CARB developed a strategy to reduce petroleum dependence in California. The strategy, *Reducing California's Petroleum Dependence*, was adopted by the CEC and CARB in 2003. The strategy recommends that California reduce on-road gasoline and diesel fuel demand to 15 percent below 2003 demand levels by 2020 and maintain that level for the foreseeable future; the Governor and Legislature work to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks, and sport utility vehicles (SUVs); and increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

### **Assembly Bill 1493**

In response to AB 1493, CARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961), and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016. For passenger cars and light-duty trucks 3,750 pounds or less loaded vehicle weight (LVW), the 2016 GHG emission limits are approximately 37 percent lower than during the first year of the regulations in 2009. For medium-duty passenger vehicles and light-duty trucks 3,751 LVW to 8,500 pounds gross vehicle weight (GVW), GHG emissions are reduced approximately 24 percent between 2009 and 2016.

CARB requested a waiver of federal preemption of California's Greenhouse Gas Emissions Standards. The intent of the waiver is to allow California to enact emissions standards to reduce carbon dioxide and other greenhouse gas emissions from automobiles in accordance with the regulation amendments to the CCRs that fulfill the requirements of AB 1493. The EPA granted a waiver to California to implement its greenhouse gas emissions standards for cars.

### **California Executive Orders S-3-05 and S-20-06, and Assembly Bill 32**

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050.

In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

### **Assembly Bill 1007**

Assembly Bill 1007, (Pavley, Chapter 371, Statutes of 2005) directed the CEC to prepare a plan to increase the use of alternative fuels in California. As a result, the CEC prepared the State Alternative Fuels Plan in consultation with the state, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce greenhouse gas emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

### **Bioenergy Action Plan – Executive Order #S-06-06**

Executive Order #S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The executive order establishes the following target to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels within California by 2010, 40

percent by 2020, and 75 percent by 2050. The executive order also calls for the state to meet a target for use of biomass electricity.

### **Governor's Low Carbon Fuel Standard (Executive Order #S-01-07)**

Executive Order #S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 through establishment of a Low Carbon Fuel Standard. The Low Carbon Fuel Standard is incorporated into the State Alternative Fuels Plan and is one of the proposed discrete early action GHG reduction measures identified by CARB pursuant to AB 32.

### **Climate Action Program at Caltrans**

The California Department of Transportation, Business, Transportation, and Housing Agency, prepared a Climate Action Program in response to new regulatory directives. The goal of the Climate Action Program is to promote clean and energy efficient transportation, and provide guidance for mainstreaming energy and climate change issues into business operations. The overall approach to lower fuel consumption and CO<sub>2</sub> from transportation is twofold: (1) reduce congestion and improve efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems; and (2) institutionalize energy efficiency and GHG emission reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

The reasoning underlying the Climate Action Program is the conclusion that "the most effective approach to addressing GHG reduction, in the short-to-medium term, is strong technology policy and market mechanisms to encourage innovations. Rapid development and availability of alternative fuels and vehicles, increased efficiency in new cars and trucks (light and heavy duty), and super clean fuels are the most direct approach to reducing GHG emissions from motor vehicles (emission performance standards and fuel or carbon performance standards)."

### **Senate Bill 97 (SB 97)**

Senate Bill 97 (Chapter 185, 2007) required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. OPR prepared its recommended amendments to the State CEQA Guidelines to provide guidance to public agencies regarding the analysis and mitigation of greenhouse gas emissions and the effects of greenhouse gas emissions in draft CEQA documents. The Amendments became effective on March 18, 2010.

### **Senate Bill 375**

SB 375 requires the CARB to develop regional greenhouse gas emission reduction targets to be achieved from the automobile and light truck sectors for 2020 and 2035. The 18 MPOs in California will prepare a "sustainable communities strategy" to reduce the amount of greenhouse gas emission in their respective regions and demonstrate the ability for the region to attain CARB's reduction targets. CARB would later determine if each region is on track to meet their reduction targets. In addition, cities would get extra time -- eight years instead of five -- to update housing plans required by the state.

*LOCAL AND REGIONAL REGULATIONS***Bay Area Air Quality Management District**

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for assuring that the National and California Ambient Air Quality Standards (NAAQS and CAAQS, respectively) are attained and maintained in the San Francisco Bay Area. The BAAQMD's jurisdiction includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties. The BAAQMD's responsibilities in improving air quality in the region include: preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; implementing public outreach campaigns; and assisting local governments in addressing climate change.

BAAQMD takes on various roles in the CEQA process, depending on the nature of the proposed project. For projects in the City of Cotati they generally serve as a Responsible or Commenting Agency as described below:

- **Responsible Agency** – BAAQMD acts as a Responsible Agency when it has limited discretionary authority over a portion of a project, but does not have the primary discretionary authority of a lead agency. As a Responsible Agency, BAAQMD may coordinate the environmental review process with the lead agency regarding BAAQMD's permitting process, provide comments to the lead agency regarding potential impacts, and recommend mitigation measures.
- **Commenting Agency** – BAAQMD may act as a Commenting Agency when it is not a Lead or Responsible Agency (i.e., it does not have discretionary authority over a project), but when it may have concerns about the air quality impacts of a proposed project or plan. As a Commenting Agency, BAAQMD may review environmental documents prepared for development proposals and plans in the region, such as local general plans, and provide comments to the lead agency regarding the adequacy of the air quality impact analysis, determination of significance, and mitigation measures proposed.

**BAAQMD CEQA Guidelines**

The Bay Area Air Quality Management District (BAAQMD) prepared California Environmental Quality Act (CEQA) Guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the San Francisco Bay Area Air Basin (SFBAAB). The Guidelines provides BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. The BAAQMD updated these Guidelines in May 2011. The revised Guidelines supersede the BAAQMD's previous CEQA guidance titled *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (BAAQMD, 1999).

The Guidelines contain instructions on how to evaluate, measure, and mitigate air quality impacts generated for project-level and plan-level activities. The Guidelines focus on criteria air pollutant, greenhouse gas (GHG), toxic air contaminant, and odor emissions generated from plans or projects. The Guidelines are intended to help lead agencies navigate through the CEQA process. The Guidelines offer step-by-step procedures for a thorough environmental impact analysis of adverse air emissions in the Bay Area.

### **Bay Area 2010 Clean Air Plan**

The Bay Area 2010 Clean Air Plan (CAP) provides a comprehensive plan to improve Bay Area air quality and protect public health. The 2010 CAP was been prepared in close collaboration with the Air District's regional agency partners, and was informed by extensive outreach to the public and interested stakeholders.

The CAP defines a control strategy that the Air District and its partners will implement to: (1) reduce emissions and decrease ambient concentrations of harmful pollutants; (2) safeguard public health by reducing exposure to air pollutants that pose the greatest health risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and (3) reduce greenhouse gas (GHG) emissions to protect the climate.

The legal impetus for the CAP is to update the most recent ozone plan, the Bay Area 2005 Ozone Strategy, to comply with state air quality planning requirements as codified in the California Health & Safety Code. Although steady progress in reducing ozone levels in the Bay Area was made, the region is designated as non-attainment for both the one-hour and eight-hour state ozone standards. In addition, emissions of ozone precursors in the Bay Area contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the CAP to include all feasible measures to reduce emissions of ozone precursors and to reduce transport of ozone precursors to neighboring air basins.

The Bay Area was recently designated as non-attainment for the national 24-hour fine particulate matter (PM<sub>2.5</sub>) standard, and will be required to prepare a PM<sub>2.5</sub> State Implementation Plan (SIP) pursuant to federal air quality guidelines by December 2012. The 2010 CAP is not a SIP document and does not respond to federal requirements for PM<sub>2.5</sub> or ozone planning. However, in anticipation of future PM<sub>2.5</sub> planning requirements, the CAP control strategy also aims to reduce PM emissions and concentrations. In addition, U.S. EPA is currently reevaluating national ozone standards, and is likely to tighten those standards in the near future. The control measures in the CAP will also help in the Bay Area's continuing effort to attain national ozone standards.

### **City of Cotati General Plan**

The existing City of Cotati General Plan identifies the following policies related to air quality:

#### **3.1.1 Reduce automobile trips and local traffic congestion.**

- a) The City shall continue to promote transit use through the construction of new bus shelters and relocation of existing bus shelters that serve both county and regional transit systems.
- b) As State funding becomes available, and through a City contract with Sonoma County Transit, the City shall continue to provide more frequent bus service when warranted by ridership. The City will review and renew the contract when necessary.
- c) The City shall work with Sonoma County Transit to create an effective Rider Awareness Program that will educate the public on existing transit systems.
- d) Traffic signals, or other traffic calming devices, shall be installed at congested intersections with appropriate signal warrants in order to minimize traffic queues.
- e) The City shall cooperate with State and local agencies to support future rail service on the Northwestern Pacific Rail right-of-way including actively pursuing a transit center on Industrial Avenue.



- f) The City shall continue to implement the City of Cotati Bicycle Master Plan.
- g) Planning staff shall continue to work to improve existing sidewalks and construct new sidewalks. The City shall work with Caltrans to provide pedestrian and bicycle access under Gravenstein Highway and West Sierra Avenue interchanges.
- h) The City shall implement the five transportation control measures (TCMs) that are included in the Bay Area '97 Clean Air Plan that apply to cities:
  - TCM 1: Support Voluntary Trip Reduction Programs.
  - TCM 9: Improve Bicycle Access and Facilities
  - TCM 12: Improve Arterial Traffic Management
  - TCM 19: Pedestrian Travel
  - TCM 20: Promote Traffic Calming Measures
- i) California Environmental Quality Act guidelines and Bay Area Air Quality Management District standards shall evaluate and mitigate local and cumulative air quality impacts of new development.
- j) Planning staff shall ensure that new fireplaces, wood stoves and/or heaters meet current EPA standards.
- k) Planning staff shall ensure that dust emissions from all construction sites shall be controlled.
- l) Planning staff shall continue to review all new industrial and commercial development projects for potential air quality impacts to residences and other sensitive receptors. Adequate buffers between new industrial uses and sensitive receptors shall be required to avoid potential air quality and nuisance impacts.

**6.2.1 All new development should conserve land resources and incorporate energy conserving design features.**

- a) The Design Review Committee shall review all proposed developments to assist in promoting energy and land conserving designs and site layouts.

**9.1.1 Require minimum energy conserving measures in site layout, construction, space conditioning, and lighting in new development.**

- a) The Zoning Ordinance shall be reviewed to consider minimum energy conserving standards for setbacks, building heights and vegetation. The Design Review Committee shall monitor adherence to these regulation.
- b) The Building code shall be amended to include a requirement that all new swimming pools be solar heated. Adherence to this regulation shall be reviewed by the building permit/plan check process.
- c) Through the permit process the Building Inspector shall strictly enforce the state energy consumption standards.

**9.1.2 Promote use of alternative energy sources in new development.**

- a) The City Council shall consider the adoption of a Resolution whereby all new City facilities shall be built to exceed state energy consumption standards, including the use of passive solar design and

solar heated hot water. Adherence to this resolution shall be reviewed in the building permit/plan check process.

b) Amend the Zoning Ordinance to require appropriate lower impact “green” site and building practices that are designed to reduce environmental impacts. This shall be monitored through the design review approval process.

### **9.2.1 Ensure protection of solar access.**

a) The Zoning Ordinance shall be amended to provide for solar access and view protection. The Design Review Committee shall review plans to ensure compliance.

### **9.2.2 Street layout and design shall minimize use of pavement in order to reduce cooling energy needs.**

a) The Subdivision Regulations shall be amended to include standards for City streets that minimize width, subject to safety service requirements, and require a primarily east-west orientation of streets in new developments, where feasible. The Design Review Committee shall review plans for compliance.

b) The Zoning Ordinance shall be amended to include provisions for alternative parking lot surfaces, e.g. turf block, where appropriate. The Design Review Committee shall review plans for compliance.

### **9.3.1 Encourage widespread use of trees as windbreaks and maximize the effects of cooling westerly winds.**

a) The Design Review Committee in their Plan Review process shall encourage the use of trees for windbreaks and wind channeling in new development.

### **9.3.2 Minimize use of pavement and utilize deciduous trees to help reduce summer temperatures.**

a) Site designs shall minimize paved surfaces and roadway lengths while providing adequate access for normal circulation and emergency vehicles.

b) A deciduous tree program that does not interfere with solar access, and is located on the park strip, shall be required in all new development.

### **9.3.3 Encourage the development of well-located green open spaces.**

a) Amend the Subdivision Regulations to include specifications for type and amount of open space within new developments. The Planning Department in their plan check process shall ensure this is followed.

### **9.5.4 Promote the continuation of the City-wide recycling program.**

a) The City shall work with the refuse collection contractor to continue and expand an effective recycling program of glass, paper, aluminum, plastic, and other recyclable materials.

b) The City's contractor shall be responsible for periodic press releases which remind residents about the recycling program.

- c) The City shall work with the refuse collection contractor to provide a higher level of recycling service for multiple family projects.

**9.5.5 Reduce solid waste by 25% by 1995 and 50% by the year 2000.**

- a) The City shall work with the solid waste refuse collector to implement a program for separating solid waste materials into recyclable and non-recyclable.
- b) The City shall work with the solid waste refuse collector to continue a compost program for organic materials.
- c) The City shall undertake a solid waste reduction education program.

**13.4.4 Continue to implement the City of Cotati's Water Conservation Ordinance for commercial and industrial development.**

- a) Through the planning process the City shall implement the Water Conservation Ordinance.

**14.3.2 Improve and maintain landscaping around commercial areas in order to minimize the "heat island" effect, provide shade, soften the harshness of such commercial areas, and create a more leisurely ambience.**

- a) Redevelopment funds shall be used to finance a public tree-planting project.

**Policy H-1.4 Energy Conservation Improvements: Promote energy conservation improvements for existing and proposed residential units.**

**Cities for Climate Protection Program**

The City of Cotati passed Resolution 02-21 in April 2002 endorsing the Cities for Climate Protection Campaign which includes a five milestone program to reduce greenhouse gas and air pollution emissions. The five milestones are as follows:

1. Conduct a baseline greenhouse gas emissions inventory and forecast to determine the sources and quantity of greenhouse gas emissions in the jurisdiction;
2. Establish a greenhouse gas emissions reduction target;
3. Develop a climate action plan consisting of both existing and future actions which, when implemented, will meet the local greenhouse gas reduction target;
4. Implement the action plan; and
5. Monitor and report progress.

The City fulfilled these five milestones as follows:

1. In September 2003 the City reported their municipal baseline emissions in *Standing Together for the Future: Greenhouse Gas Emission Inventories for Eight Cities in Sonoma County, California*.
2. In October 2004 the City passed Resolution 04-88, which adopted a goal of a 20% Reduction in Greenhouse Gas Emissions from City of Cotati Municipal Operations from 2000 to 2010. In August 2005 the City adopted Resolution 05-66 which established a community-wide reduction goal of 30 percent below 1990 levels by 2015.
3. In May 2008 the City finalized the City of Cotati Greenhouse Gas Emissions Reduction Action Plan Analysis.

4. The City continues to take actions in accordance with their plans and programs that support the reduction of greenhouse gas emissions.

### **City of Cotati Greenhouse Gas Emissions Reduction Action Plan Analysis**

The City of Cotati developed a Greenhouse Gas Emissions Reduction Action Plan Analysis as a way to reduce GHG emissions, reduce energy costs, address equipment problems, and reduce the uncertainty of the city's future annual energy costs.

### **CALGreen**

CALGreen is a set of mandatory green building standards for new construction that went into effect throughout California on January 1, 2011. These building standards apply to all new public and privately-constructed commercial and residential buildings. CALGreen is referred to officially as the California Green Building Standards Code and includes a matrix of mandatory requirements tailored to residential and non-residential building classifications, as well as two sets of voluntary measures (CALGreen Tier 1 and Tier 2) that provide a host of more stringent sustainable building practices and features. Among the key mandatory provisions are requirements that new buildings:

- reduce indoor potable water use by at least 20% below current standards;
- recycle or salvage at least 50% of construction waste;
- utilize low VOC-emitting finish materials and flooring systems;
- install separate water meters tracking non-residential buildings' indoor and outdoor water use;
- utilize moisture-sensing irrigation systems for larger landscape areas;
- receive mandatory inspections by local officials of building energy systems, such as HVAC and mechanical equipment, to verify performance in accordance with specifications in non-residential buildings exceeding 10,000 square feet; and
- earmark parking for fuel-efficient and carpool vehicles.

Cotati's City Council rescinded Cotati's Sustainable Building Program and replaced it with CALGreen Mandatory Tier 1, which includes a detailed list of green building features that address energy efficiency, water efficiency, waste reduction, material conservation and indoor air quality. The requirements apply to newly constructed residential and non-residential facilities. Additions, alterations, repairs and existing structures may be subject to the requirements of CALGreen. Existing site and landscaping improvements that are not otherwise disturbed are not subject to the requirements of CALGreen.

### **Water Conservation Program**

The City of Coati developed a Water Conservation Program in 2003 that includes free home water use evaluations (indoor and outdoor), free efficiency showerheads and faucet aerators, residential clothes washer rebate program, residential and nonresidential toilet replacement program, and education on outdoor water conservation and watershed protection. Additionally, the City implemented the Cash for Grass Turf rebate program where the City offers residential and commercial customers rebates in return for reducing the amount of lawn area in their landscapes and replacing with low water use landscapes. These water conservation programs reduce potable water usage in the City of Cotati by an estimated 32 million gallons per year (estimate year 2015). Ancillary benefits to the water conservation program includes electricity savings at the City's water and wastewater facilities.

## SAN FRANCISCO BAY AREA AIR BASIN

The City of Cotati is located within the San Francisco Bay Area Air Basin (Air Basin). The Air Basin encompasses approximately 5,600 square miles and includes all of Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa Counties, and portions of southwestern Solano and southern Sonoma counties. The Air Basin is characterized by a large, shallow basin surrounded by coastal mountain ranges tapering into sheltered inland valleys. The combined climatic and topographic factors result in increased potential for the accumulation of air pollutants in the inland valleys and reduced potential for buildup of air pollutants along the coast. The Air Basin is bounded by the Pacific Ocean to the west and includes complex terrain consisting of coastal mountain ranges, inland valleys and bays.

### Cotati and Petaluma Valleys

The valley that stretches from Santa Rosa to the San Pablo Bay is known as the Cotati Valley at the north end and the Petaluma Valley at the south end. Some maps show the whole area as the Petaluma Valley. The largest city in the Cotati Valley is Santa Rosa and in the Petaluma Valley is Petaluma. To the east, the valley is bordered by the Sonoma Mountains, with the San Pablo Bay at the southeast end of the valley. To the immediate west are a series of low hills and further west are the Estero Lowlands, which opens to the Pacific Ocean. The region from the Estero Lowlands to the San Pablo Bay is known as the Petaluma Gap. This low-terrain area is a major transport corridor allowing marine air to pass into the Bay Area. (BAAQMD, 2011).

**Air Patterns:** Air patterns in the Petaluma and Cotati Valleys are strongly influenced by the Petaluma Gap. The predominant wind pattern in this region is for marine air to move eastward through the Petaluma Gap, then to split into northward and southward paths as it moves into the Cotati and Petaluma valleys. The southward path crosses the San Pablo Bay and moves eastward through the Carquinez Straits. Consequently, although Santa Rosa and Petaluma are only 16 miles apart, their predominate wind patterns are quite different. Santa Rosa's prevailing winds are out of the south and southeast, while Petaluma's prevailing winds are out of the northwest. When the ocean breeze is weak, a bay breeze pattern can also occur, resulting in east winds near the bay. Strong winds from the east occur as part of a larger scale pattern and often carry pollutants picked up along the trajectory through the Central Valley and the Carquinez Straits. During these periods, upvalley flows can carry the polluted air as far north as Santa Rosa. (BAAQMD, 2011).

Winds are usually stronger in the Petaluma Valley than the Cotati Valley because it is part of the Petaluma Gap. The low terrain in the Petaluma Gap does not offer much resistance to the marine air as it flows to the San Pablo Bay. Consequently, even though Petaluma is 28 miles from the ocean, its climate is similar to areas closer to the coast. Average annual wind speeds at the Petaluma Airport are seven mph. This is almost identical to the average annual wind speed measured in Valley Ford, 5 miles from the coast. Winds are light in the morning in the Petaluma Valley, and become windy in the afternoon as the sea breeze arrives. The Cotati Valley, being slightly north of the Petaluma Gap experiences lower wind speeds. In Santa Rosa, the annual average wind speed is 5.4 mph. (BAAQMD, 2011).

**Inversions:** During summer afternoons, the fetch across the Petaluma Gap is sufficiently long so that the marine air is warmed and the fog evaporated before it reaches the Petaluma and Cotati valleys. As the surface heating weakens in the late afternoon, the marine layer becomes less heated with distance, and eventually fog is able to form in these valleys. The fog may then persist until late in the morning the next day. (BAAQMD, 2011).

**Temperatures:** Air temperatures are very similar in the two valleys. Summer maximum temperatures for this region are in the low 80's, while winter maximum temperatures are in the high 50s to low 60s. Summer minimum temperatures are 50-51 degrees, and wintertime minimum temperatures are 36-40 degrees. (BAAQMD, 2011).

**Precipitation:** Rainfall averages range from 24 to 30 inches. Rainfall in the Cotati Valley is higher because the air is lifted and cooled in advance of the Sonoma Mountains, thereby causing condensation of the moisture. Consistent with the Bay Area Mediterranean climate, over 80 percent of the annual rainfall occurs from November through March. (BAAQMD, 2011).

**Air Pollution:** The Cotati Valley lacks a gap to the sea, accommodates a larger population, and has a natural barrier at its northern and eastern ends; therefore it has a higher pollution potential than does the Petaluma Valley. During stagnant conditions, polluted air carried up the Cotati Valley by diurnal upvalley flow, and added to by local emissions, could be trapped against the mountains to the north and east. (BAAQMD, 2011).

### CRITERIA POLLUTANTS

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The EPA uses six "criteria pollutants" as indicators of air quality, and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called National Ambient Air Quality Standards (NAAQS). Each criteria pollutant is described below.

**Ozone (O<sub>3</sub>)** is a photochemical oxidant and the major component of smog. While O<sub>3</sub> in the upper atmosphere is beneficial to life by shielding the earth from harmful ultraviolet radiation from the sun, high concentrations of O<sub>3</sub> at ground level are a major health and environmental concern. O<sub>3</sub> is not emitted directly into the air but is formed through complex chemical reactions between precursor emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO<sub>x</sub>) in the presence of sunlight. These reactions are stimulated by sunlight and temperature so that peak O<sub>3</sub> levels occur typically during the warmer times of the year. Both VOCs and NO<sub>x</sub> are emitted by transportation and industrial sources. VOCs are emitted from sources as diverse as autos, chemical manufacturing, dry cleaners, paint shops and other sources using solvents.

The reactivity of O<sub>3</sub> causes health problems because it damages lung tissue, reduces lung function and sensitizes the lungs to other irritants. Scientific evidence indicates that ambient levels of O<sub>3</sub> not only affect people with impaired respiratory systems, such as asthmatics, but healthy adults and children as well. Exposure to O<sub>3</sub> for several hours at relatively low concentrations has been found to significantly reduce lung function and induce respiratory inflammation in normal, healthy people during exercise. This decrease in lung function generally is accompanied by symptoms including chest pain, coughing, sneezing and pulmonary congestion.

**Carbon monoxide (CO)** is a colorless, odorless and poisonous gas produced by incomplete burning of carbon in fuels. When CO enters the bloodstream, it reduces the delivery of oxygen to the body's organs and tissues. Health threats are most serious for those who suffer from cardiovascular disease, particularly those with angina or peripheral vascular disease. Exposure to elevated CO levels can cause impairment of visual perception, manual dexterity, learning ability and performance of complex tasks.

**Nitrogen dioxide (NO<sub>2</sub>)** is a brownish, highly reactive gas that is present in all urban atmospheres. NO<sub>2</sub> can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Nitrogen oxides are an important precursor both to ozone (O<sub>3</sub>) and acid rain, and may affect both

terrestrial and aquatic ecosystems. The major mechanism for the formation of NO<sub>2</sub> in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO<sub>x</sub>). NO<sub>x</sub> plays a major role, together with VOCs, in the atmospheric reactions that produce O<sub>3</sub>. NO<sub>x</sub> forms when fuel is burned at high temperatures. The two major emission sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

**Sulfur dioxide (SO<sub>2</sub>)** affects breathing and may aggravate existing respiratory and cardiovascular disease in high doses. Sensitive populations include asthmatics, individuals with bronchitis or emphysema, children and the elderly. SO<sub>2</sub> is also a primary contributor to acid deposition, or acid rain, which causes acidification of lakes and streams and can damage trees, crops, historic buildings and statues. In addition, sulfur compounds in the air contribute to visibility impairment in large parts of the country. This is especially noticeable in national parks. Ambient SO<sub>2</sub> results largely from stationary sources such as coal and oil combustion, steel mills, refineries, pulp and paper mills and from nonferrous smelters.

**Particulate matter (PM)** includes dust, dirt, soot, smoke and liquid droplets directly emitted into the air by sources such as factories, power plants, cars, construction activity, fires and natural windblown dust. Particles formed in the atmosphere by condensation or the transformation of emitted gases such as SO<sub>2</sub> and VOCs are also considered particulate matter.

Based on studies of human populations exposed to high concentrations of particles (sometimes in the presence of SO<sub>2</sub>) and laboratory studies of animals and humans, there are major effects of concern for human health. These include effects on breathing and respiratory symptoms, aggravation of existing respiratory and cardiovascular disease, alterations in the body's defense systems against foreign materials, damage to lung tissue, carcinogenesis and premature death.

**Respirable particulate matter (PM<sub>10</sub>)** consists of small particles, less than 10 microns in diameter, of dust, smoke, or droplets of liquid which penetrate the human respiratory system and cause irritation by themselves, or in combination with other gases. Particulate matter in Colusa County is caused primarily by dust from grading and excavation activities, from agricultural uses (as created by soil preparation activities, fertilizer and pesticide spraying, weed burning and animal husbandry), and from motor vehicles, particularly diesel-powered vehicles. PM<sub>10</sub> causes a greater health risk than larger particles, since these fine particles can more easily penetrate the defenses of the human respiratory system.

**Fine particulate matter (PM<sub>2.5</sub>)** consists of small particles, which are less than 2.5 microns in size. Similar to PM<sub>10</sub>, these particles are primarily the result of combustion in motor vehicles, particularly diesel engines, as well as from industrial sources and residential/agricultural activities such as burning. It is also formed through the reaction of other pollutants. As with PM<sub>10</sub>, these particulates can increase the chance of respiratory disease, and cause lung damage and cancer. In 1997, the EPA created new Federal air quality standards for PM<sub>2.5</sub>.

The major subgroups of the population that appear to be most sensitive to the effects of particulate matter include individuals with chronic obstructive pulmonary or cardiovascular disease or influenza, asthmatics, the elderly and children. Particulate matter also soils and damages materials, and is a major cause of visibility impairment.

**Lead (Pb)** exposure can occur through multiple pathways, including inhalation of air and ingestion of Pb in food, water, soil or dust. Excessive Pb exposure can cause seizures, mental retardation and/or behavioral disorders. Low doses of Pb can lead to central nervous system damage. Recent studies have also shown that Pb may be a factor in high blood pressure and subsequent heart disease.

### ODORS

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Typically odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another.

It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

### NATURALLY OCCURRING ASBESTOS

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The EPA Region 9 office is working in areas of California to address concerns about potential effects of naturally occurring asbestos. Naturally occurring asbestos can take the form of long, thin, separable fibers. Natural weathering or human disturbance can break naturally occurring asbestos down to microscopic fibers, easily suspended in air. There is no health threat if asbestos fibers in soil remain undisturbed and do not become airborne. When inhaled, these thin fibers irritate tissues and resist the body's natural defenses. Asbestos, a known carcinogen, causes cancers of the lung and the lining of internal organs, as well as asbestosis and other diseases that inhibit lung function.

Asbestiform minerals occur naturally in rock and soil as the result of natural geologic processes, often in veins near earthquake faults in the coastal ranges and the foothills of the Sierra Nevada mountains. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or tremolite-actinolite asbestos in bodies of ultramafic rock or along their boundaries. Asbestos is much less likely to be associated with non-ultramafic rock types.

Ultramafic rocks are igneous rocks that form in high temperature environments well below the surface of the earth. By the time they are exposed at the surface by uplift and erosion, ultramafic rocks may be partially to completely altered to serpentinite, a type of metamorphic rock. Asbestos is the generic term



for the naturally occurring fibrous (asbestiform) varieties of six silicate minerals, including chrysotile which is found in serpentinite and is the most common in California.

Serpentinite is an ultramafic rock that has a greasy or waxy appearance and may be dark to light green, brown, yellow or white. Small amounts of chrysotile asbestos are common in serpentinite. Other forms of asbestos such as amphibole asbestos also occur with serpentinite, but such occurrences are less common than chrysotile asbestos.

Because of the correlation of asbestos and ultramafic rocks, the location of ultramafic rocks provides insight to the potential for naturally occurring asbestos in each county. The California Department of Conservation, Division of Mines and Geology mapped the location of ultramafic rocks within California, which is limited to the foothill regions of the Sierra Nevada, Coastal Range, and Cascade Range. Ultramafic rocks are known to occur in the foothill regions of Sonoma County, although none are mapped within the City of Cotati.

## SENSITIVE RECEPTORS

A sensitive receptor is a location where human populations, especially children, seniors, and sick persons, are present and where there is a reasonable expectation of continuous human exposure to pollutants. Examples of sensitive receptors include residences, hospitals and schools.

## AMBIENT AIR QUALITY

Both the EPA and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards represent safe levels of contaminants that avoid specific adverse health effects associated with each pollutant.

The federal and state ambient air quality standards are summarized in Table 9.5-1 for important pollutants. The federal and state ambient standards were developed independently, although both processes attempted to avoid health-related effects. As a result, the federal and state standards differ in some cases. In general, the state standards are more stringent. This is particularly true for ozone and particulate matter between 2.5 and 10 microns in diameter.

**TABLE 9.5-1: FEDERAL AND STATE AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	--	0.09 ppm
	8-Hour	0.075 ppm	0.070 ppm
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	--	0.03 ppm
	1-Hour	0.53 ppm	0.18 ppm
Sulfur Dioxide	Annual	0.03 ppm	--
	24-Hour	0.14 ppm	0.04 ppm
	1-Hour	--	0.25 ppm
PM10	Annual	--	20 ug/m3
	24-Hour	150 ug/m3	50 ug/m3
PM2.5	Annual	35 ug/m3	12 ug/m3
	24-Hour	15 ug/m3	--
Lead	30-Day Avg.	--	1.5 ug/m3
	3-Month Avg.	1.5 ug/m3	--

SOURCE: CALIFORNIA AIR RESOURCES BOARD, 2011. NOTES: PPM = PARTS PER MILLION, UG/M3 = MICROGRAMS PER CUBIC METER

The State of California regularly reviews scientific literature regarding the health effects and exposure to PM and other pollutants. On May 3, 2002, CARB staff recommended lowering the level of the annual standard for PM<sub>10</sub> and establishing a new annual standard for PM<sub>2.5</sub>. The new standards became effective on July 5, 2003, with another revision on November 29, 2005.

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination.

Existing air quality concerns within Sonoma County and the entire BAAQMD are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles which account for 70 percent of the ozone in the region. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

### **Attainment Status**

In accordance with the California Clean Air Act (CCAA), the CARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An “attainment” designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A “nonattainment” designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria.

Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An “unclassified” designation signifies that the data do not support either an attainment or nonattainment status. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The EPA designates areas for ozone (O<sub>3</sub>), carbon monoxide (CO), and nitrogen dioxide (NO<sub>2</sub>) as “does not meet the primary standards,” “cannot be classified,” or “better than national standards.” For sulfur dioxide (SO<sub>2</sub>), areas are designated as “does not meet the primary standards,” “does not meet the secondary standards,” “cannot be classified,” or “better than national standards.” However, the CARB terminology of attainment, nonattainment, and unclassified is more frequently used.

The City of Cotati has a national designation of Nonattainment for ozone and PM<sub>2.5</sub>, and either Unclassified or Attainment for all criteria pollutants. The City has a state designation as non-attainment for ozone, PM<sub>10</sub>, and PM<sub>2.5</sub>, and either attainment or unclassified for all criteria pollutants.

**TABLE 9.5-2: STATE AND NATIONAL ATTAINMENT STATUS**

Criteria Pollutants	State Designations	National Designations
8-Hour Ozone	Nonattainment	Nonattainment
PM10	Nonattainment	Unclassified
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Attainment	Unclassified/Attainment
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	Attainment	No Federal Standard
Lead	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Visibility Reducing Particles	Unclassified	No Federal Standard

SOURCES: CALIFORNIA AIR RESOURCES BOARD (2011). [WWW.ARB.CA.GOV/DESIG/ADM/ADM.HTM](http://WWW.ARB.CA.GOV/DESIG/ADM/ADM.HTM)

### Air Quality Monitoring

The Bay Area Air Quality Management District and CARB maintain two air quality monitoring site in Sonoma County. The first is located on Fifth Street in the City of Santa Rosa. This monitoring station monitors Ozone (1-hr and 8-hr), PM10, and PM2.5. The second is located at the Healdsburg Airport. This monitoring station monitors Ozone (1-hr and 8-hr) only. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. Data obtained from the 5th Street monitoring site over the last 3-year period is shown in **Tables 9.5-3 and 9.5-4**.

**TABLE 9.5-3: AMBIENT AIR QUALITY MONITORING DATA (SANTA ROSA - 5TH STREET)**

Pollutant	Cal.	Fed.	Year	Max Concentration	Days (samples) State/Fed Standard Exceeded
	Primary Standard				
Ozone (O3) (1-hour)	0.09 ppm for 1 hour	NA	2007 2008 2009	0.071 0.076 0.086	0/NA 0/NA 0/NA
Ozone (O3) (8-hour)	0.07 ppm for 8 hour	0.075 ppm for 8 hour	2007 2008 2009	0.060 0.065 0.066	0/0 0/0 0/0
Particulate Matter (PM10)	50 ug/m3 for 24 hours	150 ug/m3 for 24 hours	2007 2008 2009	37.2 49.9 NA	0/0 0/0 */*
Particulate Matter (PM2.5)	NA	35 ug/m3 for 24 hours	2007 2008 2009	32.0 30.8 29.0	NA/0 NA/0 NA/0

SOURCES: CALIFORNIA AIR RESOURCES BOARD (ADAM) AIR POLLUTION SUMMARIES, 2007, 2008, AND 2009.

**NOTES:**

PPM = PARTS PER MILLION.

UG/M3 = MICRONS PER CUBIC METER.

NA= NOT APPLICABLE

\* = THERE WAS INSUFFICIENT (OR NO) DATA AVAILABLE TO DETERMINE THE VALUE

**TABLE 9.5-4: AMBIENT AIR QUALITY MONITORING DATA (SANTA ROSA - SEALDSBURG AIRPORT)**

Pollutant	Cal.	Fed.	Year	Max Concentration	Days (samples) State/Fed Standard Exceeded
	Primary Standard				
Ozone (O3) (1-hour)	0.09 ppm for 1 hour	NA	2007	0.070	0/NA
			2008	0.080	0/NA
			2009	0.070	0/NA
Ozone (O3) (8-hour)	0.07 ppm for 8 hour	0.075 ppm for 8 hour	2007	0.067	0/0
			2008	0.065	0/0
			2009	0.064	0/0

SOURCES: CALIFORNIA AIR RESOURCES BOARD (ADAM) AIR POLLUTION SUMMARIES, 2007, 2008, AND 2009.

**NOTES:**

PPM = PARTS PER MILLION.

UG/M<sup>3</sup> = MICRONS PER CUBIC METER.

NA= NOT APPLICABLE

## CLIMATE CHANGE AND GREENHOUSE GASSES

### Greenhouse Gases and Climate Change Linkages

Various gases in the Earth's atmosphere, classified as atmospheric greenhouse gases (GHGs), play a critical role in determining the Earth's surface temperature. Solar radiation enters Earth's atmosphere from space, and a portion of the radiation is absorbed by the Earth's surface. The Earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation.

Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), ozone (O<sub>3</sub>), water vapor, nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs).

Human-caused emissions of these GHGs, in excess of natural ambient concentrations, are responsible for enhancing the greenhouse effect (Ahrens 2003). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, utility, transportation, residential, and agricultural sectors (California Energy Commission 2006a). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (California Energy Commission 2006a).

As the name implies, global climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California is the 12th to 16th largest emitter of CO<sub>2</sub> in the world and produced 492 million gross metric tons of carbon dioxide equivalents in 2004 (California Energy Commission 2006a).

Carbon dioxide equivalents are a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. This potential, known as the global warming potential of a GHG, is also dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO<sub>2</sub> were being emitted.

Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2004, accounting for 40.7 percent of total GHG emissions in the state (California Energy Commission 2006a). This category was followed by the electric power sector (including both in-state and out of-state sources) (22.2 percent) and the industrial sector (20.5 percent) (California Energy Commission 2006a).

### Effects of Global Climate Change

The effects of increasing global temperature are far reaching and extremely difficult to quantify. The scientific community continues to study the effects of global climate change. In general, increases in the ambient global temperature as a result of increased GHGs is anticipated to result in rising sea levels, which could threaten coastal areas through accelerated coastal erosion, threats to levees and inland water systems and disruption to coastal wetlands and habitat.

If the temperature of the ocean warms, it is anticipated that the winter snow season would be shortened. Snowpack in the Sierra Nevada provides both water supply (runoff) and storage (within the snowpack before melting), which is a major source of supply for the state. According to a California Energy Commission report, the snowpack portion of the supply could potentially decline by 70 to 90 percent by the end of the 21<sup>st</sup> century (CEC 2006c). This phenomenon could lead to significant challenges securing an adequate water supply for a growing state population. Further, the increased ocean temperature could result in increased moisture flux into the state; however, since this would likely increasingly come in the form of rain rather than snow in the high elevations, increased precipitation could lead to increased potential and severity of flood events, placing more pressure on California's levee/flood control system.

Sea level has risen approximately seven inches during the last century and, according to the CEC report, it is predicted to rise an additional 22 to 35 inches by 2100, depending on the future GHG emissions levels (CEC 2006c). If this occurs, resultant effects could include increased coastal flooding, saltwater intrusion and disruption of wetlands (CEC 2006c). As the existing climate throughout California changes over times, mass migration of species, or failure of species to migrate in time to adapt to the perturbations in climate, could also result. Under the emissions scenarios of the Climate Scenarios report (California Climate Change Center 2006), the impacts of global warming in California are anticipated to include, but are not limited to, the following.

**PUBLIC HEALTH.** Higher temperatures are expected to increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation are projected to increase from 25 to 35 percent under the lower warming range, to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become impossible to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become up to 55 percent more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures will increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

**WATER RESOURCES.** A vast network of man-made reservoirs and aqueducts capture and transport water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snow pack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snow pack, increasing the risk of summer water shortages.

The state's water supplies are also at risk from rising sea levels. An influx of saltwater would degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta, a major state fresh water supply. Global warming is also projected to seriously affect agricultural areas, with California farmers projected to lose as much as 25 percent of the water supply they need; decrease the potential for hydropower production within the state (although the effects on hydropower are uncertain); and seriously harm winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as 1 month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

If GHG emissions continue unabated, more precipitation will fall as rain instead of snow, and the snow that does fall will melt earlier, reducing the Sierra Nevada spring snow pack by as much as 70 to 90 percent. Under the lower warming scenario, snow pack losses are expected to be only half as large as those expected if temperatures were to rise to the higher warming range. How much snow pack will be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snow pack would pose challenges to water managers, hamper hydropower generation, and nearly eliminate all skiing and other snow-related recreational activities.

**AGRICULTURE.** Increased GHG emissions are expected to cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. Although higher carbon dioxide levels can stimulate plant production and increase plant water-use efficiency, California's farmers will face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development will change, as will the intensity and frequency of pest and disease outbreaks. Rising temperatures will likely aggravate ozone pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than optimal development for many crops, so rising temperatures are likely to worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts, and milk.

In addition, continued global warming will likely shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion is expected in many species while range contractions are less likely in rapidly evolving species with significant populations already established. Should range contractions occur, it is likely that new or different weed species will fill the emerging gaps. Continued global warming is also likely to alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

**FORESTS AND LANDSCAPES.** Global warming is expected to intensify this threat by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent,

which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. For example, if precipitation increases as temperatures rise, wildfires in southern California are expected to increase by approximately 30 percent toward the end of the century. In contrast, precipitation decreases could increase wildfires in northern California by up to 90 percent.

Moreover, continued global warming will alter natural ecosystems and biological diversity within the state. For example, alpine and sub-alpine ecosystems are expected to decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests is also expected to decrease as a result of global warming.

***RISING SEA LEVELS.*** Rising sea levels, more intense coastal storms, and warmer water temperatures will increasingly threaten the state's coastal regions. Under the higher warming scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate coastal areas with saltwater, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats.

## ENVIRONMENTAL SETTING

The City of Cotati oversaw completion of the Greenhouse Gas Emissions Reduction Action Plan Analysis, Final Report in May 2008. As described above, the City is implementing a five milestone reduction plan, which consists of creating a GHG inventory, setting a reduction target, creating a mitigation plan to meet the reduction target, implementing the reduction plan, and monitoring the results.

The analysis, and resulting GHG emissions reduction plans prepared by the City in conjunction with Sonoma County Energy Watch, incorporates many opportunities in the various contributing sectors of City operations (Building Efficiency, Fleet, Commute, Water/Sewer, Streetlights, and Photovoltaic), as identified by the City Staff utilizing the best available information at the time of research. The results provide an emissions impact estimate for five plans with the corresponding financial analysis. The results for each plan include GHG emissions reductions expressed in tons of CO<sub>2</sub>e, which are equivalent CO<sub>2</sub> emissions.

The City of Cotati GHG inventory as a percentage of the 2000 total is shown below:

- Vehicle Fleet: 44 percent
- Employee Commute: 24 percent
- Buildings: 13 percent
- Streetlights: 11 percent
- Water and Wastewater 8 percent

## REFERENCES

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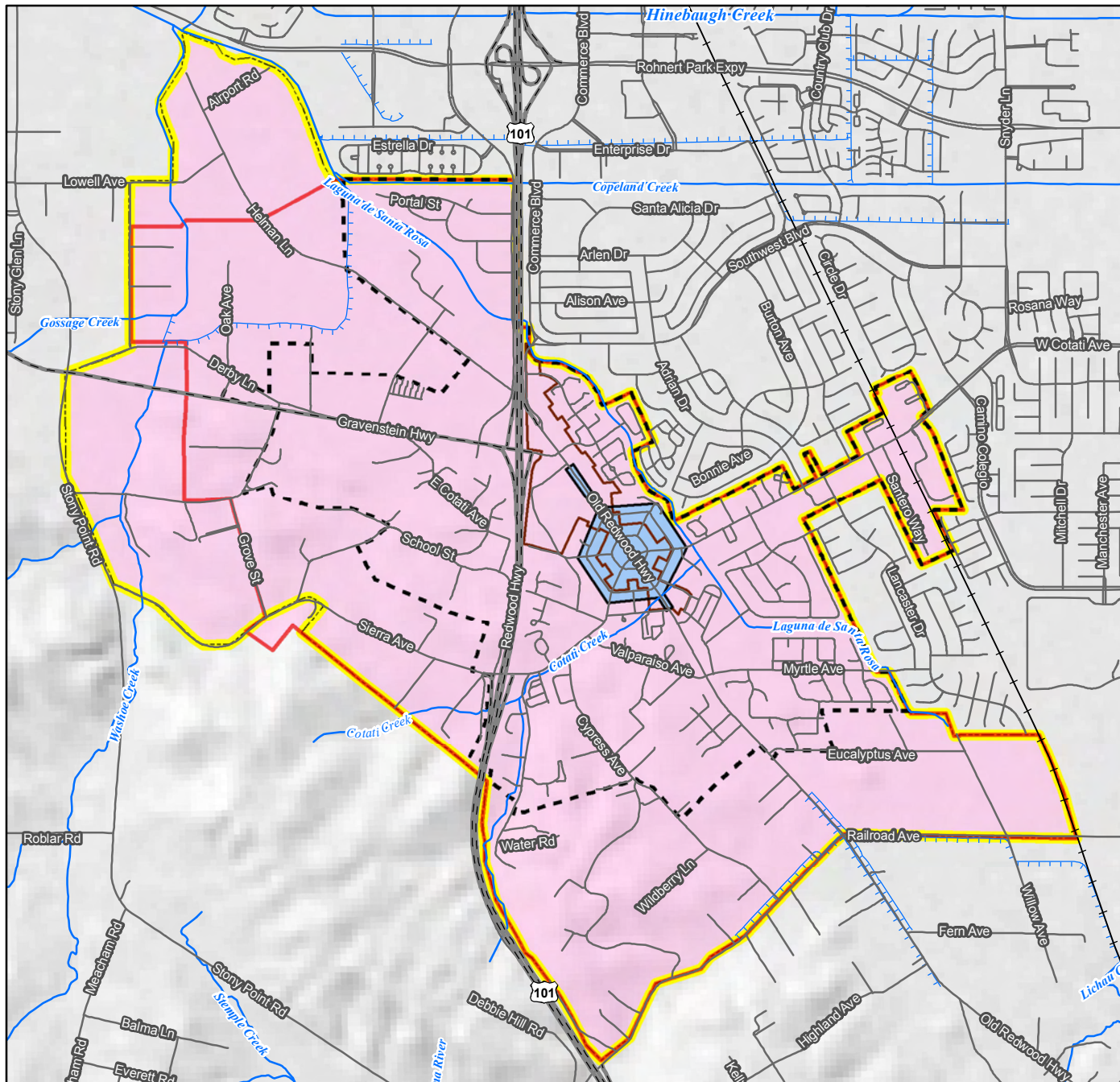
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# Cotati General Plan Update

## Figure 9.1-1: Sensitive Archaeological Areas



Areas considered sensitive for prehistoric archaeological sites

Historic Corridor

### Planning Areas

Downtown Special Plan Area

Cotati City Limits

Sphere of Influence

Urban Growth Boundary



0 500 1,000 2,000 Feet

1:30,000

Data sources: Tom Origer and Associates, USGS National Hydrography Dataset, Cotati GIS. Map date: July 15, 2011.

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# Cotati General Plan Update

## Figure 9.2-1: Land Cover Map

Wildlife-Habitat Relationship System

### WHR Name

- Agriculture
- Annual Grassland
- Barren
- Eucalyptus
- Freshwater Emergent Wetland
- Urban
- Water

### USGS Hydrography

- Stream or River
- Canal or Ditch

### Planning Areas

- Cotati City Limits
- Sphere of Influence
- Urban Growth Boundary

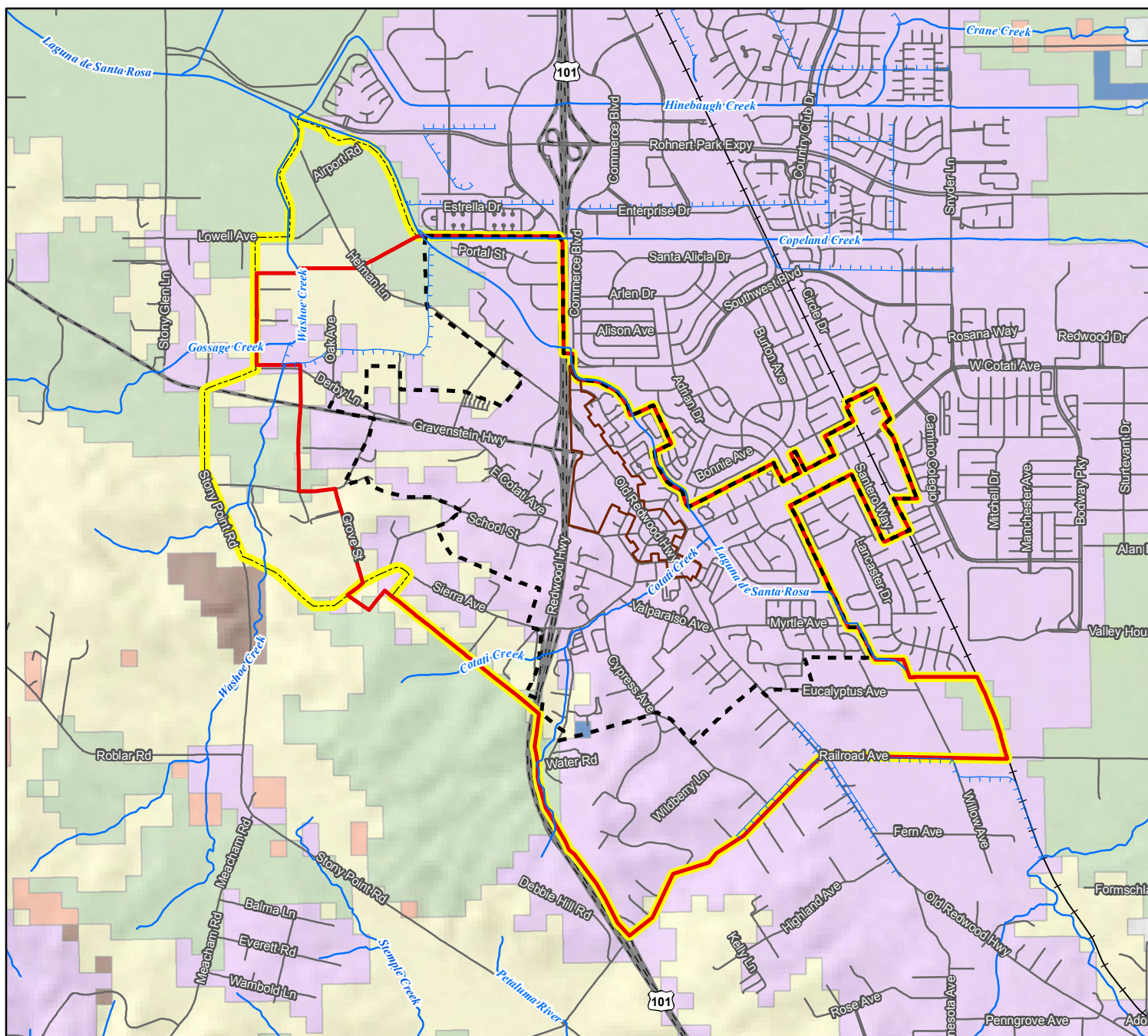


0 600 1,200 2,400 3,600  
Feet

1:36,000

Data sources: USGS National Hydrography Dataset;  
California Department of Forestry and Fire Protection,  
Multi-Source Landcover data, 2002; Cotati GIS.  
Map date: July 15, 2011.

De Novo Planning Group  
A Land Use Planning, Design, and Environmental Firm

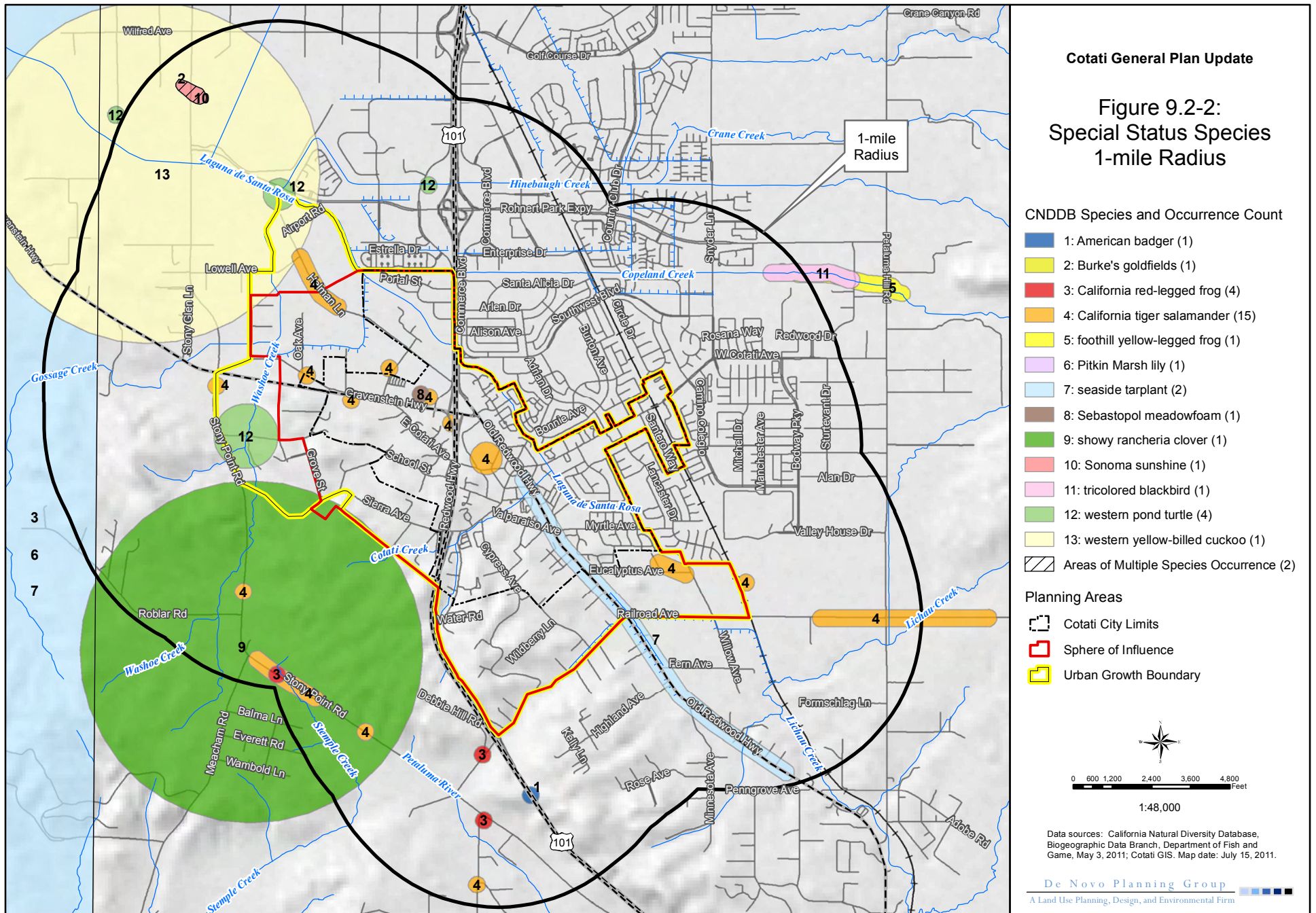


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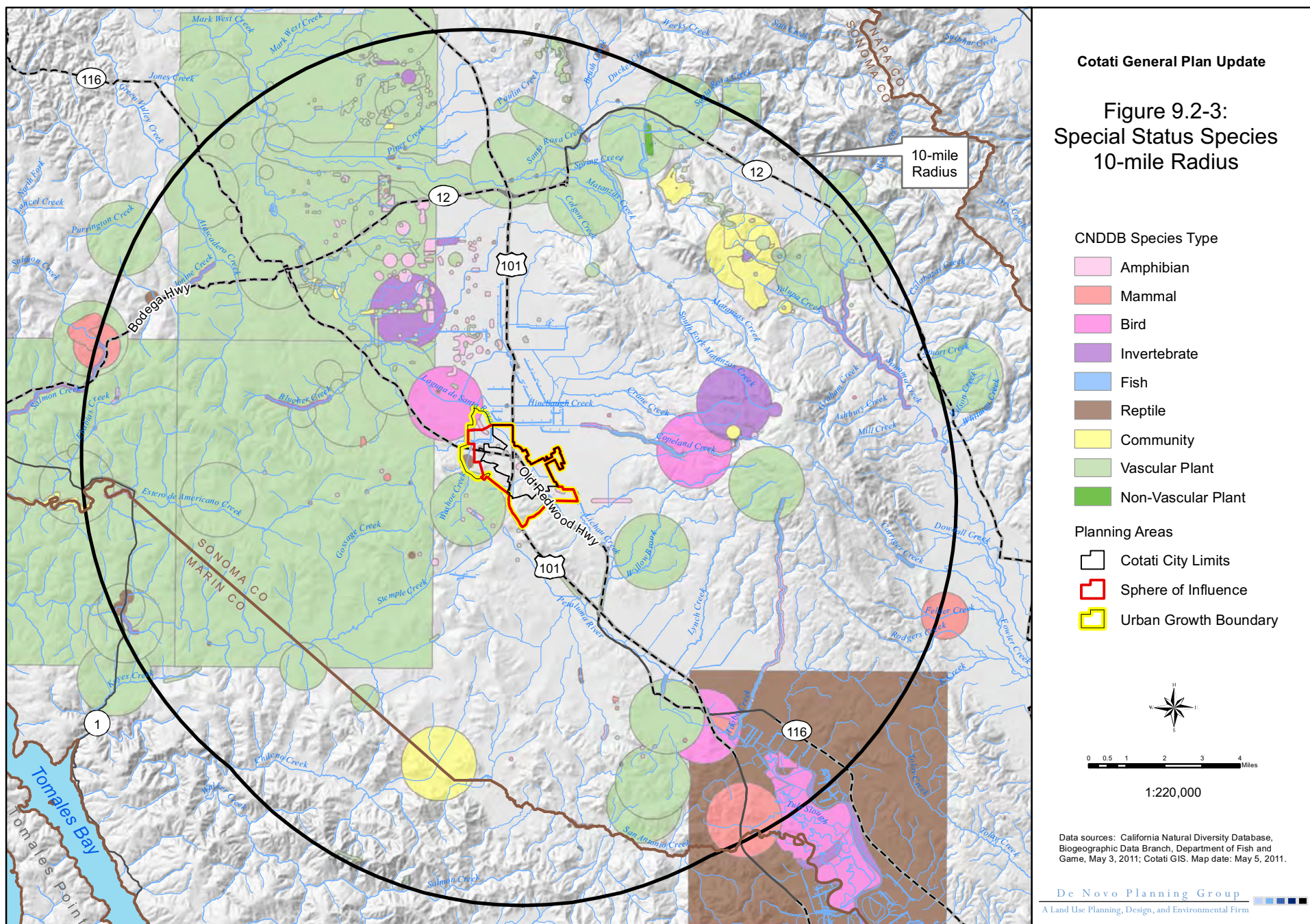
# Cotati General Plan Update

## Figure 9.2-2: Special Status Species 1-mile Radius



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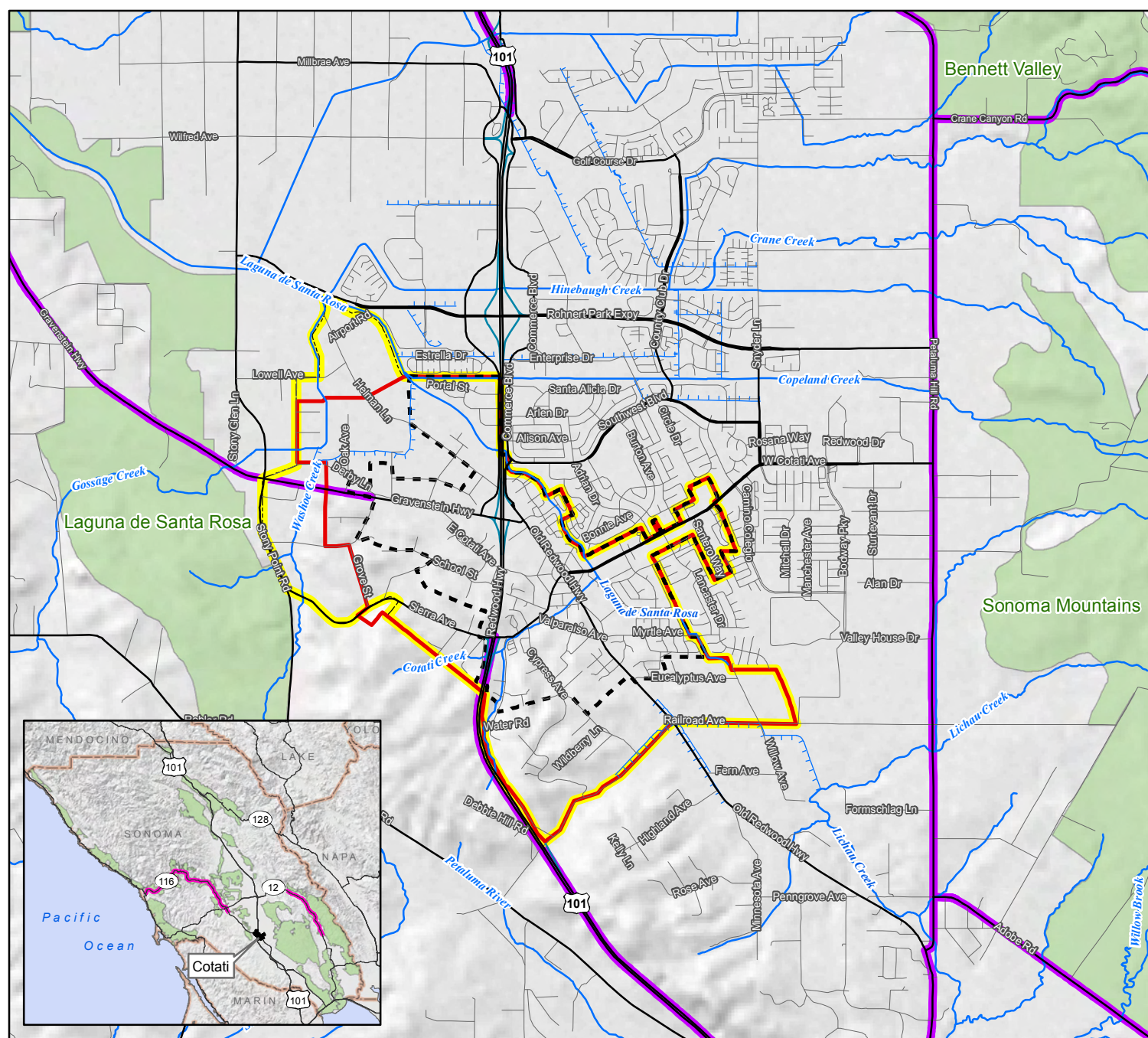
Figure 9.4-1:  
Scenic Resources

Scenic Resources

-  California State Scenic Highways (inset only)
-  Sonoma County Designated Scenic Corridor
-  Sonoma County Designated Scenic Landscape

Planning Areas

-  Cotati City Limits
-  Sphere of Influence
-  Urban Growth Boundary



0 0.25 0.5 1 Miles

1:54,000

Data sources: Sonoma County Permit and Resource Management Dept; CalTrans; Cotati GIS; USGS National Hydrography Dataset; Map date: July 15, 2011.

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## **Attachment 6**

### **Existing Open Space and Conservation Goals, Policies and Programs**



## INTRODUCTION

The basis for the Community Identity section rests in the recent and future growth of Sonoma County and the potential loss of a visual identity for the City of Cotati amidst this fast-growing region.

As Sonoma County grows, Cotati needs to maintain and enhance the theme that establishes its own visual identity. Consequently, this Community Identity section has been developed around Cotati's most unique aspect, the Hub.

The small town atmosphere, the dynamic mix of urban amenities with rural openness and the unique Hub area were all prominent concerns derived from a Public Opinion Survey conducted in the Fall of 1985 and reiterated at a town meeting held in 1990.

Based on the inventory of problems and opportunities concerning the visual environment, goals and objectives were developed which address the need for a unique character for Cotati. The La Plaza Specific Plan, adopted in 1991, addresses these concerns and provides a defined vision for the La Plaza area which can be extrapolated for the entire City.

The Community Identity section encompasses only the visual environment and consists of four goals. The first regards Cotati's separate identity; the second regards the preservation of natural amenities (protection of the natural visual environment); the third regards the theme for the Hub, also discussed in Goal 11; and the fourth regards the design of future development.

In the Community Identity chapter, land use, open space, conservation, circulation and housing are required by State law; but the optional elements of scenic highways and urban design are also included.

Cotati has always had a primarily rural atmosphere, in part because of the agricultural and rural lands surrounding the City on the south and west. Within the community itself there are areas which are considered scenic resources. In addition, the areas to the south and west of the community, both in and out of the existing sphere of influence, serve an important function by providing a visual break from Petaluma and Penngrove to the south and Sebastopol to the west. It is essential that communities preserve their individual identities by maintaining open space, known as the community separator, between communities.

Open space is defined as any parcel or area of land or water which is essentially unimproved and devoted to the preservation of natural resources, managed production of resources, outdoor recreation, scenic beauty or health and safety. Cotati has long been appreciated for the scenic beauty of its rolling hillsides. This resource is primarily responsible for the rural atmosphere felt by both its residents and those passing through. The City of Cotati General Plan has included

both of these subjects, scenic resources and community separators, as key components of the Open Space element.

Though the physical appearance--the aesthetics--of a community are only marginally addressed in General Plan elements, they are nonetheless a crucial aspect of any community. They give a town its distinction, its function as a separate entity, separate from its neighboring communities. The visual

aspects of a community provide a sense of place and are what cause people to remember the town when they leave.

The ultimate purpose of this Community Identity element is to help Cotati's city officials and citizens reach decisions concerning the visual implications of growth.

**GOAL 12    MAINTAIN COTATI'S IDENTITY SEPARATE FROM  
SURROUNDING COMMUNITIES.**

**OBJECTIVE 12.1    ESTABLISH AND MAINTAIN VISUAL BREAKS  
BETWEEN COTATI AND ROHNERT PARK, COTATI  
AND PETALUMA, AND COTATI AND SEBASTOPOL.**

**Policies and Implementations**

12.1.1 Street signs in the City of Cotati shall have a Hub logo.

12.1.2 A City Limit "Welcome to Cotati"/"You are now leaving Cotati" sign shall be maintained at all principal entry/exit points of the City.

12.1.3 The area around the "Welcome to Cotati"/"You are Now Leaving Cotati" signs shall be landscaped with native plants, trees and flowers.

12.1.4 Native plants shall be planted along the pedestrian path adjacent to the Laguna northeast of Wilford Lane between East Cotati and Commerce Avenues.

12.1.5 Preserve agricultural use on lands designated as rural within the City of Cotati land use map, primarily in the western and southern sections of the City.

12.1.6 Establish areas of community separators for preservation of open space adjacent to the boundaries of the City of Cotati. (see map 8)

**GOAL 13    PROTECT THE INTEGRITY OF THE NATURAL, VISUAL ENVIRONMENT OF COTATI, FOR ITS AESTHETIC AND CULTURAL VALUE.**

**OBJECTIVE 13.1    COTATI'S SCENIC NATURAL RESOURCES SHALL BE PRESERVED AND DEVELOPMENT ADJACENT TO THESE RESOURCES SHALL BE VISUALLY UNOBTRUSIVE AND ENVIRONMENTALLY COMPATIBLE.**

**Policies and Implementations**

**13.1.1   Open space land shall be protected from development. (See map 8).**

**13.1.2   Encourage infill housing.**

**13.1.3   All future development of residential lands shall be contiguous to urban development and clustered development shall be given preference to preserve a sense of openness within the town.**

**13.1.4   Cotati's creeks and other biotic resources shall be protected from erosion, pollution and filling.**

**13.1.5 Culverts and other types of stormwater swales discharging into Cotati's creeks shall be designed to prevent erosion of the natural bed and bank material.**

**13.1.6 Protect Cotati's ridgelines (hill tops and steep hillsides) from erosion, slope failure and development.  
(See map 1).**

**13.1.7 Commercial and industrial development in scenic resource areas shall be prohibited. (See map 8).**

**13.1.8 Development involving earth-moving shall not take place where excessive disruption of drainage patterns or excessive runoff will result.**

**13.1.9 Preserve the topography of Cotati's hills by prohibiting unnecessary leveling/grading activities prior to site-building on hillsides where development is permitted.**

**13.1.10 Recognize the role of the County General Plan in the preservation of Cotati's scenic resources.**



13.1.11 Preserve existing scenic resources both inside and outside of the Cotati City limits as resources critical to Cotati's community identity and character.

13.1.12 Urban open space is essential to maintaining a high quality of life within our City limits.

**OBJECTIVE 13.2                      IMPROVE THE VISUAL CHARACTER ALONG COTATI'S  
TRANSPORTATION ROUTES.**

**Policies and Implementations**

13.2.1 Site lay-out, fencing and materials used on lots adjacent to scenic roads shall be consistent with the natural character of the such roads.

13.2.2 An annual spring cleaning of streets, gutters and creeks in Cotati shall be organized and encouraged.

13.2.3 Improve the landscaping along Cotati's roads.

13.2.4 All walks and paths, if surfaced, shall be surfaced with non- reflective material of a type and color compatible with the natural setting.

13.2.5 All street furniture (bus stops, receptacles, benches, lighting, signs, plant boxes) shall, whenever visually appropriate, harmonize with materials used in structures on the site and shall be of a color that is compatible with the natural setting.

13.2.6 All signs as stipulated in the City of Cotati Sign Ordinance shall require permits.

13.2.7 Signs in Cotati shall be visually pleasing and shall be consistent with the rural Craftsman aesthetic.

**OBJECTIVE 13.3                      PUBLIC UTILITIES SHALL BE LOCATED UNDERGROUND.**

**Policies and Implementations**

13.3.1 New power lines and drainage facilities shall be constructed underground.

**OBJECTIVE 13.4                      ENHANCE COTATI'S PRESENT LANDSCAPING IN A VISUALLY PLEASING MANNER WHILE PROMOTING ENERGY EFFICIENCY, WATER CONSERVATION, AND NATIVE PLANTS.**

**Policies and Implementations**

---

13.4.1 Continue a no tree cutting policy throughout Cotati, except when a permit has been obtained.

13.4.2 Landscaping in parking areas shall be designed to achieve visual screening, while maintaining the ability of the Police Department to provide adequate security.

13.4.3 Encourage the planting of deciduous trees.

13.4.4 Continue to implement the City of Cotati's Water Conservation Ordinance for commercial and industrial development.

13.4.5 Protect native trees.

**GOAL 14    MAINTAIN THE HUB AS THE PRINCIPAL SOCIAL AND  
CULTURAL CENTER OF THE COMMUNITY.**

**OBJECTIVE 14.1                      MAINTAIN PUBLIC ART AND ENCOURAGE THE  
DEVELOPMENT OF NEW ARTWORKS BY REGIONAL  
ARTISTS.**

**Policies and Implementations**

14.1.1 Depict local history through the use of murals.

14.1.2 Create a large map which emphasizes the unique characteristics of Cotati and its environs.

**OBJECTIVE 14.2**

**PRESERVE HISTORICALLY AND ARCHITECTURALLY  
SIGNIFICANT STRUCTURES AND SITES.**

**Policies and Implementation**

14.2.1 Identify individual structures and sites of local historical value and support their preservation.

14.2.2 Whenever renovation or new construction is considered in archaeologically or historically sensitive areas, an archaeologist shall be consulted.

**OBJECTIVE 14.3**

**LANDSCAPING SHALL BE USED TO AID ENERGY AND  
WATER CONSERVATION AND CREATE A PLEASANT  
AMBIANCE IN THE HUB.**

**Policies and Implementation**

14.3.1 Plant and maintain deciduous native trees along Old Redwood Highway in such a way that the deciduous trees will eventually arch over the street in sections but will not obstruct views or the visual sightlines along the street.

14.3.2 Improve and maintain landscaping around commercial areas in order to minimize the "heat island" effect, provide shade, soften the harshness of such commercial areas, and create a more leisurely ambience.

14.3.3 Plant a combination of deciduous native trees and more flower beds consisting of native flowers, if possible, so that there is a continuous show of flowers throughout the year in La Plaza Park.

**GOAL 15 FUTURE DEVELOPMENT SHALL COMPLIMENT COTATI'S HISTORIC HUB AND SMALL TOWN IMAGE.**

**OBJECTIVE 15.1 IN THE HUB, NEW DEVELOPMENT AND MODIFICATIONS OF EXISTING DEVELOPMENT SHALL BE CONSISTENT WITH THE POLICIES OF THE DOWNTOWN SPECIFIC PLAN.**

**Policies and Implementation**

15.1.1 Off-street parking shall be situated to emphasize a pedestrian orientation and street frontages shall be complemented with street furniture and landscaping.

15.1.2 The design of new structures in the Hub shall be compatible with the craftsman style of the Hub by proper use of building materials.

**OBJECTIVE 15.2 NEW DEVELOPMENT THROUGHOUT COTATI SHALL BE OF QUALITY DESIGN IN KEEPING WITH THE SMALL TOWN IMAGE.**

**Policies and Implementation**

15.2.1 Mechanical Equipment shall be screened from public view.



**Attachment 7**


**Existing General Plan Land Use Map**








**1998 General Plan  
Land Use Designations**


**with 2004 and 2009 Amendments**

- 


Parcels
- 

Downtown Specific Plan Area
- 


Cotati City Limits
- 

Sphere of Influence
- 


Urban Growth Boundary
- General Plan Land Use Designations




RR - Rural Residential




LDR - Low Density Residential




LMDR - Low/Medium Density Residential




MDR - Medium Density Residential




HDR - High Density Residential




OSR - Open Space




GC - General Commercial




HC - Highway Commercial




O - Office




P - Park



PF - Public Facilities



GI - General Industrial



CI - Commercial Industrial



0 600 1,200 2,400 Feet

1:20,000

Data from Cotati GIS. General Plan data created by attributing the parcel layer with land use designations as shown on the hardcopy map "1998\_GP\_LandUseMap.pdf" created by the Sonoma County Planning Department, then updated based on 2004 amendments and 2009 Downtown Specific Plan amendments. Map date: March 18, 2011.

