

RESOLUTION NO. 11675

RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF SANTA ROSA
RECOMMENDING APPROVAL TO THE CITY COUNCIL OF A GENERAL PLAN
AMENDMENT TO UPDATE THE OPEN SPACE AND CONSERVATION AND NOISE
AND SAFETY ELEMENTS OF THE GENERAL PLAN - FILE NUMBER GPAM13-004

WHEREAS, in August 2013, the City of Santa Rosa began preparation of the Housing Element update. Upon revision to the Housing Element, Section 65302 of State law requires that the Conservation Element be updated to identify rivers, creeks, streams, flood corridors, riparian habitats, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management, and the Safety Element must be updated regarding specific safety issues including flooding, dam inundation, and fire hazards; and

On June 12, 2014, the Planning Commission conducted a public hearing noticed in compliance with Chapter 20-66 of the Zoning Code (Public Hearings) in consideration of a General Plan Amendment to update the Open Space and Conservation and Noise and Safety Elements of the General Plan; and

WHEREAS, it has been determined that the proposed General Plan Amendment is within the scope of the General Plan 2035 Environmental Impact Report certified by the City Council on November 3, 2009; and

WHEREAS, the Planning Commission finds that a General Plan Amendment to update the Open Space and Conservation and Noise and Safety Elements of the General Plan is justified to achieve the objectives and policies of the General Plan in that:

- A. The proposed amendment ensures and maintains internal consistency with the goals and policies of all elements of the General Plan;
- B. The proposed amendment would not be detrimental to the public interest, health, safety, convenience, or welfare of the City;
- C. The site is physically suitable (including absence of physical constraints, access, compatibility with adjoining land uses, and provision of utilities) for the requested/anticipated land use developments; and
- D. The proposed project has been reviewed in compliance with the California Environmental Quality Act (CEQA).

NOW, THEREFORE, BE IT RESOLVED, that the Planning Commission of the City of Santa Rosa recommends that the City Council approve a General Plan Amendment to update the Open Space and Conservation Element as identified in Exhibit A, and to update the Noise and Safety Element as identified in Exhibit B.

REGULARLY PASSED AND ADOPTED by the Planning Commission of the City of Santa Rosa on this 12th day of June, 2014, by the following vote:

AYES: (7) Chair Cisco, Vice Chair Stanley, Commissioners Byrd, Crocker, Duggan, Groninga and Karsten

NOES: (0)

ABSTAIN: (0)

ABSENT: (0)

APPROVED: 
CHAIR

ATTEST: 
EXECUTIVE SECRETARY

7

OPEN SPACE AND CONSERVATION

This element presents a discussion of open space and natural resource conservation efforts undertaken by the City of Santa Rosa. Preservation of open spaces, agricultural lands, biological resources and habitat, air quality, and energy are each discussed, and policies ensure continued conservation efforts.

7-1 VISION

In 2035, conservation of open spaces and natural resources within and near the city contribute to Santa Rosa's enviable quality of life. Santa Rosa's natural resources—including creeks, wetlands, mature trees, ridgelines, rock outcroppings, and open spaces—are conserved and incorporated into the design of new development. Multi-use trails provide access to community and regional open space areas, and views of open space areas are protected throughout the city.

The Prince Memorial Greenway is completed and Santa Rosa Creek is restored, providing a riparian corridor amenity for residents and visitors. The natural features of several other waterways are restored and enhanced, with the addition of trails and passive recreational uses.

Agricultural uses—including farms, co-ops, dairies, livestock ranches, and vineyards—surround the city's Urban Growth Boundary (UGB). Air quality is high due to the use of cleaner fuels, reduced automobile dependence, and increased transit use.

7-2 OPEN SPACE

Open space provides a variety of benefits, including visual enjoyment, natural resource conservation (e.g., plant and wildlife habitats, creek corridors, hillsides, and soils), watershed protection, recreation use, and hazard reduction. Open space areas within the UGB generally include undeveloped lands containing significant wildlife habitat or natural resources. The city's UGB encompasses 180 acres of land designated as open space. Open space lands outside the UGB include Taylor Mountain and other hillside and ridgeline areas. Figure 7-1 illustrates the open space lands designated within the Planning Area.

Community separators are greenbelt areas designated by the Sonoma County General Plan to ensure protection of open space, and prevent expansion of urban development between cities. These separators are intended to preserve the county's sense of rural character by preserving open space corridors between existing communities. The community separators are also shown on Figure 7-1.

The Sonoma County Agricultural Preservation and Open Space District (SCAPOSD) publication Connecting Communities and the Land - A Long Range Acquisition Plan (2006) addresses acquisition and preservation of open space resources in Sonoma County. Four types of open space identified near Santa Rosa include agriculture, greenbelts (community separators), natural resources, and recreation areas. Preservation of open space for each of these activities is important to the quality of life and rural character valued by local residents. General Plan policies address public access to such areas, as well as expansion of the regional open space network. A continuous network of open space land can be more beneficial for plant and habitat conservation than piecemeal open spaces.

AGRICULTURAL RESOURCES

Agricultural resources within the Santa Rosa Planning Area provide residents with a sense of rural character and access to fresh produce and agricultural goods. Agricultural resources—including crop fields and vineyards, open rangeland, barns and other farm structures—outside of the UGB but within the Planning Area include a total of 18,200 acres of farmland, according to the State Department of Conservation's Farmland Mapping and Monitoring Program.

Working with SCAPOSD to preserve lands outside of the city's UGB that contain highly productive soils for growing crops, and that are suitable for community agricultural operations—such as farmers' markets, small family farms, and co-ops—will sustain the sense of rural character within the greater Santa Rosa area. Continued operation of active farms will also contribute to the region's economic vitality.


7-3 BIOLOGICAL RESOURCES AND WATERWAYS

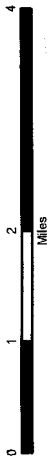
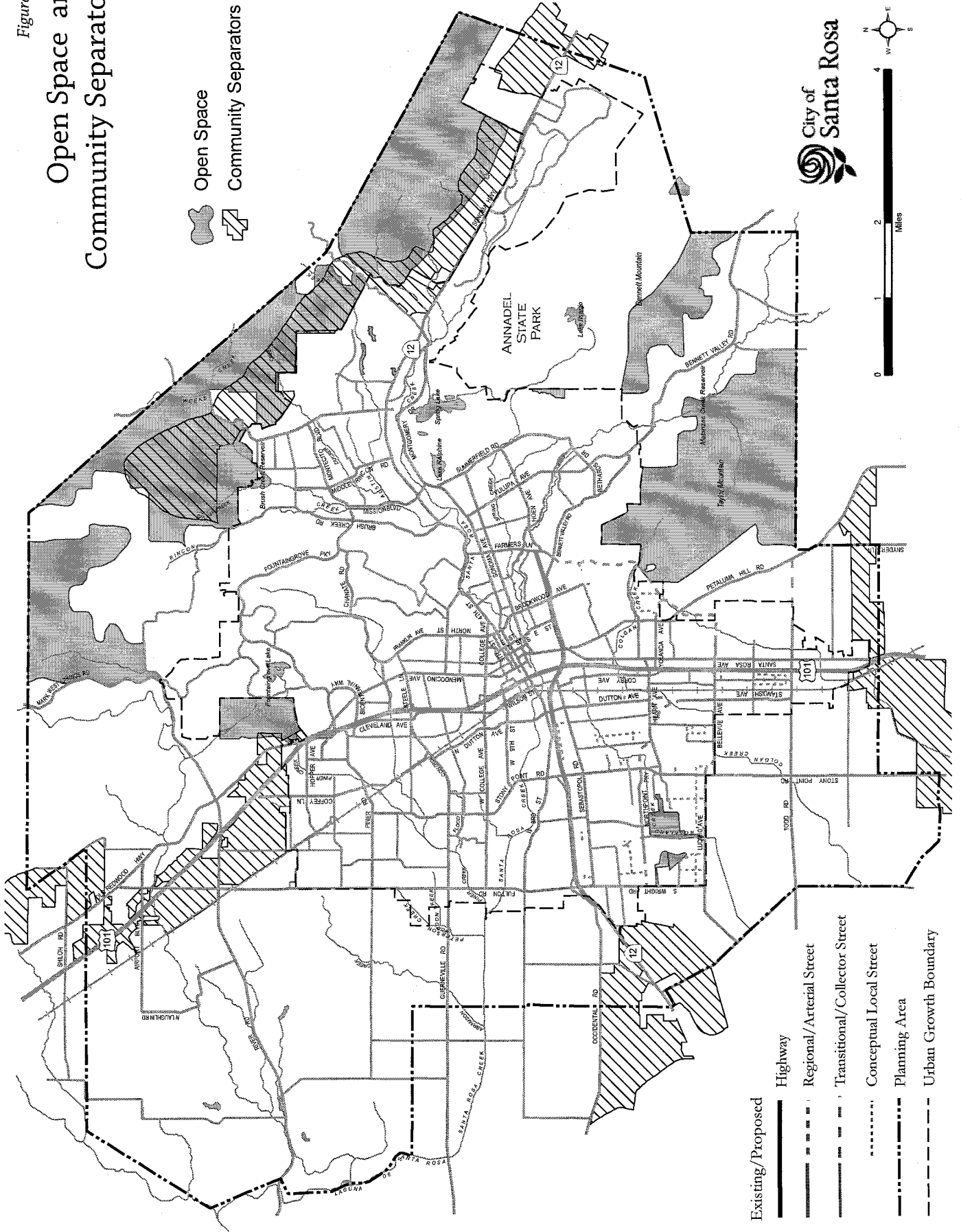
Biological resources found within Santa Rosa include sensitive plants and animals, creeks, and wetlands, including vernal pools. Figure 7-2 illustrates the areas with potential for sensitive species identified by the California Department of Fish and Game Wildlife (CDFG CDFW) and major creeks located within the Urban Growth Boundary.

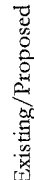

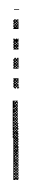
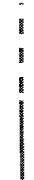
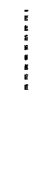

Santa Rosa Creek, which originates in the headwaters of Mount Hood, runs from east to west through the city, and on into the Laguna de Santa Rosa. Other streams, including the lower reaches of Matanzas Creek, run through or near the city on their way to joining Santa

Figure 7-1

Open Space and Community Separators

-  Open Space
-  Community Separators



-  Highway
-  Regional/Arterial Street
-  Transitional/Collector Street
-  Conceptual Local Street
-  Planning Area
-  Urban Growth Boundary

Rosa Creek. Creek related policies from several previous planning documents including the Santa Rosa Creek Master Plan (1993), and the Santa Rosa Waterways Plan (1996) ~~have been~~ were reorganized into the Santa Rosa Citywide Creek Master Plan (CCMP) in (2007). The city recognizes the importance of its waterway resources, and has established the ~~Santa Rosa Citywide Creek Master Plan (2007)~~ CCMP as the leading document that ensures creek conservation and restoration. The City recognizes that creeks and riparian corridors provide groundwater recharge areas in addition to other biological functions.

Biological resources within the Santa Rosa area can be roughly divided between those found on the ~~western~~ Santa Rosa plain and those located in the uplands to the east, with connections formed by creeks. Sensitive resources on the plain include numerous vernal pools and their associated species and surrounding grasslands, while upland resources to the east include hillside open spaces and woodlands.

CITYWIDE CREEK MASTER PLAN

The Citywide Creek Master Plan, updated in 2013, presents a range of goals and policies for specific waterways in the City of Santa Rosa. The plan details the various creek environments that exist in the city while also designating ~~a procedure for improving or maintaining their current condition~~ areas for enhancement or preservation. Implementing the recommended improvements specific to Santa Rosa's local waterways will improve wildlife habitats, increase recreational opportunities, drainage capacity, and flood control.

Key creek related goals and policies have been extracted from the Citywide Creek Master Plan. In order to review all the graphics and tables that are available in the Citywide Creek Master Plan, please refer to the full document.



Piner Creek, adjacent to Marlow Road, provides rich riparian habitat within the Urban Growth Boundary.

VEGETATION

Santa Rosa's UGB includes a variety of vegetation types, including grasslands, woodlands, riparian areas, and vernal pools. Some, like annual grasslands that now contain primarily exotic annual grasses, have been altered from their natural state. Others, including vernal pool areas, either remain in their natural state (in terms of species composition and ecological function) or have been only slightly altered.

The smaller areas of discrete habitat, such as vernal pools, support their own distinctive species associations. In these limited areas, the populations of individual species may be small and

sensitive to disturbance. In recognition of the ecological importance of vernal pools, the *Santa Rosa Plain Vernal Pool Ecosystem Preservation Plan* was developed in 1995.

WILDLIFE

Diverse vegetation types within the UGB provide for a variety of wildlife habitats, and the interspersed of different habitats is advantageous for species that use the “edges” between them. Open space areas support smaller species, including songbirds, rodents, and a variety of invertebrates. They also provide habitat for a number of sensitive species, including nesting raptors.

The streams flowing through the city provide both instream and riparian habitat. Riparian habitat supports a distinct community of plants and animals, including amphibians, and may form movement provides migration corridors that allow other wildlife to travel between suitable habitats that are otherwise separated by development. ~~The~~ Instream habitat is ~~also~~ important for aquatic species such as steelhead/rainbow trout which are found in Santa Rosa Creek and several of its tributaries breed in its upland areas. Both of these habitats support a variety of animal species, from streambed invertebrates to the larger fishes and animals such as herons and egrets that feed upon them. Preservation of existing wildlife habitat and restoration of riparian corridors ensures that wildlife species are protected, as well as provides tranquil open spaces within the city’s urban landscape.

7-4 AIR QUALITY

Reduction of air pollutants contributes to quality of life for Santa Rosans by improving the health of residents and workers. The City of Santa Rosa participates with the Bay Area Air Quality Management District (BAAQMD) to address improvement of air quality. The Pacific Ocean influences the moderate climate of Sonoma County. In summer, afternoon northwesterly winds blow contaminants south toward San Francisco. In winter, periods of stagnant air can occur, especially in periods between storms.

Santa Rosa currently has one monitoring station that measures criteria pollutants, including ozone, carbon monoxide, nitrogen dioxide, lead, sulfates, and particulates 10 microns or smaller (PM10). The air quality in Santa Rosa has generally improved, as motor vehicles have become cleaner, agricultural and residential burning has been curtailed, and consumer products have been reformulated or replaced. From 2003 to 2007, Santa Rosa exceeded state standards only once, for ozone, in 2003. Carbon monoxide, a product of incomplete combustion, was formerly a problem for the city; but with improved motor vehicles and fuels, Santa Rosa air easily meets state and federal standards.

Maintaining and improving air quality will contribute to good health for all Santa Rosans.

Policies addressing land use patterns, connections between different land uses, use of energy sources, alternative transportation modes, preservation of open spaces, and construction dust abatement all contribute to the reduction of air pollutants within Santa Rosa.

7-5 ENERGY

The City of Santa Rosa depends on energy to maintain a vital economy and desirable lifestyle. It uses electricity and natural gas to light, heat, and cool structures and to power its office equipment, industrial machinery, public services, and home appliances. The city also uses petroleum products to move people and products along its transportation corridors. Energy is vital to the continued functioning of housing, employment, transportation, and public services and facilities in Santa Rosa.

Reduced energy use in housing, commercial structures, public facilities, and transportation helps maintain local economic vitality and reduces the need for new infrastructure to deliver energy to the city. Better use of materials, insulation, and increased harnessing of solar incidence in building design reduces demand on natural gas and heating products. Transportation measures that facilitate pedestrian use and bicycling reduce dependence on petroleum. Together, these steps will lead to a more reliable, sustainable, economic energy future.

7-6 CLIMATE CHANGE





In 2005, the nine cities and Sonoma County set a mutual greenhouse gas target in partnership with the Climate Protection Campaign (CPC) within its Community Climate Action Plan (CCAP). On August 2, 2005 the City Council adopted Resolution 26341 which established a municipal greenhouse gas reduction target of 20 percent from 2000 levels by 2010 and facilitates the community-wide greenhouse gas reduction target of 25 percent from 1990 levels by 2015 that was included in the CCAP.

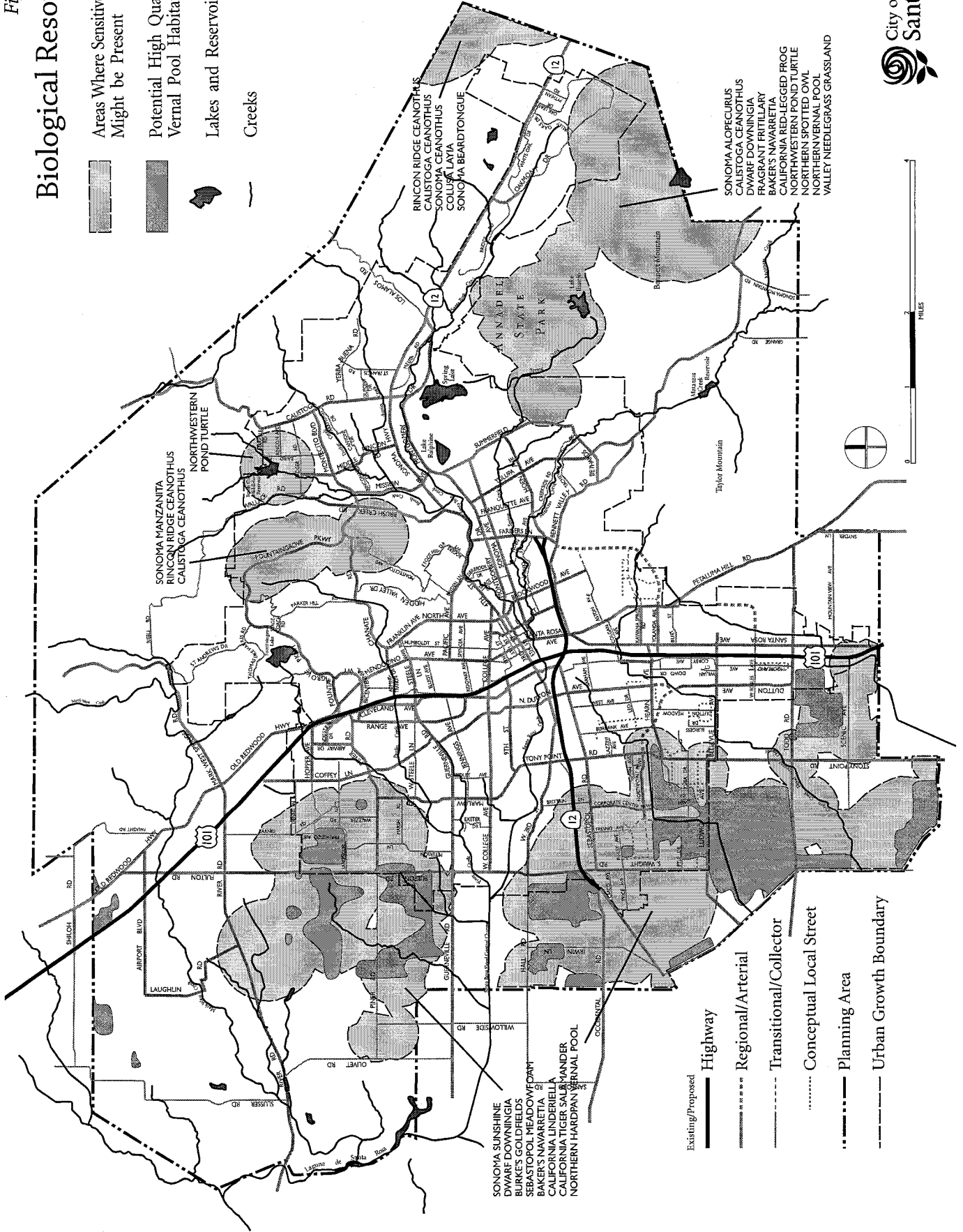
The Santa Rosa Climate Action Plan (CAP) addresses emissions specific to the City's Urban Growth Boundary. The CAP provides a roadmap to achieving GHG emissions reduction and attaining local emission reduction targets as well as those targets set at the regional and state level. The CAP recognizes the reduction targets, forecasts the amount of reductions necessary to meet those targets, identifies specific measures that will reduce emissions, outlines implementation of the measures and provides for the long term tracking of emissions.

The CAP and the General Plan work in conjunction to facilitate GHG emissions reductions. This plan acknowledges the environmental leadership Santa Rosa has achieved and supports the responsibility of continued greenhouse gas (GHG) emissions reductions. Measures, policies and projects that reduce community-wide GHGs presented in the Climate Action Plan are

Figure 7-2

Biological Resources

-  Areas Where Sensitive Species Might be Present
-  Potential High Quality Vernal Pool Habitat
-  Lakes and Reservoirs
-  Creeks



aligned with the goals and policies in the General Plan. In addition, the General Plan provides the basis for analyzing proposed development to determine consistency with the CAP goals and measures. The measures presented in the Climate Action Plan are referenced generally throughout the General Plan.

7-7 GOALS AND POLICIES



OPEN SPACE

OSC-A ***Maximize the benefits of open space.***

OSC-A-1 Cooperate with various public and private entities to create new public access trails to parks, open spaces, and drainage ways within the city, as well as to trail systems outside the UGB. Priorities for trail access outside of the UGB should include:

- Joe Rodota Trail (from Santa Rosa to Sebastopol);
- Bay Area Ridge Trail;
- Santa Rosa Creek Trail;
- Laguna Trail;
- Roseland Creek Trail;
- Colgan Creek Trail; and
- Paulin Creek Trail.

OSC-A-2 Collaborate with other agencies and private development to link non-access open spaces, where such linking would benefit the protection of special environments and life systems such as wetlands, plant communities, and wildlife habitats and corridors.

OSC-A-3 Cooperate with the County of Sonoma in preserving and, where appropriate, acquiring open space outside the UGB, for both growth management and open space purposes.











OSC-A-4 Encourage the Sonoma County Agricultural Preservation and Open Space District to appropriate funds for acquisition of open space within and surrounding Santa Rosa. Priorities for acquisition include:

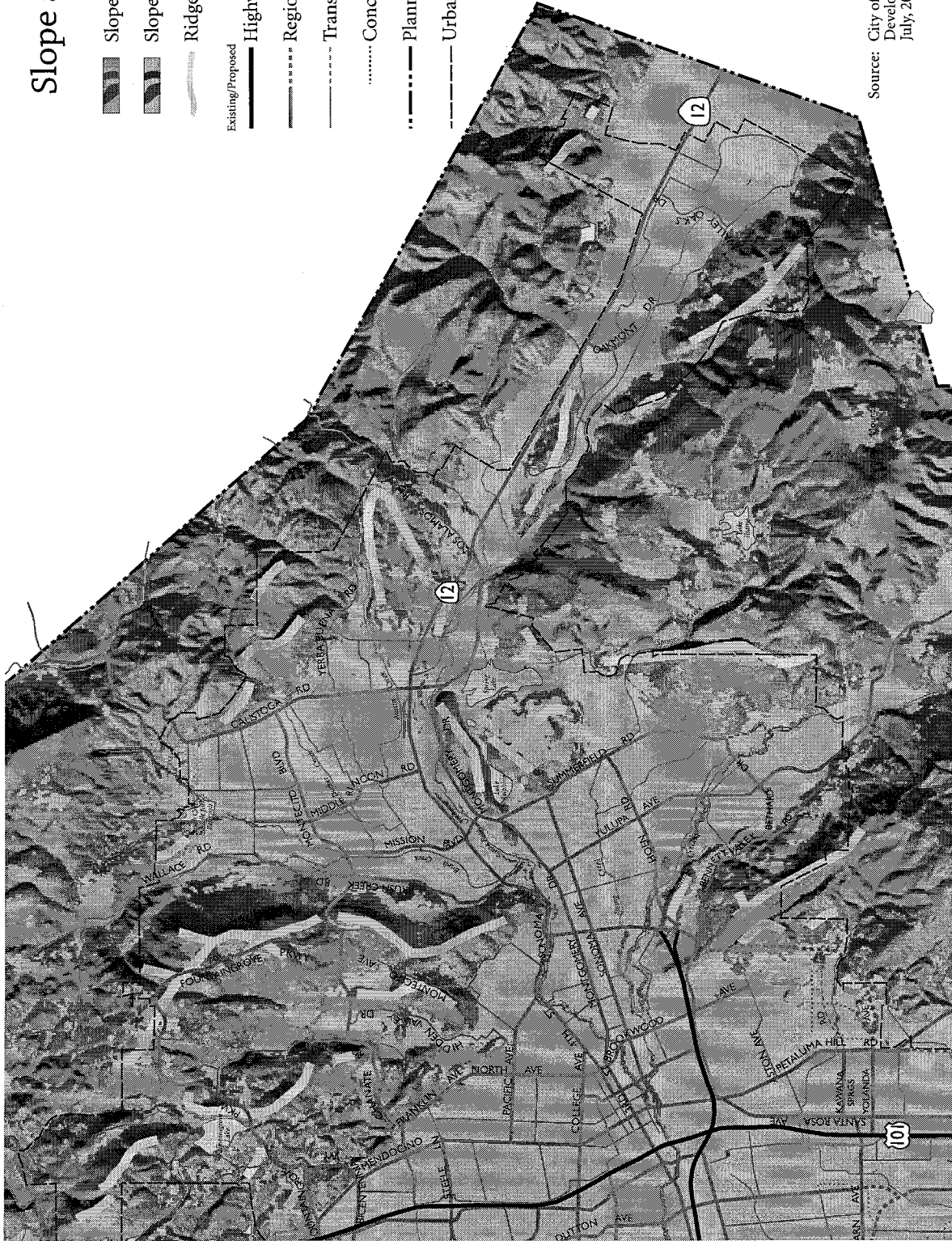
- Community Separator between Santa Rosa and Rohnert Park;
- Taylor Mountain;
- Areas west and north of the Urban Growth Boundary; and
- Santa Rosa Creek corridor.

OSC-A-5 Monitor the progress of the Sonoma County Agricultural Preservation and Open



Figure 7-3

Slope and Ridgelines

-  Slope 10-25%
-  Slope greater than 25%
-  Ridgelines
-  Existing/Proposed
-  Highway
-  Regional/Arterial
-  Transitional/Collector
-  Conceptual Local Street
-  Planning Area
-  Urban Growth Boundary



Source: City of Santa Rosa, Community Development Department, July, 2002.

Space District in acquiring Santa Rosa priority properties.

- OSC-A-6 Protect the Annadel and Spring Lake regional parks from intrusion by inappropriate uses. Conserve the biotic systems in those parks.
- OSC-A-7 Encourage preservation of open space in the Community Separators (see Figure 7-1: Open Space and Community Separators) between Santa Rosa and neighboring communities. Work with regional agencies to ensure maintenance of the separators as permanent open space.
- OSC-A-8 Coordinate with public and private entities to link open spaces with a network of paths and trails, including Sonoma County Water Agency access roads and the Bay Area Ridge Trail.
- OSC-B *Conserve the city's open spaces and significant natural features.***
- OSC-B-1 Prohibit development on hillsides and ridgelines where structures would interrupt the skyline.
- OSC-B-2 Minimize alteration of the topography, drainage patterns and vegetation of land with slopes of ten percent or more. Prohibit alteration of slopes greater than 25 percent.
- OSC-B-3 Require that new subdivisions, multifamily, and non-residential development abutting creek corridors are appropriately designed with respect to the creek. Development may orient toward the creek as an amenity, but adequate setbacks shall be used to ensure riparian habitat is protected.
- OSC-B-4 Require that graded areas within new developments be revegetated.
- OSC-B-5 Require a Hillside Development Permit as part of a proposed subdivision, proposed development or new land use on that portion of a site with a slope of 10 percent or greater (see Figure 7-3: Slope and Ridgelines).

AGRICULTURAL RESOURCES

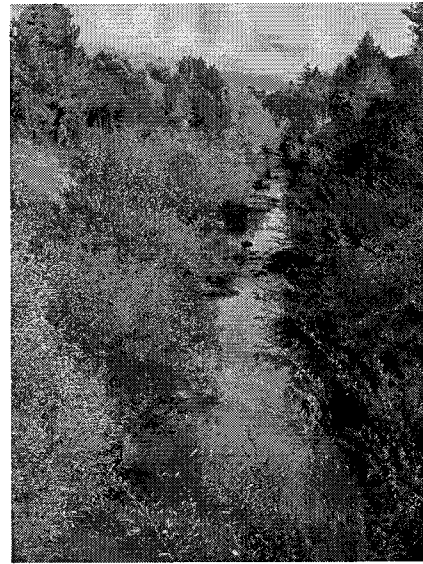
OSC-C *Conserve agricultural soils.*

- OSC-C-1 Support efforts by the Sonoma County Agricultural Preservation and Open Space District to protect and/or acquire Prime Agricultural Land outside of the Urban Growth Boundary.

OSC-C-2 During the next update of the Sonoma County General Plan, encourage preservation of unincorporated lands adjacent to and near the Santa Rosa Urban Growth Boundary as viable agricultural resources.

OSC-C-3 Preserve and enhance agriculture within the Planning Area as a component of the economy and as a part of Santa Rosa's environmental quality.

OSC-C-4 Work with the County of Sonoma to encourage the conservation of mineral resources and the protection of access to those resources.



Santa Rosa Creek provides biological habitat, stormwater collection, and an open space amenity for local residents.

BIOLOGICAL RESOURCES AND WATERWAYS

OSC-D *Conserve wetlands, vernal pools, wildlife ecosystems, rare plant habitats, and waterways.*

OSC-D-1 Utilize existing regulations and procedures, including Subdivision Guidelines, Zoning, Design Review, and environmental law, to conserve wetlands and rare plants. Comply with the federal policy of no net loss of wetlands using mitigation measures such as:

- Avoidance of sensitive habitat;
- Clustered development;
- Transfer of development rights; and/or
- Compensatory mitigation, such as restoration or creation.

OSC-D-2 Protect high quality wetlands and vernal pools from development or other activities as determined by the Vernal Pool Ecosystem Preservation Plan.


OSC-D-3 Preserve and restore the elements of wildlife habitats and corridors throughout the Planning Area.

OSC-D-4 Continue to consult with the California Department of Fish and Game Wildlife to identify significant environments. Identify priorities for acquisition or maintenance of open space areas based on biological and environmental

concerns, and develop an overall strategy for the maintenance of areas that will preserve the populations of plants and animals currently found within the Urban Growth Boundary.


OSC-D-5 Consult with North Coast Regional Water Quality Control Board staff as part of the CEQA process for proposed developments to help them identify wetland and vernal pool habitat that has candidacy for restoration/protection based on actual and potential beneficial uses, and determine appropriate locations for mitigation banking.

OSC-D-6 Preserve waterways by informing residents of the environmental effects of dumping yard waste into creeks, or other wastes, such as motor oil, into storm drains that empty into creeks.

 OSC-D-7 Rehabilitate existing channelized waterways, as feasible, to remove concrete linings and allow for a connection with the stream channel and the natural water table. Avoid creating additional channelized waterways, unless no other alternative is available to protect human health, safety, and welfare.

OSC-D-8 Restore channelized waterways to a more natural condition which allows for more natural hydraulic functioning, including development of meanders, pools, riffles, and other stream features. Restoration should also allow for growth of riparian vegetation which effectively stabilizes banks, screens pollutants from runoff entering the channel, enhances fisheries, and provides other opportunities for natural habitat restoration.

OSC-D-9 Ensure that construction adjacent to creek channels is sensitive to the natural environment. Ensure that natural topography and vegetation is preserved along the creek, and that construction activities do not disrupt or pollute the waterway.

 OSC-D-10 Orient development and buildings toward creeks, while providing privacy, security, and an open transition between public and private open spaces.

OSC-D-11 New development along channelized waterways should allow for an ecological buffer zone between the waterway and development. This buffer zone should also provide opportunities for multi-use trails and recreation.

OSC-D-12 New development should maintain an adequate setback from channelized

waterways to recognize the 100-year flood elevation, and allow for stream corridor restoration. Setbacks identified in the Zoning Code should serve as minimum setbacks. Larger setbacks are encouraged in accordance with Restoration Concept Plans to meet restoration and enhancement goals.



CITYWIDE CREEK MASTER PLAN

OSC-E *Ensure local creeks and riparian corridors are preserved, enhanced, and restored as habitat for fish, birds, mammals and other wildlife.*

OSC-E-1 Maintain creek areas using practices that protect and support fish and wildlife as well as help retain hydraulic capacity.

OSC-E-2 Plan and perform stream maintenance activities that respect the balance of flood protection and environmental protection.



OSC-E-3 Continue to support efforts towards healthy, clean, and safe creeks.



OSC-F *Construct trail corridors and other recreational opportunities along local waterways.*



OSC-F-1 Accommodate connections to regional trail systems that enhance or support the creek trail systems network.

OSC-F-2 Cooperate with various public and private entities to create new public access trails along creeks to parks and open spaces within the Urban Growth Boundary, as well as connections to regional trail systems.

OSC-G *Provide educational opportunities along the waterways in the city.*

OSC-G-1 Continue with the distribution of the Creek Stewardship Guide that addresses, in part, erosion control techniques, vegetation management, and water quality. The guide should also explain how an individual or organization can protect and enhance the creek environment.


OSC-G-2 Support volunteer Creek Stewards who help serve to identify and report undesirable conditions and activities. Creek Stewards also perform minor maintenance and monitoring tasks and provide suggestions to enhance creek areas.



OSC-H *Conserve significant vegetation and trees and plant new trees.*




OSC-H-1 Preserve trees and other vegetation, including wildflowers, both as individual specimens and as parts of larger plant communities.

OSC-H-2 Preserve and regenerate native oak trees.


- OSC-H-3 Preserve the Highway 12 scenic route in eastern Santa Rosa, including the corridor of oak trees. Encourage CalTrans to preserve the oaks on site where possible, and to replace destroyed trees.
-  OSC-H-4 Require incorporation of native plants into landscape plans for new development, where appropriate and feasible, especially in areas adjacent to open space areas or along waterways.
- OSC-H-5 Plant trees on public property including park strips, open space and park areas and encourage tree planting on private property to help offset carbon emissions.

WATER CONSERVATION AND AIR QUALITY

OSC-I Conserve water and maintain water quality.

- OSC-I-1 Maintain high levels of water quality for human consumption and for other life systems in the region by regularly monitoring water quality.
- OSC-I-2 Require non-residential projects requesting Conditional Use Permit or Design Review approval to provide water efficient landscaping in accordance with the city’s Water Efficient Landscape Policy.
- OSC-I-3 Promote water conservation through public education, provision of conservation kits, and information about low-flow plumbing fixtures and leak detection.
-  OSC-I-4 Consider water conservation measures in the review of new residential development projects.
-  OSC-I-5 Expand the infrastructure network as possible to allow use of reclaimed water for use at residences, businesses, and city parks and facilities.
-  OSC-I-6 Protect groundwater recharge areas, particularly creeks and riparian corridors. Identify and protect other potential groundwater recharge areas.

AIR QUALITY

 **OSC-J Take appropriate actions to help Santa Rosa and the larger Bay Area region achieve and maintain all ambient air quality standards.**

- OSC-J-1 Review all new construction projects and require dust abatement actions as contained in the CEQA Handbook of the Bay Area Air Quality Management

District.

OSC-J-2 Budget for clean fuels and vehicles in the city's long-range capital expenditure plans, to replace and improve the existing fleet of gasoline and diesel powered vehicles. Initiate a policy to make its fleet among the cleanest in the North Bay by:

- Purchasing electric vehicles wherever possible, and especially for stop-and-go units such as parking meter readers.
- Purchasing electric or hybrid electric fleet vehicles for general staff use, especially for building inspectors and other uses primarily within the city.
- Purchasing alternative fuel vehicles, such as natural gas, as the existing diesel-powered fleet is replaced. Alternatively, purchase diesel vehicles only if they meet or exceed emission specifications for available natural gas fuel vehicles.
- Purchasing biodiesel fuel for use by the city diesel truck fleet.
- As possible, use lo-NOx fuel additives, such as Purinox, in all diesel vehicles.



OSC-J-3 Reduce particulate matter emissions from wood burning appliances through implementation of the city's Wood Burning Appliance code.

ENERGY



OSC-K *Reduce energy use in existing and new commercial, industrial, and public structures.*



OSC-K-1 Promote the use of site planning, solar orientation, cool roofs, and landscaping to decrease summer cooling and winter heating needs. Encourage the use of recycled content construction materials.




OSC-K-2 Identify opportunities for decreasing energy use through installation of energy efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.




OSC-K-3 Identify and implement energy conservation measures that are appropriate for public buildings. Implement measures that are at least as effective as those in the retrofit ordinances for commercial and office buildings.





OSC-K-4 Advance the city's environmentally sensitive preferred purchasing and green fleet conversion programs.


 OSC-K-5 Implement measures of the Climate Action Plan which increase energy efficiency, including retrofitting existing buildings and facilitating energy upgrades.

OSC-L *Encourage the development of nontraditional and distributed sources of electrical generation.*

 OSC-L-1 Reconsider any existing codes and policies that constrain or prohibit the installation of environmentally acceptable forms of distributed generation.

 *Distributed generation is small-scale sources of electrical generation, such as microturbines, fuel cells, photovoltaics, and other sources of electrical power that can be effectively located in office parks, industrial facilities, and other consumer buildings.*

 OSC-L-2 Participate in state and local efforts to develop appropriate policies and review procedures for the installation of photovoltaic solar and other environmentally acceptable forms of distributed generation.



OSC-L-3 Establish a city renewable energy program which will allow the city to generate or receive a significant portion of energy from renewable sources.

OSC-M *Reduce Greenhouse Gas Emissions*

OSC-M-1 Meet local, regional and state targets for reduction of greenhouse gas emissions through implementation of the Climate Action Plan.

Please note: Residential energy efficiency is addressed in Chapter 4: Housing Element. Energy efficiency in the transportation sector is addressed in Chapter 5: Transportation Element. Flood corridors are illustrated in Chapter 12: Noise and Safety Element.

12

NOISE AND SAFETY

This element presents an overview of the environmental and man-made hazards affecting Santa Rosa. Noise generation, geology and seismicity, flooding, hazardous materials, and wildland fires are all addressed.

12-1 VISION

Santa Rosa has safe and livable neighborhoods, shopping areas, workplaces, and recreation facilities in 2035. Noise levels along highways and regional/arterial streets are reduced through improved levels of service and noise attenuation measures, such as wide setbacks, landscaping, and traffic control signals. Noise along Highways 101 and 12 is buffered through construction of attractive sound walls adjacent to residential neighborhoods.

All new rehabilitated structures are constructed according to the California Building Code to ensure safety. Geologic hazards are considered in site and building design, and storm water improvements ensure that development along creek corridors is protected from flooding hazards. New structures built within downtown or along the Rodgers Creek Fault Zone are designed to withstand seismic activity. Potential for wildland fires is addressed through site and landscaping design. Education about safety in the event of disaster continues, to ensure that Santa Rosa residents are well prepared for earthquakes, floods, and fires.

12-2 DISASTER PREPAREDNESS

The Santa Rosa Emergency Operations Plan addresses how the city will respond to extraordinary events or disasters, from preparation through recovery. It includes a comprehensive assessment of potential hazards and threats, and sets forth policies and procedures pertaining to emergency planning, organization, and response. The plan is based on the principles and functions of the Standardized Emergency Management System (SEMS). Additionally, in 2006 the city adopted a Local Hazard Mitigation Plan. The plan's overall goal is to make Santa Rosa a disaster resistant community by reducing the potential loss of life, property damage, and environmental degradation from natural disasters while accelerating economic recovery. The Sonoma County Fire and Emergency Services Department is the lead agency for the Sonoma Operational Area and the City is one of nine incorporated

cities within the organizational boundary.

12-3 NOISE

Noise is defined as unwanted sound. In most of Santa Rosa, noise can be characterized as routine background sounds, and unusual or intermittent events. Cars, trucks, buses, trains, air conditioning systems, and aircraft generate background city noise. Intermittent, and sometimes excessive, noise can come from leaf blowers, helicopters, train whistles (at grade crossings), chain saws, un-muffled motor vehicles, and similar sources. Excessive noise can cause annoyance, health problems, economic loss, and ultimately hearing impairment.

Sound waves, traveling outward from a source, exert a sound pressure level usually measured in decibels (dB). Environmental noise is usually measured in A-weighted decibels; a metric corrected for the human ear's response to various frequencies (some animals can hear sounds outside the human range). This plan describes noise in A-weighted scale. Most people can detect a change in sound level at about 3 dB. An increase of 10 dB is perceived as a doubling of loudness.

PROJECTED NOISE SOURCES

The major sources of noise in Santa Rosa throughout the General Plan timeframe include:

U.S. Highway 101 and State Highway 12. Widening Highway 101 to six lanes through the city may increase noise levels as traffic is attracted from alternate routes (i.e. Petaluma Hill Road). Noise is created by tire interaction with the roadbed, and truck engines. In terms of sound energy, noise from one truck is equivalent to 20 autos.

Regional/Arterial streets. Major regional/arterial streets with substantial noise levels include Fulton Road, Guerneville Road, Bellevue Avenue, Stony Point Road, Mendocino Avenue, Fountaingrove Parkway, Calistoga Road, Summerfield Road, and College Avenue. In general, auto traffic volumes will increase by 2035, along with greater noise levels.

Railroad operations. When freight service resumes and passenger rail commences on the Northwestern Pacific Railroad, a number of large trucks and some vehicles may be removed from travel on Highway 101. Railroad noise will be most noticeable from horn soundings at grade crossings.

Emergency medical helicopters and vehicles. Emergency medical vehicles with sirens create intermittent but significant noise. Helicopter operations can affect a large population; the city has received complaints regarding the medical helicopter operations at Memorial and Sutter hospitals.

Landscaping equipment. Landscaping equipment, such as gasoline powered leaf blowers, generate noise and are regulated by the city's Noise Ordinance.

Charles M. Schulz-Sonoma County Airport. Operation of the Charles M. Schulz-Sonoma County Airport is addressed in the Sonoma County Transportation Element and the Airport Land Use Plan. The city regulates the type of development permitted on a small portion of land within the noise-shed of the airport runways.

Industrial and commercial facilities. To a lesser extent, industrial and commercial facilities are sometimes the sources of noise, particularly auto wrecking and commercial loading operations. The city receives infrequent complaints about noises occasionally generated by these businesses.

The noise standards used by the City of Santa Rosa include the Land Use Compatibility Standards for Community Noise environment (Figure 12-1), State of California Noise Insulation Standards (California Code of Regulations, Title 24, Part 2), and applicable standards in the City of Santa Rosa Noise Ordinance. General Plan policies address noise attenuation along major regional/arterial streets through location of land uses, site design, architectural standards, barriers, and street materials.

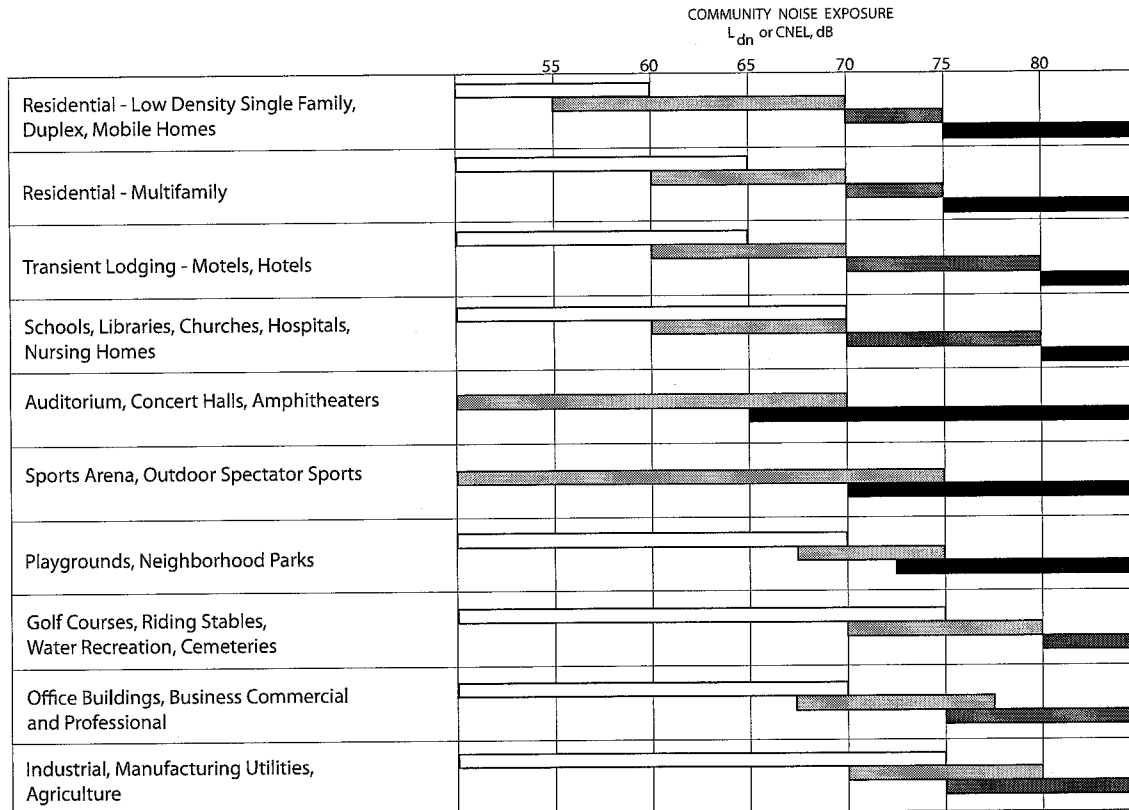
Figure 12-2 illustrates projected noise contours. A larger, separate fold-out map illustrating projected 2020 noise contours, along with data tables specifying projected distances to 2020 noise contours, is available from the Santa Rosa Community Development Department.

12-4 GEOLOGY AND SEISMICITY

Santa Rosa is within the natural region of California known as the Coast Ranges geomorphic province. The geology of Santa Rosa can vary from bedrock uplands to alluvial flatlands. Because of this varied geology, geologic hazards that could affect the City of Santa Rosa include:

- *Expansive soils.* Expansive soils possess a "shrink-swell" characteristic (cyclic change in volume due to the increase or decrease in moisture content) that occurs in fine-grained clay sediments. Expansion and contraction over the long term causes structural damage, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils.
- *Landsliding.* A landslide is a mass of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. Steep slopes and down-slope creep (slow downward slope movement) of surface materials characterize areas most susceptible to landsliding. The landslide hazard is increased with steep slopes located close to the Rodgers

Figure 12-1
Land Use Compatibility Standards



LEGEND:



NORMALLY ACCEPTABLE

Specified land use is satisfactory, based upon the assumption that any building involved is of normal conventional construction, without any special noise insulation requirements.



CONDITIONALLY ACCEPTABLE

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.



NORMALLY UNACCEPTABLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

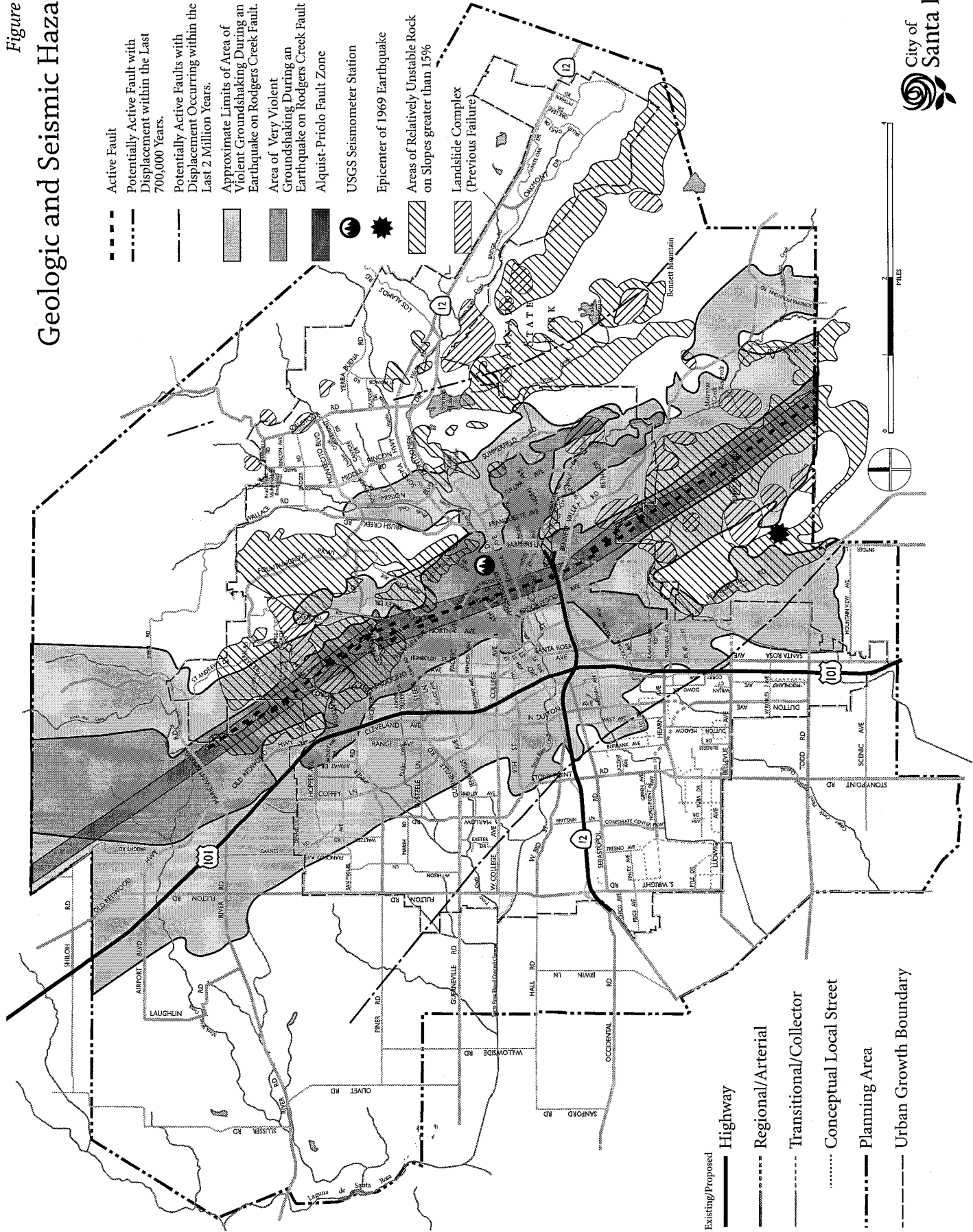


CLEARLY UNACCEPTABLE

New construction or development should generally not be undertaken.

Source: Environmental Science Associates, 2001

Figure 12-3
Geologic and Seismic Hazards



Creek Fault Zone.

SEISMICITY

Earthquakes pose especially high risks to Santa Rosa because of the city's proximity to active faults, as shown in Figure 12-3. The Rodgers Creek Fault Zone, approximately eight miles southeast of the Maacama Fault Zone, and 20 miles northeast of the San Andreas Fault Zone runs through the central part of Santa Rosa. The Rodgers Creek and San Andreas faults are the two principally active, Bay Area "strike-slip" faults and have experienced movement within the last 150 years--strike-slip faults primarily exhibit displacement in a horizontal direction. The San Andreas Fault Zone is a major structural feature in the region. Other principal faults capable of producing ground shaking in Santa Rosa include the Hayward, San Gregorio-Hosgri Fault Zone, the Calaveras fault, and the Concord-Green Valley fault.

Santa Rosa could experience a major Rodgers Creek Fault Zone earthquake or an earthquake on any one of the active or potentially active faults in the greater San Francisco Bay Area. General Plan policies seek to ensure that the new structures are built with consideration of the four major hazards associated with earthquakes.

- *Surface Fault Rupture.* Surface fault rupture, displacement at the earth's surface resulting from fault movement, is typically observed close to or on the active fault trace. The Rodgers Creek Fault Zone extends beneath downtown and has the highest potential for significant fault rupture.
- *Ground Shaking.* Santa Rosa could be affected by strong ground shaking caused by a major earthquake during the next 30 years. Ground shaking can be described in terms of peak acceleration, peak velocity, and displacement of the ground. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill. Ground shaking may affect areas hundreds of miles away from the earthquake's epicenter.
- *Liquefaction and Ground Failure.* Liquefaction is the process by which water-saturated soil materials lose strength and fail during strong seismic ground shaking. The shaking causes the pore-water pressure in the soil to increase, thus transforming the soil from a solid to a liquid. Liquefaction has been responsible for ground failures during almost all of California's great earthquakes.
- *Earthquake-Induced Landslides.* Seismically induced landsliding is typical of upland areas with slopes greater than 25 percent. Earthquake groundshaking can trigger slope movements such as earth flows and rotational landslides, or dislodge fractured bedrock material resulting in a rockfall.

12-5 FLOODING

Flooding hazards may be considered in two categories: natural flooding and dam inundation. Natural flooding hazards are those associated with major rainfall events, which result in the flooding of developed areas due to overflows of nearby waterways, or inadequacies in local storm drain facilities. In the City of Santa Rosa, most of the annual precipitation falls between the months of November and April. The Federal Emergency Management Agency (FEMA) has identified a several 100-year and 500 year flood zones; approximately 7 square blocks in area, at the confluence along portions of Spring Creek, and Matanzas Creek, Colgan Creek, Naval Creek, Roseland Creek, and Kawana Springs Creek in Santa Rosa. Figure 12-4 illustrates areas subject to flooding and dam inundation.

Major creeks in Santa Rosa have the potential to cause flooding during a large storm event and historically flooding has occurred in areas near creeks. In northern Santa Rosa, the number and geographic distribution of creeks, combined with favorable topography creates a condition in which flooding risks are expected to remain minimal during the planning period. In southern Santa Rosa, drainage conditions are less favorable due to flat topography and the limited number of drainageways (creeks and conduits) that are available for storm water disposal. Currently, the majority of collected storm water in southern Santa Rosa is channeled into Colgan and Roseland creeks. Limited capacity and concentrated discharge place these creeks at the greatest risk of flooding during a 100-year storm event. Drainage improvements to both creeks will be necessary to minimize flooding risks in the future.

To reduce flood risk within the community, the City of Santa Rosa complies with National Flood Insurance Program regulations which apply to all areas of special flood hazard within the city. Flood hazard maps indicate the level of risk for flooding within various watersheds and provide a foundation from which to make key decisions for future developments and projects.

Dam inundation hazards are those associated with the downstream inundation that would occur given a major structural failure in a nearby reservoir. A major earthquake could potentially cause damage or failure to a dam structure, and cause localized flooding. Although dam failure is unlikely due to current state regulations for design, maintenance, and monitoring of dams, Santa Rosa is exposed to the hazard of inundation from failure of local dams such as Lake Ralphine.

Improvements to the storm drain system consistent with expansion or intensification of urban development is essential to protecting Santa Rosans from flooding hazards. Additionally, General Plan policies require provision of open space areas for storm water retention and infiltration and opportunities for groundwater recharge. Monitoring urban runoff resulting

from planned development will allow for controlled stormdrain discharge into existing creeks while also adding to groundwater supply in order to replenish existing aquifers. Limiting the amount of stormwater runoff discharged into the city stormdrain system will help reduce flooding events. The city will maintain and monitor the city hydraulic corridors in order to prevent future hazards associated with flooding.

12-6 HAZARDOUS MATERIALS

Hazardous materials are used in the city for industrial, commercial, and household purposes, and are regulated by federal, state, and local government agencies. These regulations are intended to protect both the environment and public health and safety from improper use, handling, storage, and transport of hazardous materials and waste. For example, the U.S. Department of Transportation (DOT) regulates transportation of hazardous materials. The North Coast Regional Water Quality Control Board has jurisdiction over water quality issues, including groundwater contamination. The Santa Rosa Fire Department has been designated by the State of California as a Certified Unified Program Agency (CUPA) for hazardous materials regulatory enforcement. The Fire Prevention Bureau is responsible for hazardous materials, hazardous waste program management, hazardous materials enforcement and oversight of contaminated soils remediation, including Sonoma County Hazardous Materials Division and Santa Rosa City Fire Department oversee underground and aboveground storage tanks containing hazardous materials and petroleum products. The Santa Rosa City Fire Department Hazardous Materials Response Unit responds to hazardous materials spills.

Potential environmental and health and safety risks associated with hazardous materials in Santa Rosa include automobile accidents involving vehicles transporting hazardous materials or wastes (particularly along the Highway 101 corridor), accidental spills or leaks associated with seismic events, and improper use, handling, storage, transport, and disposal of hazardous materials.

Santa Rosa strictly adheres to federal, state, and local regulations to prevent chemical storage and handling activities associated with industrial and commercial uses. These regulations ensure that underground storage tanks do not release hazardous materials such as petroleum products into the soil and groundwater. Public education efforts reduce improper disposal of household-generated hazardous waste such as used motor oil, paints, and solvents which can impact local waterways and drinking water supplies.

12-7 WILDLAND FIRES

Hillside residential neighborhoods located in the northern and eastern portions of the city are subject to risk of wildland fire, and historically have been the site of such fires. Open areas and slopes covered with tall grasses and/or chaparral provide fuels to feed wildfires, once started. The City has identified a Wildland Urban Interface (WUI) zone that encompasses

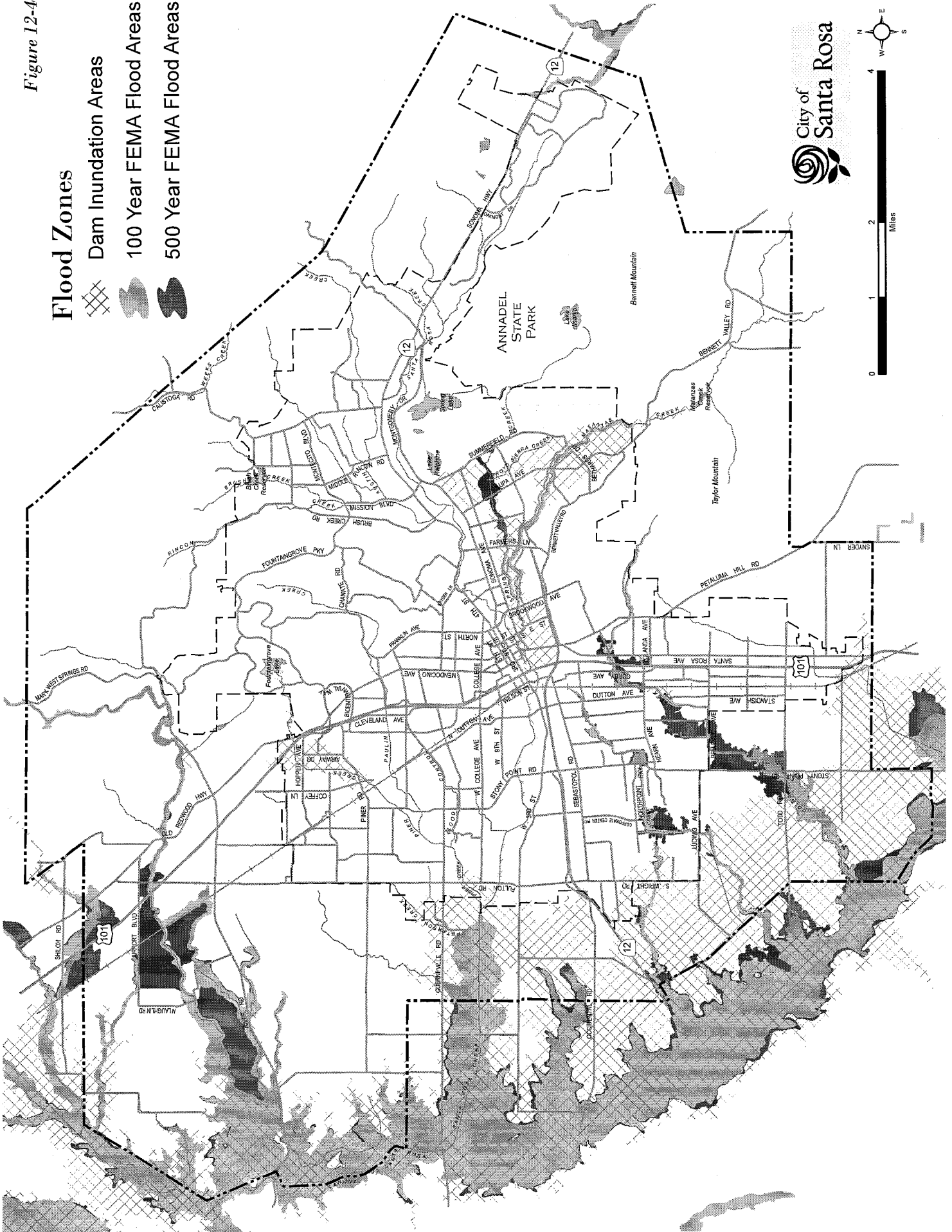
Figure 12-4

Flood Zones

 Dam Inundation Areas

 100 Year FEMA Flood Areas

 500 Year FEMA Flood Areas



four types of fire hazard zones: moderate, high, very high, and mutual threat. Approximately 30 percent of Santa Rosa is located within the WUI zone. Figure 12-6 depicts the WUI zone and the location of very high fire hazard severity zones within the WUI zone. While the Santa Rosa Fire Department has primary responsibility for fire protection within City limits, the City is aided by California Department of Forestry and Fire Protection and other surrounding fire departments such as Rincon Valley Fire Protection District, Bennett Valley Fire Department, Kenwood Fire Department, Rohnert Park Department of Public Safety, Windsor Fire Department, and Sebastopol Fire Department. Fire-resistant building materials and landscaping contribute to prevention of damage to residences in case of a wildfire. General Plan policies requiring adequate fire flows and community fire breaks in residential subdivisions also minimize potential for fire damage.

12-8 GOALS AND POLICIES

NS-A *Prepare for disasters.*

NS-A-1 Maintain the Emergency Operations Plan as the city’s disaster-response plan. Work with Sonoma County to update joint-emergency response and disaster response plans, as needed.

NS-A-2 Continue to promote the Citizens Organized to Prepare for Emergencies (COPE) public awareness program on the nature and extent of natural hazards in the Planning Area, and ways of minimizing the effects of disasters.

NS-A-3 Establish community programs which train volunteers to assist police, fire, and civil defense personnel during and after disasters.

NS-A-4 Implement the Local Hazard Mitigation Plan to better prepare Santa Rosa for disaster.

The Local Hazard Mitigation Plan is an adopted “implementation appendix” to this Safety Element. It can be viewed on the City of Santa Rosa website.

NS-A-5 Locate essential public facilities, such as hospitals and clinics, emergency shelters, emergency command centers, and emergency communications facilities, outside of high fire risk area, flood hazard zones, and areas subject to dam inundation.

NOISE

NS-B *Maintain an acceptable community noise level to protect the health and comfort of people living, working and/or visiting in Santa Rosa, while*

maintaining a visually appealing community.

NS-B-1 Do not locate noise-sensitive uses in proximity to major noise sources, except residential is allowed near rail to promote future ridership.

NS-B-2 Encourage residential developers to provide buffers other than sound walls, where practical. Allow sound walls only when projected noise levels at a site exceed land use compatibility standards in Figure 12-1.

In some established neighborhoods and subdivisions, sound walls may provide the only alternative to reduce noise to acceptable community standards. The Design Review process shall evaluate sound wall aesthetics and landscaping to ensure attractiveness along with functionality.

NS-B-3 Prevent new stationary and transportation noise sources from creating a nuisance in existing developed areas. Use a comprehensive program of noise prevention through planning and mitigation, and consider noise impacts as a crucial factor in project approval.

The Land Use Compatibility Standards specify normally acceptable levels for community noise in various land use areas.

NS-B-4 Require new projects in the following categories to submit an acoustical study, prepared by a qualified acoustical consultant:

- All new projects proposed for areas with existing noise above 60dBA DNL. Mitigation shall be sufficient to reduce noise levels below 45 dBA DNL in habitable rooms and 60 dBA DNL in private and shared recreational facilities. Additions to existing housing units are exempt.
- All new projects that could generate noise whose impacts on other existing uses would be greater than those normally acceptable (as specified in the Land Use Compatibility Standards).

NS-B-5 Pursue measures to reduce noise impacts primarily through site planning. Engineering solutions for noise mitigation, such as sound walls, are the least desirable alternative.

NS-B-6 Do not permit existing uses to generate new noises exceeding normally acceptable levels unless:

- Those noises are mitigated to acceptable levels; or
- The activities are specifically exempted by the City Council on the basis of community health, safety, and welfare.

- NS-B-7 Allow reasonable latitude for noise generated by uses that are essential to community health, safety, and welfare. These include emergency medical helicopter and vehicle operations, and emergency vehicle sirens.
- NS-B-8 Adopt mitigations, including reduced speed limits, improved paving texture, and traffic controls, to reduce noise to normally acceptable levels in areas where noise standards may be exceeded (e.g., where homes front regional/arterial streets and in areas of mixed use development.)
- NS-B-9 Encourage developers to incorporate acoustical site planning into their projects. Recommended measures include:
- Incorporating buffers and/or landscaped earth berms;
 - Orienting windows and outdoor living areas away from unacceptable noise exposure;
 - Using reduced-noise pavement (rubberized-asphalt);
 - Incorporating traffic calming measures, alternative intersection designs, and lower speed limits; and
 - Incorporating state-of-the-art structural sound attenuation and setbacks.
- NS-B-10 Work with private enterprises to reduce or eliminate nuisance noise from industrial and commercial sources that impact nearby residential areas. If progress is not made within a reasonable time, the city shall issue abatement orders or take other legal measures.
- NS-B-11 Work with CalTrans to assign a high priority to traffic noise mitigation programs. Support construction of attractive sound walls, as necessary along Highway 101 and Highway 12.
- NS-B-12 Cooperate with Santa Rosa Memorial Hospital, Sutter Medical Center, and other hospitals proposing helipads. Minimize the noise and safety impacts of medical emergency helicopters through location and design of landing pads, regulation of flight times and frequency and, if necessary, sound attenuating alterations to nearby residences.
- NS-B-13 Prohibit new helipads in developments of industrial, commercial, office, or business park uses. The city may make an exception if the helipad will provide a significant benefit for community health, safety, and welfare.
- NS-B-14 Discourage new projects that have potential to create ambient noise levels more than 5 dBA DNL above existing background, within 250 feet of sensitive receptors.

GEOLOGY AND SEISMICITY

NS-C ***Prohibit development in high-risk geologic and seismic hazard areas to avoid exposure to seismic and geologic hazards.***

NS-C-1 Prior to development approval, require appropriate geologic studies to identify fault trace locations within active fault zones as designated by the provisions of the Alquist-Priolo Earthquake Fault Zoning Act. California registered geologists or engineers must conduct these studies and investigation methodologies must comply with guidelines set forth by the Alquist-Priolo Earthquake Fault Zoning Act.

Compliance with the Act would insure proper setback or appropriate design to minimize the potential hazards resulting from fault movement and surface displacement.

NS-C-2 Require comprehensive geotechnical investigations prior to development approval, where applicable. Investigations shall include evaluation of landslide risk, liquefaction potential, settlement, seismically-induced landsliding, or weak and expansive soils. Evaluation and mitigation of seismic hazards, including ground shaking, liquefaction, and seismically-induced landslides, shall comply with guidelines set forth in the most recent version of the California Division of Mines and Geology (CDMG) Special Publication 117.

The level of investigation would depend on physical site location, local or regional geologic or seismic hazards, and recommendations by a consulting engineer.

NS-C-3 Restrict development from areas where people might be adversely affected by known natural or manmade geologic hazards. Hazards might include unstable slopes, liquefiable soils, expansive soils or weak poorly engineered fills, as determined by a California registered geologist or engineer.

NS-C-4 Restrict development of critical facilities--such as hospitals, fire stations, emergency management headquarters, and utility lifelines, including broadcast services, sewage treatment plants, and other places of large congregations--in areas determined as high-risk geologic hazard zones (e.g. Rodgers Creek Fault zone, liquefiable soils, areas of slope instability).

NS-C-5 Require identification and evaluation of existing structural hazards related to unreinforced masonry, poor or outdated construction techniques, and lack of seismic retrofit. Abate or remove any structural hazard that creates an unacceptable level of risk, including requiring post-earthquake buildings that are not currently retrofitted and are located within areas determined to experience

strong ground shaking during an earthquake.

- NS-C-6 Require appropriate and feasible seismic retrofit, as determined by a registered structural engineer, of commercial, industrial, and public buildings that are not currently retrofitted and are located within areas determined to experience strong ground shaking during an earthquake.
- NS-C-7 Require inspection for structural integrity of water storage facilities, water conveyance facilities, electricity transmission lines, roadways, water detention facilities, levees, and other utilities after a major seismic event, especially on the San Andreas or Rodgers Creek faults.
- NS-C-8 Adopt mandatory, minimum erosion control measures for current properties and those under construction that exhibit high erosion potential, are in areas of steep slopes, or have experienced past erosion problems. Control measures shall reduce soil erosion from primary erosional agents, including wind, construction operations, and storm water runoff.

FLOODING

NS-D *Minimize hazards associated with storm flooding.*

- NS-D-1 Ensure flood plain protection by retaining existing open areas and creating new open areas needed to retain stormwater, recharge aquifers, and prevent flooding.
- Creek beds that are dry most of the year can provide flood retention needed for public safety.*
- NS-D-2 Maintain current flood hazard data, and coordinate with the Army Corps of Engineers, FEMA, Sonoma County Water Agency, and other responsible agencies to coordinate flood hazard analysis and management activities.
- NS-D-3 Require that new development and redevelopment projects meet the requirements of the incorporate features that are consistent with the Standard Urban Storm Water Mitigation Plan (SUSMP) Storm Water Low Impact Development Technical Design Manual into site drainage plans that would to reduce impermeable surface area, increase surface water infiltration, and minimize surface water runoff during storm events. Such features may include:
- Additional landscape areas;
 - Vegetated swales with bioretention;

- Rain gardens; and
- Pervious pavement.
- ~~Parking lots with bio-infiltration systems;~~
- ~~Permeable paving designs; and~~
- ~~Stormwater detention basins.~~

NS-D-4 Incorporate features and appropriate standards that reduce flooding hazards, ~~as described in Policy NS-D-3 into the city's design standards.~~

NS-D-5 Apply design standards and guidelines to new development that help reduce project runoff into local creeks, tributaries, and drainage ways.

~~NS-D-6 Locate new essential public facilities such as hospitals and fire stations outside of flood areas or areas subject to dam inundation.~~

NS-D-6 Evaluate flood hazards prior to approval of development projects within a Federal Emergency Management Agency (FEMA) designated flood zone. Ensure that new development within flood zones is designed to be protected from flooding without negatively affecting adjacent areas.

NS-E *Provide protection of public and private properties from hazards associated with dam inundation.*



NS-E-1 Support efforts to conduct periodic inspections of local dams to ensure all safety measures are in place.

HAZARDOUS MATERIALS

NS-F *Minimize dangers from hazardous materials.*

NS-F-1 Require remediation and cleanup, and evaluate risk prior to reuse, in identified areas where hazardous materials and petroleum products have impacted soil or groundwater.

NS-F-2 Require that hazardous materials used in business and industry are transported, handled, and stored in accordance with applicable federal, state, and local regulations.

NS-F-3 Restrict siting of businesses, including hazardous waste repositories, incinerators or other hazardous waste disposal facilities, that use, store, process, or dispose large quantities of hazardous materials or wastes in areas subject to seismic fault

rupture or very violent ground shaking.

NS-F-4 Where applicable, identify and regulate appropriate regional and local routes for transportation of hazardous materials and hazardous waste. Require that fire and emergency personnel can easily access these routes for response to spill incidences.

NS-F-5 Require commercial and industrial compliance with the Sonoma County Hazardous Materials and Waste Management Plan.



NS-F-6 Generate and support public awareness and participation in household waste management, control, and recycling through county programs including the Sonoma County Household Hazardous Waste Management Plan.



WILDLAND FIRES



NS-G *Minimize the potential for wildland fires.*

NS-G-1 Require proposed developments in ~~high or medium fire hazard areas~~ the Wildland Urban Interface zone, including the Very High Fire Hazard Severity zone, to investigate a site's vulnerability to fire and to minimize risk accordingly.

NS-G-2 Require new development in Wildland Urban Interface areas ~~of high wildfire hazard~~ to utilize fire-resistant building materials. Require the use of on-site fire suppression systems, including enhanced automatic sprinklers systems, smoke and/or detection systems, buffers and fuel breaks, and fire retardant landscaping. Require development and ongoing implementation of vegetation management plans to reduce the risk of wildland fires and to help prevent fires from spreading.

NS-G-3 Prohibit untreated wood shake roofs in Wildland Urban Interface areas ~~of high fire hazard~~.



NS-G-4 Continue monitoring water fire-flow capabilities throughout the city and improving water availability at any locations having flows considered inadequate for fire protection.

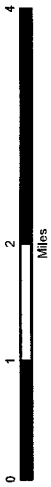
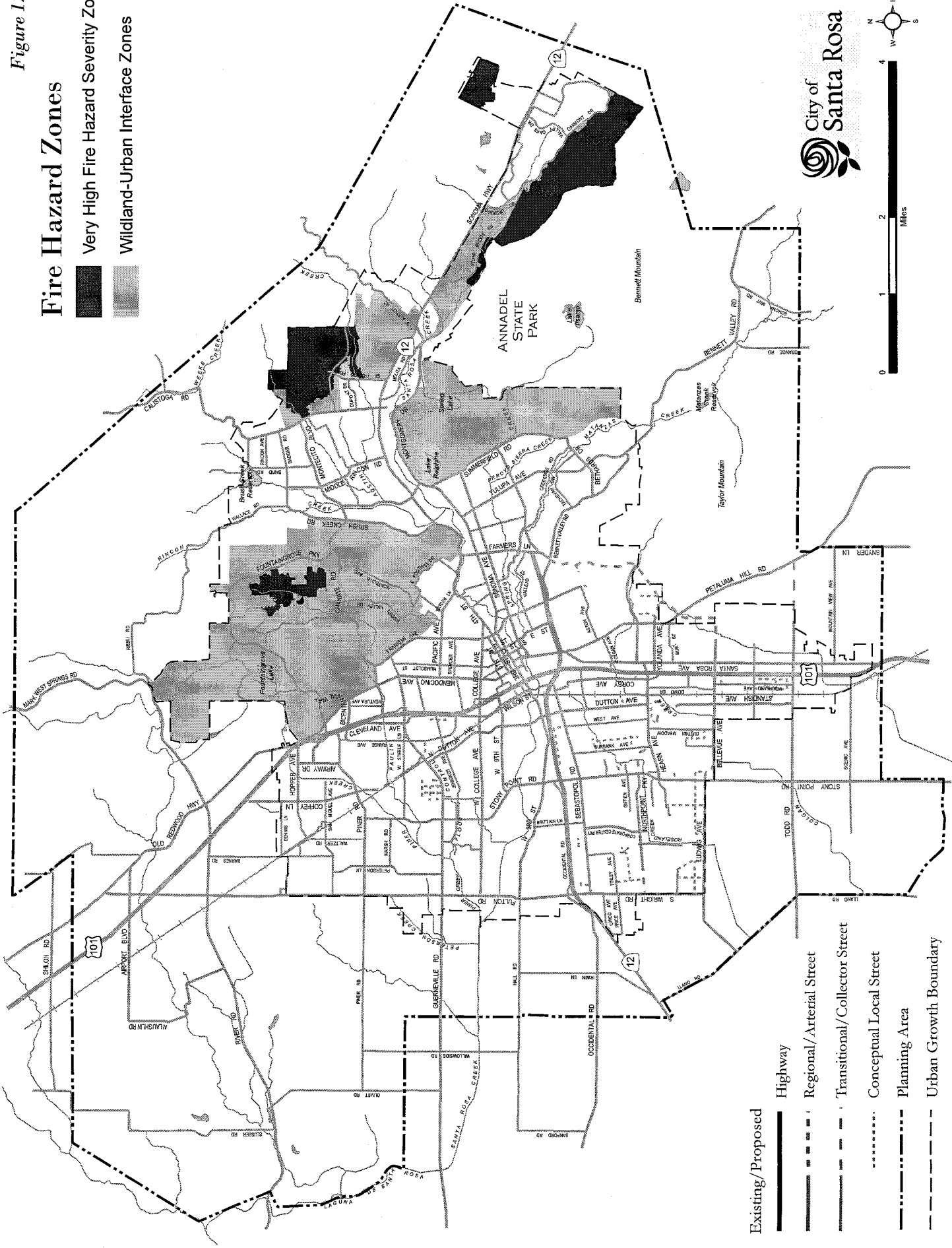
NS-G-5 Require detailed fire prevention and control measures, including community firebreaks, for development projects in high fire hazard zones.







NS-G-6 Minimize single-access residential neighborhoods in development areas near

Figure 1.2-5

Fire Hazard Zones

-  Very High Fire Hazard Severity Zones
-  Wildland-Urban Interface Zones



- Existing/Proposed
-  Highway
 -  Regional/Arterial Street
 -  Transitional/Collector Street
 -  Conceptual Local Street
 -  Planning Area
 -  Urban Growth Boundary

open space, and provide adequate access for fire and other emergency response personnel.

NS-H ***Prepare for climate changes***

NS-H-1 Participate in regional efforts to prepare for the impacts of climate change.

NS-H-2 Engage the community in preparing for climate change through the promotion of Climate Action Plan measures, distribution of information, and through local schools.