

Introduction

Natural features and resources have shaped both the growth and form of San Rafael and provide many of the attractive characteristics of the area. San Rafael has a significant diversity of natural features and assets that are important to preserve through land use planning. Those important resources include bay lands and water, canal frontage, streams, a ridgeline edge for the community, clean air and valuable wildlife habitat. A central concern of the General Plan, therefore, in considering the location, design, intensity and type of land uses in the City, is to continue to protect natural resource areas.

In 1972, voters approved a tax levy and the formation of the Marin County Open Space District to acquire and maintain open space, park and recreational lands. In that same year there was also a San Rafael voter-approved bond measure, where individual neighborhoods passed bonds to purchase open space in the area. With these events taking place, emphasis was given to the importance of purchasing open space for the community. Since then tremendous progress has been made in securing and protecting open space throughout the County. San Rafael has largely met its initial objectives by securing 3,285 acres of open space within the City limits and almost 7,300 acres in the Planning Area. The Marin County Open Space District has also secured considerable land in San Rafael's Planning Area. One-quarter of the land in San Rafael's Planning Area is secured open space.



Oak trees and grasslands are valuable open space habitat.

GOAL 32: PROTECTED OPEN SPACE

It is the goal of San Rafael to preserve and protect open space and the natural environment for all to enjoy. *Preservation of open space and the natural environment have been a priority for San Rafael residents for many years. Whenever possible, the natural terrain and vegetation of the community should be preserved and maintained.*

OS-1. Open Space Preservation.

Preserve, through a variety of methods, the open space areas identified in the Inventory of Potential Open Space Sites (See Appendix I). Retain and protect open space areas that serve as delineators between neighborhoods and between adjacent communities, as wildlife habitat, and as visual assets for the community. Open space areas can also function as connections between neighborhoods, for example with the creation of pathways in environmentally appropriate areas.

OS-1a. Open Space Inventory. Update the Inventory of Potential Open Space Sites. Identify and prioritize open space parcels for future protection. Maximize the use of available resources when assessing City involvement in securing open space by applying the following non-prioritized evaluation criteria:

- a. Environmental health and safety issues (specifically geology and hydrology), and potential geoseismic hazards.
- b. Resource Areas and Aesthetics (visual backdrop or edge, unique site features, shorelines/ridgelines, wetlands, wildlife habitat including wildlife movement corridors and habitat for endangered species).
- c. Importance to the community as a whole or adjoining neighborhoods.
- d. Merits of alternative uses.
- e. Proximity to other open space areas.
- f. Recreation potential.
- g. Accessibility.
- h. Availability of outside financial assistance.
- i. Potential maintenance and management costs and liability exposure for the City.

Responsibility: Community Development

Timeframe: Long Term

Resources: Staff Time, Grants

OS-1b. Preservation Opportunities. Through the development review process, preserve open space areas identified on the Open Space Inventory. Encourage the dedication of open space areas that are adjacent to public open space. Possibilities also include acquisition of fee title or acquiring easements for preserving open space. When potential open space is not contiguous to existing public open space, the preference is to retain the open space in private ownership. When portions of a site are retained as private open space, ensure the preservation and management of that open space through appropriate means, including required maintenance, as determined through development review. Work with other public and non-profit agencies to identify sources for acquisition and maintenance of open space.

Responsibility: Community Development, Public Works, City Manager

Timeframe: Ongoing

Resources: Fees, Grants, Donations, Bonds

OS-1c. Cluster Development. As part of the development review process, encourage the clustering of development to preserve desired open space.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

OS-2. Open Space Management.

Maintain and manage City Open Space lands. Designate appropriate uses to specific sites. Determine maintenance needs to address uses and the preservation of natural amenities. Address illegal camping and campfires, disease control, erosion control, urban/wildlife interface, recreation and other activities harmful to open space environment, as well as vegetation management and wildlife habitat protection issues.

OS-2a. Open Space Management Plan(s). Establish a committee with representatives from neighborhood associations, environmental organizations, user groups and other stakeholders to prepare an Open Space Management Plan(s). The plan should address use and ongoing maintenance of open space areas. The management plan should address appropriate access points, parking areas, public information signage, trail extensions, restoration of erosion and other degraded areas, and guidelines for the location of amenities such as picnic tables and benches. Amend zoning provisions as needed. Funding options should be explored and identified for open space management such as open space maintenance assessment districts, agreements with other public agencies for maintenance, neighborhood "adoption," volunteer programs, private funding and other means.

Responsibility: Public Works, Police Department, Fire Department, Community Services, Community Development

Timeframe: Long Term

Resources: Staff Time, Grants, Volunteers, Donations

OS-2b. Removal of Invasive Species. Use volunteer and other types of work crews to remove selected invasive vegetation from open space areas.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time, Volunteers

OS-2c. Diseased Vegetation. Work with County and regional experts in finding solutions for the prevention and disposal of diseased vegetation, such as vegetation affected by Sudden Oak Death Syndrome.

Responsibility: Public Works

Timeframe: Ongoing

Resources: General Fund

OS-2d. Illegal Encampments. Continue to work with private and public property owners to identify and remove illegal encampments in open space areas.

Responsibility: Police, Fire, Community Development

Timeframe: Ongoing

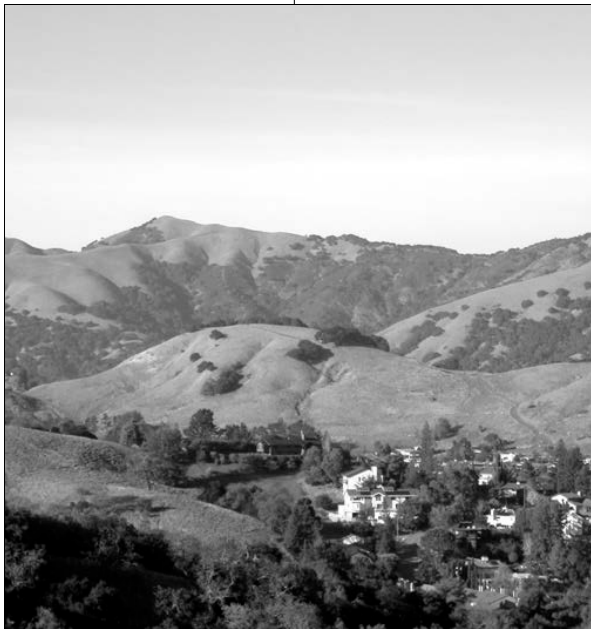
Resources: Staff Time, Fines

See CON-15a (Invasive Plant Ordinance), CON-15b (Removal of Invasive Species on Public Property).

OS-3. Open Space Use.

Protect and preserve the natural value of open space and wildlife habitat areas while permitting educational and recreational uses compatible with these resources. Specific use objectives include:

- a. Open space areas should be maintained in a natural state.
- b. Open space areas are a community resource for use and enjoyment by the residents of San Rafael.
- c. Uses of open space areas shall be secondary to open space preservation, and limited to those uses with a minimal impact on the environment.



San Rafael hillsides were purchased in the 1970s and preserved as open space for perpetuity.

OS-3a. Management of Private Open Space. In designating open space as part of a development project or with the dedication of land for open space, identify limitations to uses in those areas, such as restrictions on ornamental landscaping, structures and fences.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

See OS-2a (Open Space Management Plans).

OS-4. Access to Open Space.

Encourage provision of access to open space areas in the design of adjacent development. Secure access paths shown on Exhibit 34 as part of subdivision approvals and design access paths to avoid or minimize neighborhood and user conflicts with sensitive wildlife habitat areas.

OS-4a. Access Points. Through the development review process, identify access points and parking areas to be retained and required improvements.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

OS-5. Coordination with Other Jurisdictions.

Coordinate San Rafael's open space system with adjacent cities, Marin County, the State, and regional and private open space systems.

OS-5a. Coordination with Other Jurisdictions. Continue to work with public agencies managing open space within the San Rafael Planning Area to ensure a coordinated system.

Responsibility: City Manager, Public Works

Timeframe: Ongoing

Resources: Staff Time

OS-6. Utilities in Open Space.

Discourage utilities in open space areas. Necessary utilities in open space should be located and designed to minimize harm to the area's environmental and visual quality.

OS-6a. Utilities in Open Space. Use zoning ordinance provisions and the design and environmental review processes to evaluate the location and design of public utilities.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

OS-7. Public Education.

Provide education programs to residents about wildlife, fire hazard, watershed protection and open space habitat.

OS-7a. Public Education. Continue outreach and public education. Examples include the dissemination of educational materials and programs related to wildland fire prevention, feral cats, and Marin County Stormwater Pollution Prevention Program (MCSTOPPP) requirements.

Responsibility: Fire, Public Works

Timeframe: Ongoing

Resources: Staff Time, Grants

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Introduction

Conservation helps prevent the wasteful destruction and neglect of San Rafael's natural resources, particularly scarce resources. The City recognizes that natural resources must be maintained for their economic and recreational use as well as for their ecological value. The Conservation Element policies address water, air quality and wildlife and cover the topics of Wetlands; Diked Baylands; Creeks and Drainageways; Native Plants, Animals and Habitat; and Resource Management.

San Rafael's Habitats

San Rafael is rich with diverse habitats, such as creeks and drainageways, seasonal freshwater wetlands, tidal wetlands and riparian areas that are valued resources for San Rafael's wildlife. Protection, restoration or enhancement of damaged habitats is important for the continued health of San Rafael's natural environment.

Habitats have been damaged by the spread of non-native invasive plants. The City must build on its efforts to manage undesirable invasive species. Landscaping with native species should be encouraged for restoration projects.

Protection of the creeks and drainageways and wetlands, and the plants and animals that live in and near them, can be achieved by managing public access along these areas and by minimizing encroachment by new development to only that which is unavoidable. This can be accomplished by preserving buffer areas along creeks and drainageways, associated riparian areas and wetlands. Another way to protect creeks is to improve public access points so that uncontrolled foot traffic does not damage these sensitive habitats.



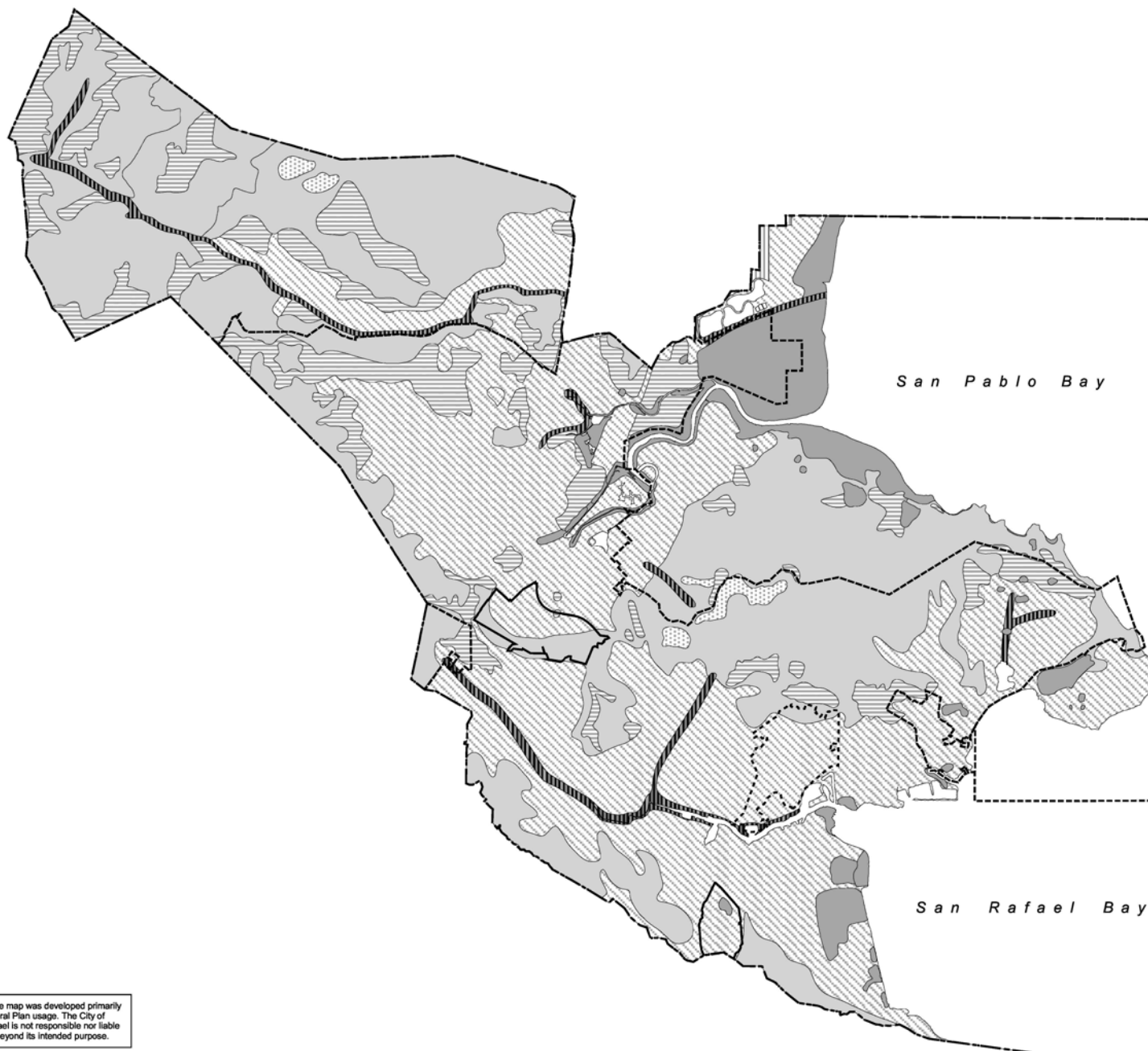
The endangered Salt Marsh Harvest Mouse in his (or her) Pickleweed habitat.

Exhibit 35



Major Biotic Habitats

-  Grasslands
-  Agricultural
-  Wetlands
-  Chaparral
-  Oak Savanna/Woodlands
-  Riparian
-  Urbanized/Developed



San Pablo Bay

San Rafael Bay



0 500 1000 1500 Meters

0 0.5 1 1.5 Miles

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GOAL 33: PROTECTED HABITAT

It is the goal of San Rafael to have enhanced habitat for native plants and animals, and special protection for species that are listed as threatened or endangered.

San Rafael is rich in wildlife and native plant habitats, such as wetlands, creeks, shorelines, oak woodlands and riparian areas, as well as wildlife corridors between them, and these habitats are being protected or restored as necessary.

CON-1. Protection of Environmental Resources.

Protect or enhance environmental resources, such as ridgelines, wetlands, diked baylands, creeks and drainageways, shorelines and habitat for threatened and endangered species.

CON-1a. Plans for Environmental Protection.

Complete the implementation of Mahon Creek Final Conceptual Plan and the Shoreline Park Master Plan.

Responsibility: Public Works

Timeframe: Long Term

Resources: Grants, Contributions

See LU-2a (Development Review).



Wetlands

Wetlands are defined as: "Areas under the jurisdiction of the US Army Corps of Engineers that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation that is typically adaptive for life in saturated soils conditions. Wetlands generally include but are not limited to seasonal wetlands, marshes, vernal pools and bogs." Wetlands are fragile, natural resources subject to flooding, erosion, soil-bearing capacity limitations and other hazards. In addition they are resources of special significance due to the modulation of flood waters, water quality and habitat functions they perform, and resulting values identified by man such as control of flood velocities, floodwater storage, floodwater passage, aquifer recharge, erosion control, pollution control, wildlife habitat, education, scientific study, open space and recreation.

Marshlands are valuable habitat for many local and migratory birds.

CON-2. Wetlands Preservation.

Require appropriate public and private wetlands preservation, restoration and/or rehabilitation through compensatory mitigation in the development process for unavoidable impacts. Support and promote acquisition of fee title and/or easements from willing property owners.

CON-2a. Wetlands Overlay District. Continue to implement wetlands policy through the Wetlands Overlay zoning district and development review.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

See also OS-1a (Open Space Inventory), OS-1b (Preservation Opportunities), and OS-1c (Cluster Development).

CON-3. Wetland Protection and Mitigation.

In order to protect and preserve valued wetlands, loss of wetlands due to filling shall be avoided, unless it is not possible or practical. When it is demonstrated that it is not possible or practical to avoid filling a wetland because of site constraints and conditions such as the geographic location of the wetlands, site configuration and size, require that the wetland be replaced on-site, and in-kind at a minimum ratio of 2:1 (e.g., 2 acres for each acre lost). If it is determined that on-site mitigation is not possible or practical, off-site mitigation shall be required at a minimum replacement ratio of 3:1. As assessed and determined on a case-by-case basis, the City may

waive this policy for fill of small wetlands (0.1 acre or less in size), provided that: (1) the wetland is isolated meaning that it is not within, a part of, directly connected with or hydrologically-linked by natural flow to a creek, drainageway, wetland or submerged tidlands; (2) it is demonstrated by a wetland expert that the preservation of the wetland is not practical as it would not result in a functioning, biological resource because of its isolation; (3) the City has determined that filling would result in a more appropriate and desirable site plan for the project; and (4) the City consults with and considers comments received from the appropriate resource agencies with wetland oversight (State of California Department of Fish and Game and/or the California Regional Water Quality Control Board).

Wetland Definitions

Wetland Restoration – To bring a wetland back into existence in an area where wetlands had historically occurred, but were lost due to the actions of man or through natural process.

Wetland Enhancement – The modification of a natural or created wetland to enhance one or more functions. Enhancement of some wetland functions may negatively affect other functions.

Wetland Creation – To bring a wetland into existence, whether by accident or intentionally, where none existed previously; this includes the creation of wetlands for mitigation, habitat, and water quality purposes.

Mitigation – Actions taken to avoid, reduce, or compensate for the effects of human-induced environmental damage.

a. **Creation of Wetlands.** The creation of wetlands shall be (1) of a similar habitat type to that of the existing wetlands and (2) of at least equal functional quality. The wetlands should be created or restored on or adjacent to the site, where possible. If on-site creation is infeasible due to technical constraints, compensatory habitat may be created off-site, preferably in the same drainage basin. Restoration of former filled, drained or diked wetland habitat is preferred over creation of wetlands on lands that were historically uplands. Plans for this habitat shall be prepared by a qualified wetland restoration ecologist in consultation with appropriate federal and state

resource agencies. Mitigation plans shall require an annual monitoring for a period of time as specified by a qualified biologist to determine mitigation success. Contingency measures to deal with the potential for a lack of success should also be included in the plan.

b. **Timing of Restoration or Creation.** Restoration or creation of wetlands should be completed prior to construction of the development. Where construction activities would adversely impact wetland restoration or creation, wetlands restoration or creation may be completed after construction of the development, as determined through development review.

CON-3a. Project Mitigation. Continue the City's practice of requiring mitigation for projects that would affect wetlands, in conjunction with recommendations of State and Federal agencies.

Responsibility: Community Development

Timeframe: Ongoing
Resources: Fees

CON-4. Wetland Setbacks.

Maintain a minimum 50-foot development-free setback from wetlands, including, but not limited to, paving or structures. Setbacks of greater than 50 feet may be required on lots of two or more acres as determined through development review. The City may waive this requirement for minor encroachments if it can be demonstrated that the proposed setback adequately protects the functions of the wetland to the maximum extent feasible and resulting values to the satisfaction of the City after review by the appropriate regulatory agencies.

See CON-2a (Wetlands Overlay District).

CON-5. Diked Baylands.

Protect seasonal wetlands and associated upland habitat contained within undeveloped diked baylands, or restore to tidal action. Support and promote acquisition from willing property owners.

See LU-2a (Development Review).

CON-6. Creek and Drainageway Setbacks.

Require development-free setbacks, except for specific access points as approved per policy CON-7 (Public Access to Creeks), from existing creeks and drainageways that will maintain the functions and resulting values of these habitats. Appropriate erosion control and roadway crossings may encroach into the development setback. In the absence of vegetation, promote new growth of natural habitat.

- a. **Creek Setback.** Maintain a minimum 25-foot development-free setback from the top of creek banks for all new development (including, but not limited to, paving and structures), except for Miller Creek and its tributaries, where a minimum 50-foot setback shall be maintained. Setbacks up to 100 feet may be required on lots or development projects two or more acres in size where development review determines a wider setback is needed to maintain functions and resulting habitat values and in areas where high quality riparian habitat exists.

D i k e d B a y l a n d s

Diked baylands serve as a buffer between urban and tidal areas and contribute to improved water quality in the Bay by trapping or removing pollutants from runoff and wastewater. They also act as interim storage basins for stormwater runoff and flood waters that coincide with high tides, buffer land areas from storms, high tides and erosion; habitat areas for threatened and endangered species; and can serve as possible mitigation areas. Their partial or complete flooding in the winter rainy season provides needed shallow wetland habitat for many species and flocks of migratory ducks and shorebirds.

C r e e k s a n d D r a i n a g e w a y s

Creeks are perennial or intermittent watercourses that have defined bed and bank, i.e., the channel bed is incised into the substrate. Creeks are identified on Exhibit 36, based on the latest United States Geologic Survey (USGS) topographic maps. Creeks, with a defined bed and bank and with an unbroken riparian corridor of 50 feet or more not shown on the map are presumed to exist, and shall be identified through project review and protected under the policies of this plan.

Drainageways are open drainage swales, or localized depressions that lack defined banks where intermittent or ephemeral runoff may concentrate, and open improved drainage channels with stabilized or improved banks. Drainageways do not support significant riparian habitat. Drainageways exist throughout San Rafael. During the development review process, drainage capacity and habitat value of any drainageways on a site shall be assessed, and appropriate setbacks determined.

The City may waive this requirement for minor encroachments if it can be demonstrated that the proposed setback adequately protects the functions of the creek to the maximum extent feasible and resulting values to the satisfaction of the City after review by the appropriate regulatory agencies.

- b. **Drainageway Setbacks.** Drainageway setbacks shall be established through individual development review, taking into account existing habitat functions and resulting values.

CON-6a. Municipal Code Compliance. Ensure that the San Rafael Municipal Code complies with local, state, and federal regulatory agencies requirements for erosion control.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Short Term

See LU-2a (Development Review).

CON-7. Public Access to Creeks.

Provide pedestrian access to points along creeks throughout the City where such access will not adversely affect habitat values.

CON-7a. Creek Access Points. Proactively identify and create desirable access points to creeks on public lands.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time

CON-7b. Public Access. Through the development review process, identify and secure areas appropriate for access points to creeks.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

CON-7c. Website Publicity. Use the City's website to publicize information about protecting and accessing San Rafael's creeks and waterways.

Responsibility: Community Development, Public Works

Timeframe: Long Term

Resources: Staff Time

CON-7d. Creek Signage. Develop a program to provide attractive signage identifying creeks.







Responsibility: Public Works

Timeframe: Long Term

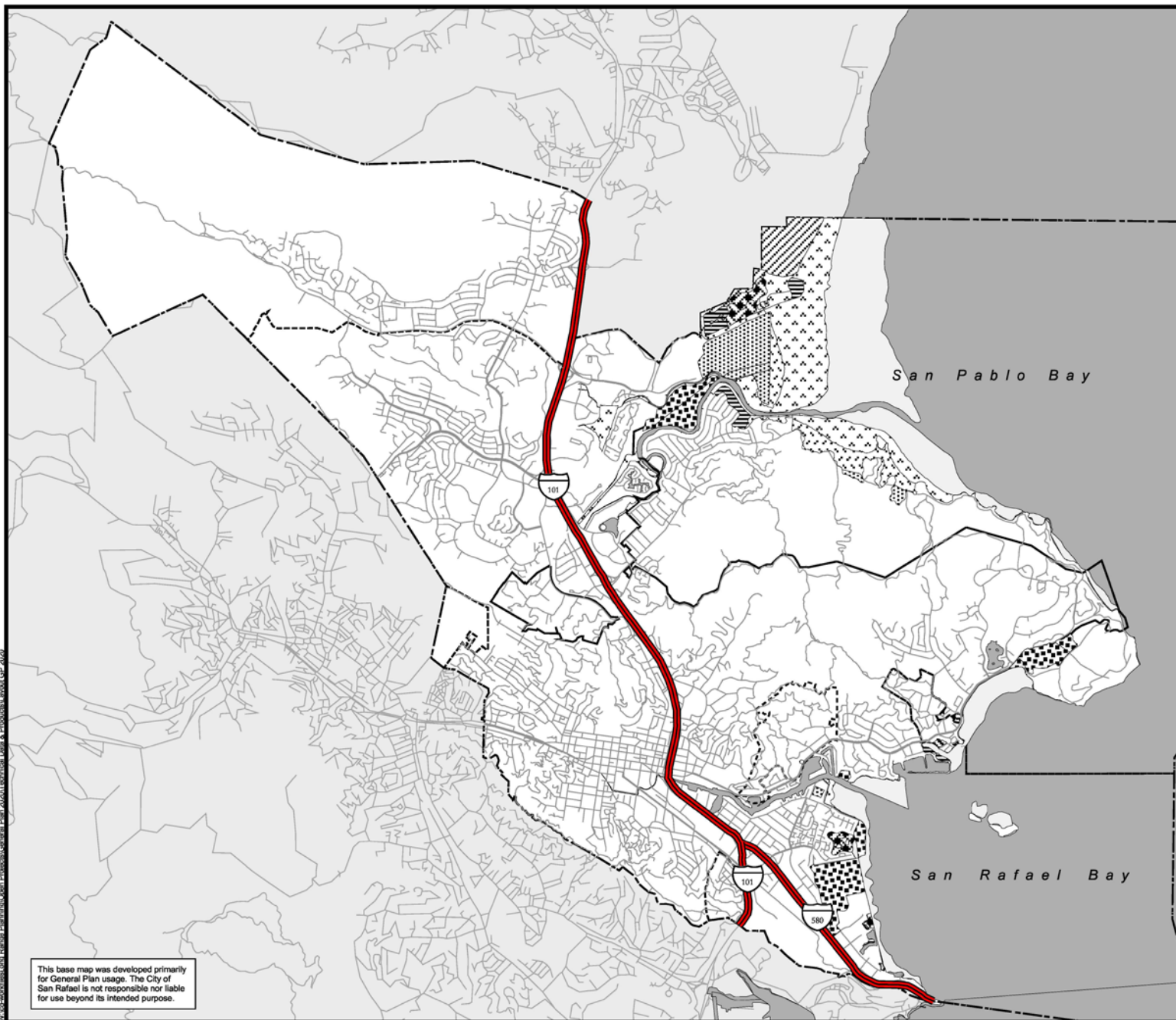
Resources: Staff Time

See LU-2a (Development Review).

Baylands

-  Bay Flat
-  Channel Flat
-  Diked Marsh
-  Farmed Bayland
-  Managed Marsh
-  Muted Tidal Marsh
-  Old High Tidal Marsh
-  Ruderal Bayland
-  Storage or Treatment Basin
-  Young High Tidal Marsh
-  Bay Waters

NOTE: This Exhibit shows information about baylands available from the San Francisco Estuary Institute. For detailed site environmental information, see Exhibit 34 'Major Biotic Habitats'.
Source: San Francisco Estuary Institute, 1999



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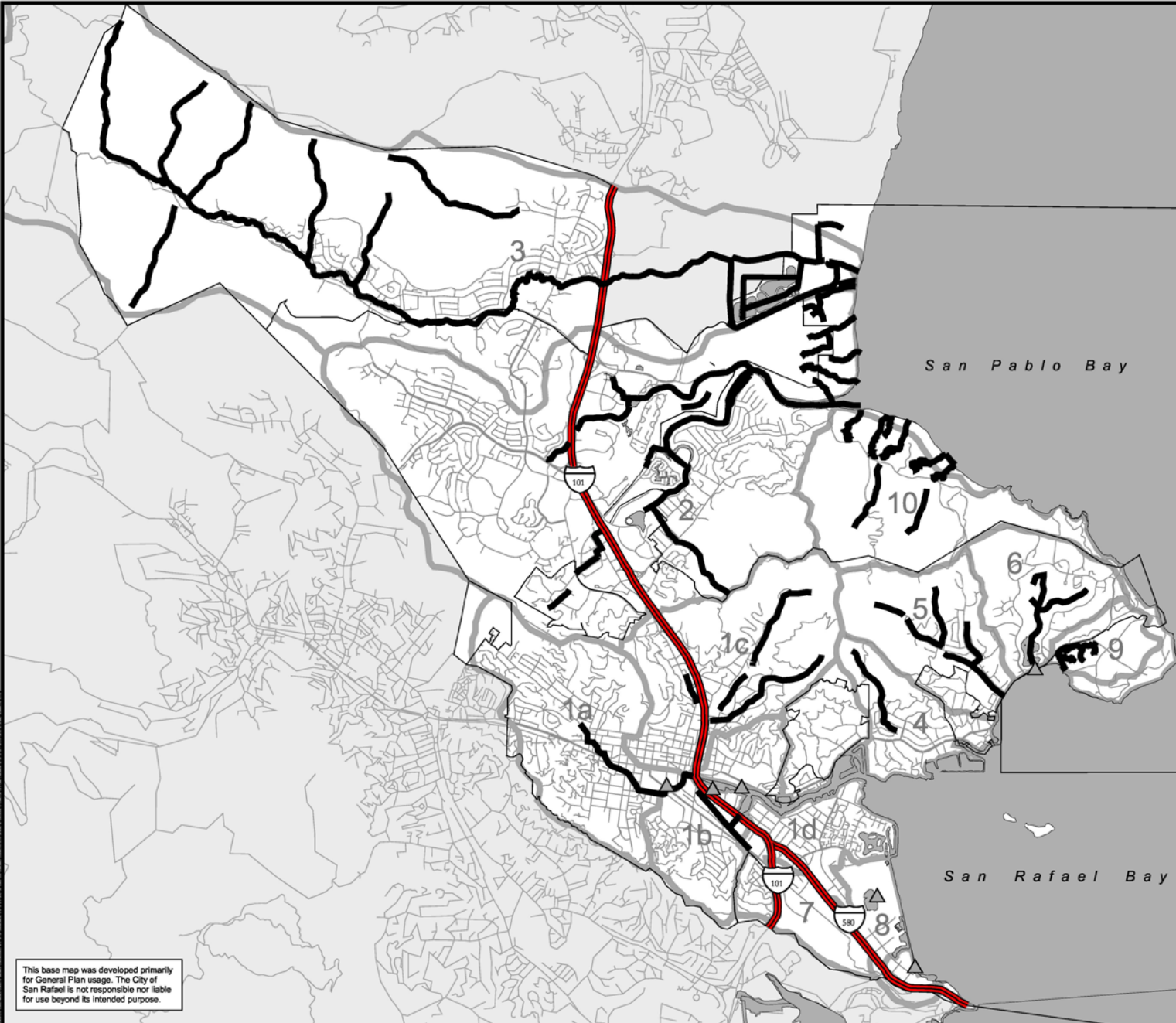
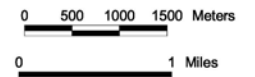
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Watersheds and Creeks



Watersheds:

- (1). San Rafael Creek:
 - 1a. Mahon Creek
 - 1b. Irwin Creek
 - 1c. Black Canyon/Lincoln Creeks
 - 1d. E. San Rafael Drainage Assessment District
- 2. Gallinas Creek
- 3. Miller Creek
- 4. Loch Lomond Creek
- 5. Glenwood Creek
- 6. Peacock Gap
- 7. E. San Rafael/San Quentin P.S.
- 8. South Pond/Piombo P.S.
- 9. McNear Watershed
- 10. China Camp Watershed



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CON-8. Enhancement of Creeks and Drainageways.

Explore enhancement of, and support continuous upgrades to, drainageways to serve as wildlife habitat corridors for wildlife movement and to serve as flood control facilities to accommodate storm drainage. Require creek enhancement and associated riparian habitat restoration/creation for projects adjacent to creeks to maintain storm flows, reduce erosion and maintenance and improve habitat values, where feasible.

CON-8a. Creek Restoration. Encourage and support efforts by neighborhood associations, environmental organizations and other interested groups to fund creek enhancement, restoration and maintenance programs.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time

CON-8b. Tree Retention. Retain trees along creeks, where possible, for preservation of riparian habitat and to inhibit growth of algae.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time

See LU-2a (Development Review).

Native Plants, Animals and Wildlife Habitat

Vegetation, fish, and wildlife habitat are essential to the community of San Rafael. As development pressures grow, the need for preservation of the valuable diversity of species becomes increasingly important. The San Rafael Planning Area contains several habitat areas of major importance including oak woodlands, riparian, the open waters of the San Francisco Bay and wetlands. These communities support a complex diversity of fish and wildlife species. A number of sensitive plant and animal species have either been observed within the Planning Area, or are known to occur within the region.

The City recognizes the ecological, scientific, aesthetic and cultural values of without undue disturbance. Protection of threatened and endangered species shall also extend to habitat that might reasonably be expected to support populations of those species, consistent with the requirements of state and federal law. The City recognizes the need to contribute to the protection of native plants and animals, and their habitats, before their populations are so low that they must be listed as threatened or endangered under the state and federal endangered species acts and will provide protection to special status species. Examples of the sensitive plant and animal species are: the California Black Rail, the California Clapper Rail, the Salt Marsh Harvest Mouse, the Central California Coast Steelhead and the Marin Western Flax.



CON-9. Native and/or Sensitive Habitats. Protect habitats that are sensitive, rare, declining, unique or represent a valuable biological resource.

CON-9a. Steelhead Habitat. Support efforts to restore, preserve or enhance Central California Coast Steelhead habitat in Miller Creek and other creeks.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time

CON-9b. Feral Cats. To protect habitats, especially for birds and small animals, continue to fund programs of the Marin Humane Society including those to reduce the population of feral cats.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Staff Time

See CON-15a (Invasive Plant Ordinance), OS-2b (Removal of Invasive Species), and LU-2a (Development Review).

The endangered Clapper Rail is a secretive resident of the Bay marshes.

CON-10. Impacts to Sensitive Habitats.

Minimize impacts to sensitive natural habitats through careful planning. Require compliance with applicable laws and regulations.

CON-10a. Oak Savanna/Woodland Habitat Protection. Require that proposed developments with potential impacts to oak savanna/woodland habitat to either avoid, minimize, or compensate for the loss of oak savanna/woodland habitat. Avoidance would be the preferred measure where feasible. If it is deemed that an impact is unavoidable, minimization of direct and indirect impacts or compensation through habitat restoration, creation, or enhancement would be required.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Staff Time

See LU-2a (Development Review).

CON-11. Wildlife Corridors.

Preserve and protect areas that function as wildlife corridors, particularly those areas that provide natural connections permitting wildlife movement between designated sensitive habitats.

See LU-2a (Development Review).

CON-12. Preservation of Hillsides.

Encourage preservation of hillsides, ridgelines and other open areas that serve as habitat and erosion protection as well as visual backdrops to urban areas.

CON-12a. Hillside Design Guidelines. Continue to implement the Hillside Design Guidelines.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

See CD-5a (Views) and CD-6a (Hillside Design Guidelines).

CON-13. Threatened and Endangered Species.

Preserve and protect threatened and endangered species of plants and animals formally listed consistent with the state and federal endangered species acts including protection of their habitat.

CON-13a. List of Species. Maintain a current list of threatened and endangered and special status species.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

See LU-2a (Development Review).

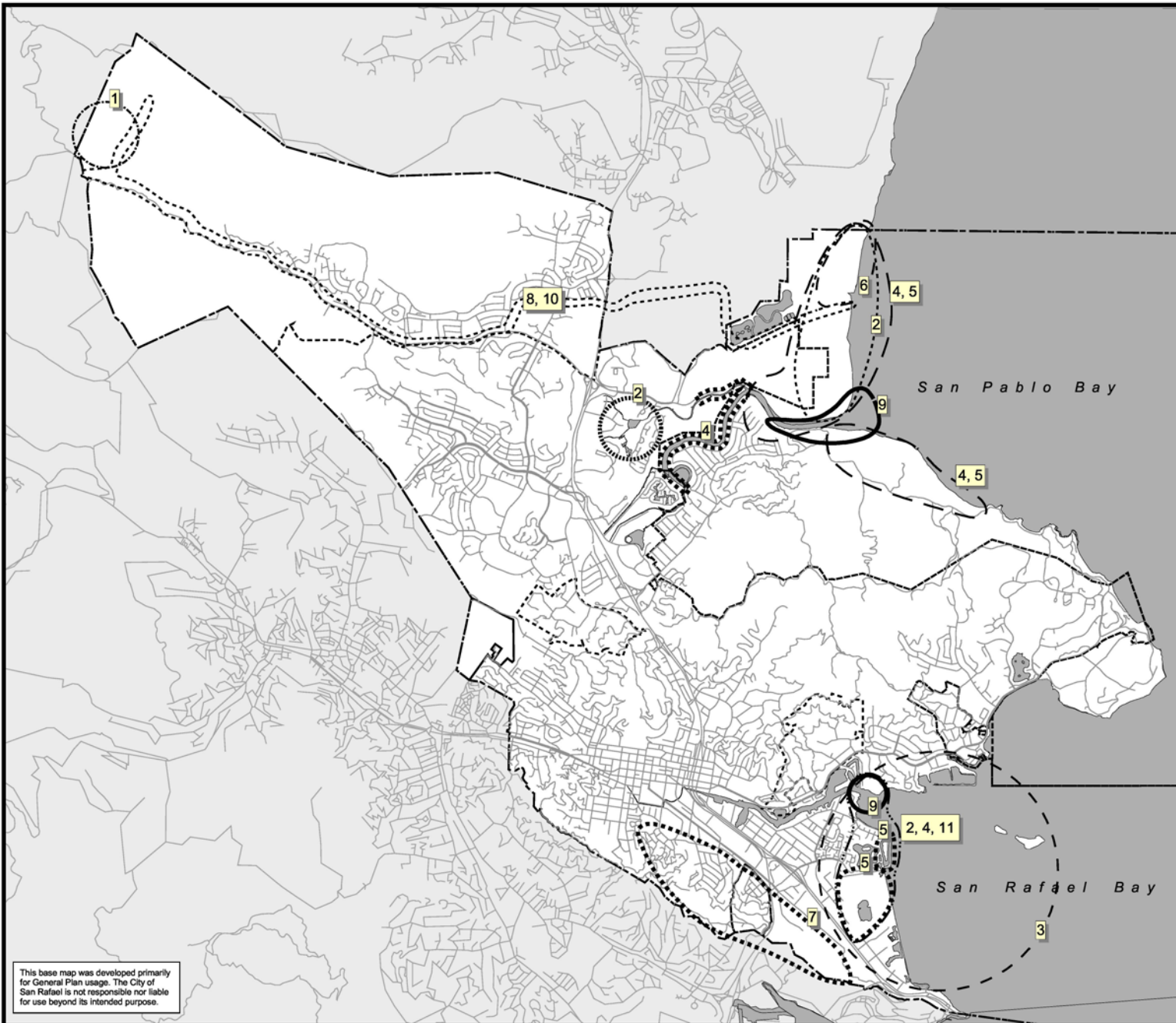
Threatened and Endangered Species

1. Marin Western Flax*
2. California Black Rail*
3. California Brown Pelican*
4. California Clapper Rail*
5. Salt Marsh Harvest Mouse*
6. Soft Bird's-beak**
7. White Rayed Pentachaeta**
8. Steelhead Central Calif. Coast**
9. Tidewater Goby**
10. California Red-legged Frog**
11. Western Snowy Plover**

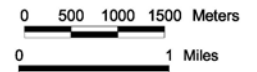
*NOTE: The locations shown on this map are generalized and are intended to show the approximate areas where the species is located based on past and current observations, CNDDB accounts, and the presence of suitable habitat.

** NOTE: The locations shown on this map are generalized and are intended to show the approximate areas where the species is likely to be found based on presence of suitable habitat. The species was not currently observed within these areas, but it may reasonably be expected to occur in the general area.

Sources:
 California Natural Diversity Data Base (CDFG 2001)
 Endangered and Threatened Wildlife and Plants (USFWS 2001)
 Annual Report on the Status of California State Listed
 Threatened and Endangered Animals and Plants (CDFG, 2000)
 Jean Starkweather (2003)



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CON-14. Special Status Species.

Preserve and protect special status plants and animals, including candidate species for listing under the state and federal endangered species acts, California species of special concern, California Native Plant Society List 1B plants, and other species protected under provisions of California Fish and Game Code.

CON-14a. Surveys. Require that vacant sites be surveyed for the presence or absence of relevant special status species prior to development approval.

Responsibility: Community Development,

Timeframe: Ongoing

Resources: Staff Time

CON-14b. Minimization. Require that where impacts to special status species are deemed unavoidable, potential impacts to the identified species are minimized through design, construction, and operation of the project. Compensation measures could include on-site set asides or off-site acquisitions (e.g. conservation easements, deed restrictions, etc.) that would be required if project impacts result in direct loss or indirect impacts that cannot be mitigated in other ways. This might also involve species-specific enhancement restoration efforts for the mitigation lands.

Responsibility: Community Development,

Timeframe: Ongoing

Resources: Staff Time

See LU-2a (Development Review).

CON-15. Invasive Non-Native Plant Species.

Remove and control selected undesirable invasive non-native plant species from City-owned open space and road right of ways, and encourage the removal and control of these invasive plant species from non-City owned ecologically-sensitive areas.

CON-15a. Invasive Plant Ordinance. Consider the legality, feasibility and enforceability of an Invasive Plant Ordinance addressing the removal of invasive species on private and public properties. As part of the ordinance, evaluate the benefits and impacts of using herbicide on invasive species where there are no other feasible controls.

Responsibility: City Attorney, Community Development,

Timeframe: Long Term

Resources: Staff Time

CON-15b. Removal of Invasive Species on Public Property. Institute a program to remove invasive plant species on public properties. Consider the use of volunteers and private organizations to assist in this effort.

Responsibility: Public Works, Fire

Timeframe: Long Term

Resources: Staff Time, Volunteers, Partnerships

See LU-2a (Project Review) and OS-2b (Removal of Invasive Species).

CON-16. Landscape with Native Plant Species.

Encourage landscaping with native and compatible non-native plant species, especially drought-resistant species.

CON-16a. Distribution of Information. Distribute Marin Municipal Water District and other organizations' educational materials about native plant landscaping.

Responsibility: Community Development, Public Works

Timeframe: Ongoing

Resources: Staff Time

GOAL 34: RESOURCES USED WISELY. SECTION MOVED TO SUSTAINABILITY ELEMENT PER AMENDMENT ON 12/05/2016

Resource Conservation Policies

Resource conservation policies and programs sharing similar or complementary directions and objectives have been incorporated into the Sustainability Element.

See SU-4e (Regional Energy Office), SU-4f (Zoning and Building Code Review), SU-4g (Clean Energy Production), SU-5b (Use of Alternative Building Materials), SU-5d (Water Efficiency Programs), SU-5e (Water Recycling), SU-6a (Site Design), SU-10e (Recycling), SU-10f (Recyclable Waste Receptacles), SU-10g (Recycling for Apartments and Nonresidential Buildings), SU-10h (Demolition Waste), SU-10i (Recycling Education), SU-12b (Marin County Green business Program), SU-14a (Alternative Transportation Options), SU-14b (Alternative Fuel for City Fleet), SU-14d (City Electricity), SU-14i (Civic Buildings), SU-14j (Green Business Certification), SU-14k (Regional Collaboration), SU-14l (Backup Energy Provision)

CON-17. Resource-efficient Organizations and Businesses. (Moved to Sustainability per Amendment on 12/5/16)

CON-17a. Regional Energy Office.

CON 17b. Green Business Program.

CON-18. Resource-Efficient Building Design.

(Moved to Sustainability per Amendment on 12/5/16)

CON-18a. Energy-efficient Homes.

CON-18b. Zoning and Building Code Review.

CON-18c. Use of Alternative Building Materials.

CON-18d. Incentives for Solar and Clean Energy.

CON-18e. LEED Program (Deleted per Amendment on 12/5/16)

CON-18f. Civic Buildings.

CON-19. Energy Resources. (Moved to Sustainability per Amendment on 12/5/16)

CON-19a. Energy Production.

CON-20. Water Conservation. (Moved to Sustainability per Amendment on 12/5/16)

CON-20a. Water Conserving Landscaping.

CON-20b. Water Recycling.

CON-21. Waste Reduction/Recycling (Moved to Sustainability per Amendment on 12/5/16)

CON-21a. Recycling.

CON-21b. Recyclable Waste Receptacles.

CON-21c. Recycling for Apartments and Nonresidential Buildings.

CON-21d. Demolition Waste.

CON-21e. Recycling.

CON-22. Resource Efficiency in Site Development.
(Moved to Sustainability per Amendment on 12/5/16)

CON-22a. Site Design.

CON-23. Energy-efficient Transportation Programs.
(Moved to Sustainability per Amendment on 12/5/16)

CON-23a. City Carpool.

CON-24. Energy-, Water- and Resource-Efficiency in Government. (Moved to Sustainability per Amendment on 12/5/16)

CON-24a. Green Business Certification.

CON-24b. Regional Collaboration.

CON-24c. City Vehicle Fleet.

CON-24d. Renewable Energy Sources in City Facilities.

CON-25. Energy Emergencies.
(Moved to Sustainability per Amendment on 12/5/16)

CON-25a. Backup Energy Provision.



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Air and Water Quality

Introduction

Water and air are essential for humans as well as the animals and plants that inhabit San Rafael. The Air and Water Quality Element is intended to ensure that high quality air and water are available to all who reside, work, and play in the City.

Internal combustion engines damage both the air and water around us. Emissions from gas-powered vehicles contribute fine particulate matter into the air that is eventually carried away to waterways. The City seeks to mitigate the effects of vehicular pollution by supporting policies that promote more environmentally friendly forms of transport as well as promote land use design practices that are more efficient.

Maintaining and improving water quality is essential to protect public health, wildlife, and watersheds, and to ensure opportunities for public recreation and economic development in San Rafael. Water pollution can be dramatically curbed through proactive efforts of residents and through City policies. San Rafael is a member of the Marin County Stormwater Pollution Prevention Program (MCSTOPPP), which is the leader in stormwater management within the Bay Area. MCSTOPPP's programs encourage public participation, education and appropriately designed development to curb water pollution in the County. The City encourages the use of practices that enable water to percolate into the surrounding soil, instead of letting sediment, metals, pesticides and chemicals runoff directly into the Bay, creeks, or through the storm drain system. Improving the water quality in San Rafael's creeks and canal is a priority. The City supports efforts to clean up existing bodies of water and to prevent further degradation.

Through education, participation in ongoing programs, and innovative strategies, the City seeks to provide clean air and water and, to the best of its ability, contribute to a healthy region.

Potable, or drinking, water is covered in the Conservation Element and governed by the Marin Municipal Water District and State standards.



Volunteers help clean up San Rafael creeks.

GOAL 35: CLEAN AIR AND WATERWAYS

It is the goal of San Rafael to have the residents of San Rafael breathe clean air and have clean waterways. It is desirable that San Rafael meets all ambient air quality standards and that San Rafael's waterways are clean and healthy.

San Rafael Air Quality Policies

AW-1. State and Federal Standards.

Continue to comply and strive to exceed state and federal standards for air quality for the benefit of the Bay Area.

Toxic Air or Odor

Toxic air pollutants at sufficient concentrations and exposure are known or suspected to cause cancer or other serious health effects, such as reproductive or birth defects, or to cause adverse environmental consequences.

AW-1a. Cooperation with Other Agencies. Cooperate with the Bay Area Air Quality Management District (BAAQMD) and other agencies in their efforts to ensure compliance with existing air quality regulations.

Responsibility: Community Development, Public Works

Timeframe: Ongoing

Resources: Staff Time

AW-2. Land Use Compatibility.

To ensure excellent air quality, promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where different land uses abut one another.

AW-2a. Sensitive Receptors. Through development review, ensure that siting of any new sensitive receptors provides for adequate buffers from existing sources of toxic air contaminants or odors. If development of a sensitive receptor (a facility or land use that includes members of the population sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses) is proposed within 500 feet of Highway 101 or I-580, an analysis of mobile source toxic air contaminant health risks should be performed. Development review should include an evaluation of the adequacy of the setback from the highway and, if necessary, identify design mitigation measures to reduce health risks to acceptable levels.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

AW-2b. Buffers. Through development review, ensure that any proposed new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with existing health standards.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

Sensitive Receptors

The Bay Area Air Quality Management District (BAAQMD) defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill, and the chronically ill) are likely to be located. These land uses include schools, retirement homes, convalescent homes, hospitals and medical clinics. Exhibit B-8 in the Background Report shows the locations of major sensitive receptors in San Rafael.

AW-3. Air Quality Planning with Other Processes.

Integrate air quality considerations with the land use and transportation processes by mitigating air quality impacts through land use design measures, such as encouraging project design that will foster walking and biking.

AW-3a. Air Pollution Reduction Measures. Consider revisions to zoning regulations to require developers to implement strategies for air quality improvement described in the BAAQMD/ABAG’s guide “Design Strategies for Encouraging Alternatives to Auto Use Through Local Development Review” or subsequent standards.

Responsibility: Community Development

Timeframe: Short Term

Resources: Fees

AW-3b. Smart Growth and Livable Communities Programs. Participate in and implement strategies of Metropolitan Transportation Commission’s regional “Smart Growth Initiative” and “Transportation for Livable Communities Program.”

Responsibility: Community Development, Public Works

Timeframe: Ongoing

Resources: Staff Time, Grants

AW-4. Particulate Matter Pollution Reduction.

Promote the reduction of particulate matter pollution from roads, parking lots, construction sites, agricultural lands and other activities.

AW-4a. Pollution Reduction. Through development review, ensure that any proposed new sources of particulate matter use latest control technology (such as enclosures, paving unpaved areas, parking lot sweeping and landscaping) and provide adequate buffer setbacks to protect existing or future sensitive receptors.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Fees

AW-4b. Fireplaces and Woodburning Stoves.
(Deleted per Amendment on 12/5/16)

AW-5. Circulation Alternatives.

Promote circulation alternatives that reduce air pollution.

See programs under C-10 (Alternative Transportation Mode Projects) through C-20 (Intermodal Transit Hubs).

Particulate Matter

Particulate matter is a toxic air pollutant. Particulate matter includes dust, soot and other tiny bits of solid materials that are released into and move around in the air. Particulates are produced by many sources, including burning of gas and diesel fuels by vehicles, incineration of garbage, mixing and application of fertilizers and pesticides, road construction, mining operations, fireplaces, and woodstoves. Particulate pollution can cause eye, nose and throat irritation and other health problems.

AW-6. Education and Outreach.
Support public education of regarding air pollution prevention and mitigation programs.

AW-6a. Air Quality Education Programs. Support and participate in the air quality education programs of the BAAQMD, such as “Spare the Air” days.

Responsibility: Community Development, Public Work
Timeframe: Ongoing
Resources: Staff Time

AW-6b. Benefits of Transit-Oriented Development. Assist in educating developers and the public on the benefits of pedestrian and transit-oriented development.

Responsibility: Community Development, Public Works
Timeframe: Ongoing
Resources: Staff Time

AW-6c. Landscaping. Continue to implement Zoning Guideline for landscaping in order to absorb pollutants.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Fees

San Rafael Water Quality Policies

AW-7. Local, State and Federal Standards.
Continue to comply with local, state and federal standards for water quality.

AW-7a. Countywide Stormwater Program. Continue to participate in the countywide stormwater program and comply with its performance standards.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

AW-7b. Stormwater Runoff Measures. Continue to incorporate measures for stormwater runoff control and management in construction sites.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

AW-7c. Water Quality Improvements in Canal and Other Waterways. Support water quality improvement efforts in the San Rafael Canal, creeks, and drainageways in accordance with standards of the State Water Quality Control Board or any agencies with jurisdiction.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

Non-point Source Pollution

Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into bodies of water.

AW-8. Reduce Pollution from Urban Runoff.

Address non-point source pollution and protect receiving waters from pollutants discharged to the storm drain system by requiring Best Management Practices quality.

- Support alternatives to impervious surfaces in new development, redevelopment, or public improvement projects to reduce urban runoff into storm drain system, creeks, and the Bay.
- Require that site designs work with the natural topography and drainages to the extent practicable to reduce the amount of grading necessary and limit disturbance to natural water bodies and natural drainage systems.
- Where feasible, use vegetation to absorb and filter fertilizers, pesticides and other pollutants.

AW-8a. Proper Disposal of Pollutants. Continue to promote proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than to the storm drainage system.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Fees (Clean Water Program)

AW-8b. Compliance by Contractors. Continue to require contractors to comply with accepted stormwater pollution prevention planning practices for all projects subject to erosion potential. Also, continue to require the proper use, storage and disposal of on-site materials.

Responsibility: Public Works, Community Development

Timeframe: Ongoing

Resources: Fees (Clean Water Program)

AW-8c. System Improvements. Improve storm drainage performance by constructing new system improvements. Evaluate stormwater volumes when replacing undersized or otherwise inadequate lines with larger or parallel lines.

Responsibility: Public Works, Community Development

Timeframe: Ongoing

Resources: Fees (Clean Water Program)

AW-8d. Pesticide and Fertilizer Management. On City property, encourage the appropriate reduction of pesticides and fertilizers to the maximum extent feasible. Ensure that the application of pesticides on City property is accomplished in accordance with all applicable rules and regulations.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Staff Time

AW-8e. Public Water Management. Review areas where public water management procedures are used to convey stormwater to the stormdrain system, including streets, which also convey stormwater to the stormdrain system.

Responsibility: Public Works

Timeframe: Ongoing

Resources: Fees (Clean Water Program)

See I-10a (Coordination of Services) and S-19a (Incremental Flood Control Improvements).

AW-9. Erosion and Sediment Control.

Establish development guidelines to protect areas that are particularly susceptible to erosion and sediment loss.

See S-22a (Erosion Control Programs) and S-22b (Grading During the Wet Season).

Best Management Practices

Best Management Practices are guidelines used to ensure that project design, construction, and maintenance are conducted so as to control urban runoff and to minimize the impact on the surrounding environment.

AW-10. Canal and Bay Boating.

Ensure responsible waste disposal maintenance and operations that affects water quality.

AW-10a. Sanitation Facilities in Boats. Require inspection of sanitation facilities in boats berthed in the San Rafael Canal.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

AW-10b. Sewage Pump Out Facilities. Support marina owners in providing on-site sewage pump-out facilities. Require marinas to install such facilities when major improvements are made.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Grants, Staff Time

AW-10c. Education of Boaters. Educate boaters about good sanitation practices.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

See NH-29a (Dredging Program), NH-79b (Boating Sanitation and Dock Safety and NH-80a (Pump Out Facilities).

AW-11. Education and Outreach.

Continue to inform the public about the effects of water pollution in order to encourage participation in pollution prevention programs.

AW-11a. Stenciling of Storm Drains. Continue the efforts to identify storm drain locations and stencil them accordingly so that people understand the consequences of pollutant runoff.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

AW-11b. Outreach. Continue to work with MCSTOPPP in educational outreach and public participation in water pollution reduction methods that, for example, address the impacts of indirect pollution sources such as fertilization, pesticides and pet waste.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

AW-11c. Water Pollution Education. Educate landscaping service employees and contractors about water pollution.

Responsibility: Public Works
Timeframe: Ongoing
Resources: Fees (Clean Water Program)

AW-11d. Car Wash Facilities. Require the use of recycled water at new commercial car washing facilities.

Responsibility: Public Works, Community Development
Timeframe: Ongoing
Resources: Fees

Introduction

Economic opportunity, a vibrant community, or miles of beautiful open space, there are many reasons why San Rafael inspires those who live, work, and play in this unique city. Over many decades, the City's collection of neighborhoods has grown, filled in with families and businesses, matured, and become reinvigorated again with each new cycle of arrivals. Today, San Rafael is a living tapestry. It is exemplified by an enduring mix of community goodwill, respect for our diverse cultural roots, appreciation of our natural resources, and innovative thinking. Our community preserves those qualities that make this city a great place and seizes opportunities to enhance it. Because San Rafael has so much to offer, there are compelling reasons to plan judiciously for its future.

The Sustainability Element is San Rafael's guiding strategy to actively adapt to ongoing changes within the community and in the environment. In concert with other elements within the General Plan and with the City's Climate Change Action Plan, it defines the City's goal of becoming a sustainable community by providing stewardship of our shared natural resources, creating economic resilience, and contributing to the social well-being of its citizens. The Sustainability Element is a bridge spanning what San Rafael is today, and how it takes shape in the future. To meet the community's present needs without compromising its ability to do the same for future generations, the City government is committed to achieving sustainability in all aspects of community planning and governance. While San Rafael is making progress towards this ideal, there is much more that can be and must be accomplished.

Incorporating sustainability at the city government level supports a decision making process that examines constraints and opportunities, as well as short term gains and long term impacts. It clarifies the goals and vision of San Rafael and forms a comprehensive strategy recognizing that one solution can solve multiple problems.

The Sustainability Element and other General Plan elements illustrate San Rafael's hallmark of community based planning; where engaged residents and businesses work with City staff and elected officials to identify and resolve General Plan themes such as managing traffic, providing affordable housing and supporting economic diversity. While no General Plan element takes precedence over others, the Sustainability Element provides an additional focus on the City of San Rafael's decision making process to ensure that our community's valued foundations and resources are preserved, enhanced and restored.

Sustainability: Balancing the Environment, Economy and Social Equity

Planning and development for the evolving needs of San Rafael brings many challenges. Well into its second century, the City and its residents value the distinct collection of neighborhoods and the surrounding open space. To preserve the character of San Rafael, land use and development are carefully evaluated to determine optimum use and impact on surrounding neighborhoods. The City meticulously manages its established network of streets to run efficiently. To accommodate anyone wishing to live here, the City encourages housing for a variety of income levels. Working with other elements of the General Plan, the Sustainability Element provides an additional thread tying all elements together, forging a community that exists in harmony with the environment and local economy, while promoting a healthy, engaged and culturally diverse community.

Meeting present and future community needs requires San Rafael to balance three inter-related foundations of the community: the environment, the economy, and social equity. Each foundation is vital to a thriving community and must be valued equally in relation to the remaining two. For example, a healthy economy may provide many jobs, but jobs filled by employees who commute to work alone from outlying areas create negative consequences for the environment and society in the form of increased fuel consumption and traffic congestion, less local employment, and degradation of air quality.

The Sustainability Element and other General Plan Elements take a broad view of the City's planning issues, but hone in on the fundamental problems requiring solutions. San Rafael pledges to confront environmental, economic and societal imbalances so that our community becomes resilient and adaptable at its core.

Foundations of Sustainability

Environment: A sustainable environment is one in which people, plants, animals and other organisms live harmoniously together within the same ecosystem, without doing harm to it or each other. Protection, restoration, management, and conservation of our shared natural resources such as land, water and air, is crucial to achieving a sustainable environment.

Economy: A sustainable economy is diverse in its offerings of goods and services to a range of consumers within our community. A sound economy includes jobs that employ varying skill levels that match those found locally. Businesses in a sustainable economy are environmentally responsible, provide positive benefits to their employees and the community and have the strength to weather national and global market swings. Locally based businesses are especially important to a resilient local economy.

Social Equity: Social equity in a sustainable community promotes inclusiveness in the City's current and future planning and development. Access to community services, transportation, education, jobs, government and recreation are provided to all residents. A sustainable community also protects its residents from potential hazards through recognition and awareness of our changing environment, promoting adaptive behavior through programs and decision making strategies that include partnerships with the community.

Community Partnerships for a Sustainable San Rafael

Effective city governance starts with a strong partnership with the people it serves. San Rafael has a long history of providing options for residents, neighborhood associations, businesses, and other community groups to bring their ideas, issues and concerns directly to local government. The General Plan 2020, including the Sustainability Element, are prime examples of our community stepping up and working with City staff to communicate their needs and vision for a sustainable city. Through public workshops, community meetings, and the City's website, these forums facilitate an ongoing dialogue, a key to keeping San Rafael responsive to its citizens. Feedback assists the City in prioritizing local issues, while allowing opportunities to educate and inform. The City recognizes that active community participation is vital to implementing effective governance.

Public discussion sessions consistently mention improving and preserving San Rafael's quality of life and vitality, while maintaining its essential character. The City's General Plan elements, including the Sustainability Element specifically address these concerns.

Climate Change Action Plan

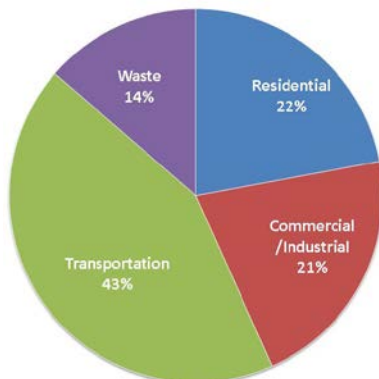
There is undeniable evidence that climate change is happening now. Excessive consumption of our earth's natural resources for energy, transportation and lifestyle choices contribute to rising greenhouse gas (GHG) emissions largely in the form of carbon dioxide (CO₂), which causes the global climate to warm. Higher temperatures triggered by climate change can bring intensive weather-related events; massive droughts and forest fires in some areas, severe rainstorms and flooding in others. In San Rafael, a primary concern regarding climate change is rising sea level due to the melting of polar ice caps. A 3' rise in sea level would flood nearly all of southeastern San Rafael and parts of downtown, devastating our community by destroying or disrupting our neighborhoods, local businesses and community infrastructure.



Satellite image of San Rafael based on a 3 foot rise in sea level.

Bay Conservation and Development Commission, 2009

At the State level, law makers have also taken notice of climate change issues. In 2006, California legislators signed into law AB32 and SB375, complementary plans to reduce GHG emissions to 1990 levels from 'business-as-usual' levels by 2020, a roughly 30% overall reduction. Using current GHG levels, this translates into a 15% reduction by 2020.



San Rafael's GHG emissions in 2005

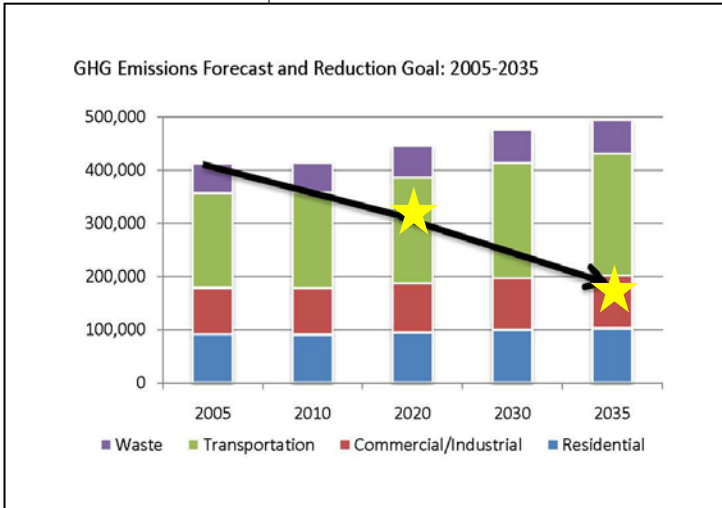
Recognizing the magnitude of the reduction goal and the importance of complying, San Rafael began proactively studying the sources of GHG emissions in the community. In 2008, the City brought together residents, community groups, county and regional agencies, and environmental consultants for a series of workshops and outreach sessions to develop a comprehensive plan to curb GHG emissions and combat the effects of climate change. During its investigation, the City identified three major GHG contributors (transportation, buildings, waste)

and quantified community-wide emissions and those from the City's municipal operations.

The community vision and recommendations culminated as San Rafael's Climate Change Action Plan 2009 (CCAP) which targets an ambitious 25% GHG reduction goal from 2005 levels by 2020 and an 80% reduction by 2050. The 25% GHG reduction goal by 2020 exceeds the 15% expectation of AB 32 and will require reductions beyond the specific programs in the CCAP to lower GHG emissions. The remaining 10% reduction is anticipated to come from addition community reduction

efforts and effects of federal programs. The CCAP is intended to be updated frequently based on experience in implementing programs, monitoring of GHG emissions, changes in state and federal statutes and best practices of other local governments.

The CCAP was updated in 2011 to include a quantified GHG Reduction Strategy and monitoring program, also a key component of the Sustainability Element. To truly become a sustainable community, San Rafael will need to accept that program implementation is a dynamic process, involving objective review, community input and collaboration with sustainable thinking in both plan and action.



San Rafael's GHG emissions forecast and reduction goals

Measuring Progress

While the Sustainability Element proposes many programs designed to fulfill our goal of significantly reducing our GHG emissions while simultaneously becoming a sustainable community, the true test of progress will be achieving measurable results based on quantifiable data. By using a defined set of indicators, the City can compare results year by year and make adjustments as necessary to improve program effectiveness. The Goals, Policies, and Programs section of this element includes a set of indicators that the City will use in its annual reporting. For example, collecting annual data on public bus ridership within San Rafael provides an indicator of whether programs geared toward reducing auto transportation and CO₂ emissions in the City are successful. Because San Rafael is committed to cutting GHG emissions 25% by 2020, monitoring progress on sustainability initiatives is extremely important and it is imperative that San Rafael use indicators that are easily understood, attainable, and quantifiable.

Relationship to Other Elements

Sustainability is an “umbrella” objective that affects many aspects of community planning and municipal operations. Most elements of the General Plan contribute policies and programs that further the City’s sustainability goals.

- The **Land Use and Housing Elements** guide much of San Rafael’s growth along transit lines and in concentrated mixed-use areas such as the Downtown and Northgate/Civic Center. They seek to accommodate a very diverse community, including housing for all income levels.
- The **Neighborhoods and Design Elements** foster distinct neighborhoods with a unique sense of place, preservation of historic structures and natural hillsides and convenient mobility without dependence on automobiles.
- The **Economic Vitality Element** promotes a vibrant local economy, environmentally-friendly businesses and green jobs.
- The **Circulation Element** looks forward to a balanced transportation network with convenient transit, extensive bicycle facilities, pleasant pedestrian ways and private vehicles powered by renewable energy.
- The **Governance Element** fosters a local government that is inclusive, transparent and celebrates the diversity of the community.
- The **Culture and Arts and Parks and Recreation Elements** promote cultural and recreational activities which bring residents together in healthy ways.
- The **Safety Element** anticipates the need to adapt to the impacts of climate change such as sea level rise and disaster planning.
- The **Open Space and Conservation Elements** address preservation and restoration of natural areas and species habitat, energy and water conservation, waste reduction and green building.
- The **Air and Water Quality Element** fosters reduction in air and water pollution and soil preservation.

GOAL 25:

It is the goal of San Rafael to have a sustainable community; one that balances the needs of the environment, the economy and a diverse society. *A sustainable community is one that improves its economy, built environment and lifestyles within the limits and opportunities provided by the natural environment. Living within the carrying capacity of natural systems will improve the resilience of our community to withstand market shifts and the effects of climate change.*

The Built Environment

The way that we develop our city determines how efficiently we are able to use natural resources, including energy and building materials. The vast majority of San Rafael’s greenhouse gas emissions come from energy use in buildings and transportation. A denser living environment with services close by can reduce vehicular trips by 40 percent. Green building techniques can reduce energy use in buildings by 20-50 percent.

SU-1. Land Use.

Implement General Plan land use policies to increase residential and commercial densities within walking distance of high frequency transit centers and corridors.

SU-1a. Transportation Alternatives. Consider land use and transportation alternatives (better bicycle and pedestrian access and increased transit feeder service) to best use the future Civic Center SMART Station.

Responsibility: Community Development, Public Works
Timeframe: Short Term
Resources: Grants, Transportation Agencies

SU-1b. Walkable Neighborhoods. Determine areas in need of sidewalk improvements, land use changes, or modified transit stops to create walkable neighborhoods.

Responsibility: Community Development, Public Works
Timeframe: Long Term
Resources: Staff Time

SU-2. Promote Alternative Transportation.
Decrease miles traveled in single-occupant vehicles.

SU-2a. Bike Share Program. Facilitate the creation of a bike share program, particularly in the Downtown area. Conduct a feasibility study to determine feasibility, scale, and costs.

Responsibility: Public Works, Economic Development
Timeframe: Long Term
Resources: Private Vendors, Grants, Parking District, Measure A

SU-2b. Car Share Program. Facilitate the creation of a car share program, particularly in the Downtown area. Conduct a feasibility study to determine feasibility, scale, and costs.

Responsibility: Public Works, Economic Development
Timeframe: Long Term
Resources: Private Vendors, Grants, Parking District, Measure A

SU-2c. Bus Service. Support Marin Transit and the Transportation Authority of Marin in the planning, funding and implementation of additional transit services that are cost-effective and responsive to existing and future transit demand.

Responsibility: Public Works
Timeframe: Long Term
Resources: Measure A, State Transportation Funds

SU-2d. SMART. Encourage continued funding, development and use of SMART, which will provide residents and employees of San Rafael an additional transportation alternative to single-occupant vehicles.

Responsibility: Public Works
Timeframe: Short Term
Resources: SMART

SU-2e. Sidewalk and Street Improvements. Continue to implement sidewalk and bicycle improvements in accordance with the adopted Bicycle and Pedestrian Master Plan and the Safe Routes to School program.

Responsibility: Public Works
Timeframe: Ongoing
Resources: State Transportation funds, Measure A

SU-2f. Transit to Schools. Encourage the school districts, Marin Transit and the Transportation Authority of Marin to increase funding for school busing programs, promote carpooling and limit vehicle idling.

Responsibility: Public Works
Timeframe: Ongoing
Resources: General Fund, grants

SU-3. Alternative Fuel and Fuel Efficient Vehicles.

Promote the use of alternative fuel and fuel efficient vehicles.

SU-3a. Public Charging Stations. Install charging stations for plug-in electric vehicles in City garages and parking lots.

Responsibility: Public Works, Parking Services, Community Development

Timeframe: Ongoing

Resources: Grants, Parking District

SU-3b. Charging Stations for Private Facilities (Deleted per Amendment on 12/5/16)

SU-3c. Regional Charging Stations. Support regional efforts to encourage use of plug-in electric vehicles and widespread availability of charging stations for electric vehicles.

Responsibility: Public Works, Community Development

Timeframe: Ongoing

Resources: Staff Time

SU-4. Renewable Energy.

Increase the supply of renewable energy sources. Promote and encourage residences to be resource, energy and water efficient by creating incentives and removing obstacles to promote their use.

SU-4a. Marin Energy Authority. Support efforts of the Marin Energy Authority to increase the proportion of renewable power offered to residents and businesses and to provide financial and technical assistance for energy efficiency upgrades.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Marin Energy Authority

SU-4b. PACE Financing. Participate in an assessment district financing (PACE) program to fund installation of renewable energy systems and other efficiency upgrades to existing buildings.

Responsibility: City Manager

Timeframe: Short Term

Resources: Staff Time, Outside financing

SU-4c. Energy Efficiency Outreach. Continue to inform businesses and residents of programs and rebates to conserve energy.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Staff Time

SU-4d. Wind and Solar. Consider methods to reduce barriers in the wind and solar system permit process, such as the expedited permit process for small residential rooftop solar systems.

Responsibility: Community Development

Timeframe: Short Term

Resources: Staff Time

SU-4e. Regional Energy Office. Consider participation in the County's Regional Energy Office.

Responsibility: City Manager

Timeframe: Long Term

Resources: Staff Time

Previously CON-17a (Regional Energy Office)

Title 24 Standards

The California Building Code establishes building energy efficiency standards for new construction (including requirements for entire new buildings, additions, alterations, and in nonresidential buildings, repairs). Since first established in 1977, the Building Energy Efficiency Standards (along with standards for energy efficiency in appliances) have helped Californians save more than \$11.3 billion in electricity and natural gas costs. The Standards are updated periodically to allow incorporation of new energy efficiency technologies and methods.

SU-4f. Zoning and Building Code Review. Identify barriers to resource efficiency in the Zoning and Building Codes and evaluate the suitability of removing those obstacles.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

Previously CON-18b (Energy-efficient Homes)

SU-4g. Clean Energy Production. Encourage options, such as photovoltaic cells, for energy production. Seek ways to provide incentives for solar and clean energy systems.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Grants

Previously CON-18d (Incentives for Solar and Clean Energy) and CON-19a (Energy Production)

SU-5. Reduce Use of Non-Renewable Resources.
Reduce dependency on non-renewable resources.

SU-5a. Green Building Regulations (Deleted per Amendment on 12/5/16)

SU-5b. Use of Alternative Building Materials. Evaluate the benefits and impacts of amending the City's building codes and zoning ordinances to allow the use of acceptable resource-efficient alternative building materials and methods.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

Previously CON-18c (Use of Alternative Building Materials)

SU-5c. Energy Efficiency Programs. Develop and implement energy efficiency and conservation programs to achieve a 20% reduction in energy use by 2020, including PACE financing, stretch building codes, energy audits, upgrades upon resale, education and outreach.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time, Marin Energy Authority, grants

SU-5d. Water Efficiency Programs. Develop and implement water efficiency and conservation programs to achieve a 30% reduction in water use by 2020, including water efficient landscape regulations, PACE financing, water audits, upgrades upon resale, education and outreach. Make available to property managers, designers and homeowners information about water-conserving landscaping and water-recycling methods and resources.

Responsibility: Community Development, Marin Municipal Water District
Timeframe: Ongoing
Resources: Marin Municipal Water District, Staff Time

Merged with previous CON-20a (Water Conserving Landscaping)

SU-5e. Water Recycling. Support the extension of recycled water distribution infrastructure. Require the use of recycled water where available.
Responsibility: Community Development
Timeframe: Ongoing
Resources: Fees

Previously CON-20b (Water Recycling)

SU-5f. Reflective Surfaces. Encourage the use of high albedo (reflectivity) materials for future outdoor surfaces such as parking lots, roadways, roofs and sidewalks.
Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

SU-6. Resource Efficiency in Site Development.

Encourage site planning and development practices that reduce energy demand, support transportation alternatives and incorporate resource- and energy-efficient infrastructure.

SU-6a. Site Design. Evaluate as part of development review, proposed site design for energy-efficiency, such as shading of parking lots and summertime shading of south-facing windows.
Responsibility: Community Development
Timeframe: Ongoing
Resources: Fees

Previously CON-22 (Resource Efficiency in Site Development) and CON-22a (Site Design)

The Natural Environment

Sustainability demands a respect for nature and our reliance on natural resources. By protecting and enhancing our environment we can reap rewards for generations to come.

SU-7. New and Existing Trees.

Plant new and retain existing trees to maximize energy conservation and carbon sequestration benefits.

SU-7a. Tree Inventory. Inventory tree and vegetative cover to determine existing resources and carbon sequestration, and establish citywide goals and strategies to increase carbon sequestration.
Responsibility: Public Works
Timeframe: Long Term
Resources: Staff Time, grants

SU-7b. Tree Preservation. Adopt ordinances to regulate the removal and replacement of significant trees.
Responsibility: Public Works
Timeframe: Long Term
Resources: Staff Time, fees

SU-7c. Parking Lot Landscaping. Maintain zoning regulations for parking lot landscaping to increase shading and reduce thermal gain.
Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

SU-7c. Carbon Offset Program. Consider the feasibility of a local carbon offset program to support tree planting and maintenance.
Responsibility: Public Works, Finance
Timeframe: Short Term

Resources: Staff Time, contributions

SU-8. Local Food Production. Increase local food production.

SU-8a. Farmers Markets. Continue to promote local farmers markets.

Responsibility: Economic Development

Timeframe: Ongoing

Resources: Economic Development

SU-8b. Home and Community Gardens. Encourage the creation of home and community gardens, including possible use of surplus City properties for community gardens.

Responsibility: Community Services

Timeframe: Long Term

Resources: Staff Time, grants, partnerships

SU-8c. Community Garden Standards. Examine practices and standards that could be established to permit community gardens by right based on performance standards

Responsibility: Community Services

Timeframe: Ongoing

Resources: Staff Time, Grants

Previously PR-16a (Community Gardens)

Lifestyles

The success of the community in becoming more sustainable is largely dependent upon the willingness of residents to adopt lifestyles which are less demanding on natural resources. The City can encourage and enable residents and businesses to adopt sustainable lifestyles and operations.

A sustainable community celebrates and is strengthened by its diversity. All residents have decent jobs, housing and an opportunity to participate in the governance of their community.

SU-9. Social Diversity and Equity.

Enhance social equity among all segments of the community.

SU-9a. Affordable Housing. Continue to expand the supply of affordable housing, which reduces commute times and congestion.

Responsibility: Economic Development, Community Development

Timeframe: Ongoing

Resources: Developer Contributions

See also H-4 (Governmental and Community Collaboration), H-6 (Funding for Affordable Housing), H-16 (Second Units), H-17 (Regulatory Incentives for Affordable Housing), H-18 (Inclusionary Housing Requirements), EV-12 (Workforce Housing), G-1 (Jobs and Diversity), G-2 (Variety of Housing), G-6 (Broad-Based Involvement), and G-7 (Community Participation).

SU-10. Zero Waste.

Reduce material consumption and waste generation, increase resource re-use and composting of organic waste, and recycle to significantly reduce and ultimately eliminate landfill disposal.

SU-10a. Zero Waste. Implement and monitor the progress of actions contained in the Zero Waste Goal and Zero Waste Strategic Plan.

Responsibility: City Manager

Timeframe: Short Term

Resources: Marin Hazardous and Solid Waste JPA

SU-10b. Home Composting. Develop a program to assist and educate residents in home-composting.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Marin Hazardous and Solid Waste JPA

SU-10c. Community Composting. Create a community-scale composting program for food and green waste.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Marin Hazardous and Solid Waste JPA

SU-10d. Organic Waste-to-Energy. Encourage the creation of an organic waste-to-energy program.

Responsibility: City Manager

Timeframe: Short Term

Resources: Staff Time

SU-10e. Recycling. Encourage efforts to promote recycling, such as encouraging businesses to recycle building and other materials, promoting composting by restaurants, institutions and residences, and supporting Marin Conservation Corps' work to promote recycling.

Responsibility: City Manager, Community Development

Timeframe: Ongoing

Resources: Staff Time

Previously CON-21a (Recycling)

SU-10f. Recyclable Waste Receptacles. Support efforts by Marin Sanitary to install recyclable waste receptacles in heavy pedestrian areas to encourage recycling of plastics, glass, etc.

Responsibility: City Manager, Community Development

Timeframe: Short Term

Resources: Staff Time

Previously CON-21b (Recyclable Waste Receptacles)

SU-10g. Recycling for Apartments and Nonresidential Buildings. Encourage recycling facilities and programs for apartment and nonresidential buildings. Consider the cost and benefits of expanding recycling facilities and programs for apartment and nonresidential buildings.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Staff Time

Previously CON-21c (Recycling for Apartments and Nonresidential Buildings)

SU-10h. Demolition Waste. Study ways to actively encourage greater recycling and reuse of demolition waste.

Responsibility: Community Development

Timeframe: Long Term

Resources: Staff Time

Previously CON-21d (Demolition Waste)

SU-10i. Recycling Education. Encourage Marin Sanitary to continue its recycling education programs, and to reach out to those not aware of the "reduce, reuse and recycle" techniques.

Responsibility: City Manager

Timeframe: Ongoing

Resources: Staff Time

Previously CON-21e (Recycling)

SU-10j. Incentives for Waste Reduction and Recycling. Work with the City's waste franchisee to create additional incentives in the rate structure for waste reduction and recycling and expand the range of recycled products if resale markets exist.

Responsibility: City Manager, Marin Sanitary
Timeframe: Ongoing
Resources: Fees

SU-9f. Construction Debris (Deleted per Amendment on 12/5/16)

SU-10k. Reuse Facilities. Assist in the development of additional reuse facilities (resale shops, refilling stations, repair shops and resource recovery yards).

Responsibility: Community Development, Economic Development
Timeframe: Long Term
Resources: Staff Time

SU-9h. Non-Recyclable Single Use Items. (Deleted per Amendment on 12/5/16)

SU-9i. Commercial and Multi-Family Recycling. (Deleted per Amendment on 12/5/16)

SU-11. Community Education and Engagement.
Increase community education and engagement in sustainability efforts.

SU-11a. Conservation Programs. Continue to connect businesses and residents with programs and rebates to conserve energy and water.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Grants

SU-11b. Resilient Neighborhoods and Businesses. Implement the Resilient Neighborhoods and Businesses program to encourage behavioral changes to reduce carbon emissions through effective education and peer group support.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Grants

SU-11c. Promote Sustainability Efforts. Use the City's website and City publications and work with community organizations to promote sustainability efforts to both residents and businesses.

Responsibility: City Manager
Timeframe: Ongoing
Resources: Staff Time

SU-11d. Green Festival. Partner with other agencies and organizations to hold an annual "green festival" to promote sustainability efforts.

Responsibility: Community Development
Timeframe: Ongoing
Resources: Staff Time

SU-11e. Vehicle Idling. Educate and encourage businesses and residents to limit vehicle idling.

Responsibility: Police
Timeframe: Long Term
Resources: Staff Time

The Economy

A diverse and local economy which provides opportunities and services for all segments of the community is more resilient to potential market shifts, including those which may result from the effects of climate change and changing sources of energy.

SU-12. Environmentally Beneficial Economy.

Support environmentally beneficial businesses and job creation.

SU-12a. Local Green Businesses. Continue to promote new green businesses opportunities.

Responsibility: Economic Development

Timeframe: Ongoing

Resources: Economic Development

SU-12b. Marin County Green Business Program. Support and encourage green businesses in conjunction with Marin County's Green Business Program.

Responsibility: Economic Development; Marin County

Timeframe: Ongoing

Resources: Economic Development

Incorporated CON-17b (Green Business Program)

SU-12c. Environmentally Beneficial Jobs. Support the creation of environmentally beneficial jobs, particularly for low income residents.

Responsibility: Economic Development

Timeframe: Long Term

Resources: Economic Development

Monitoring Sustainability Indicators and Objectives

Achieving a more sustainable community and responding to climate change will take concerted efforts. It will be necessary to monitor our progress and effectiveness, and to change course as warranted.

SU-13. Monitor Sustainability Objectives and Indicators.

Monitor success in achieving sustainability objectives and greenhouse gas reductions.

SU-13a. Monitor Sustainability Indicators and Greenhouse Gas Inventory.

Periodically update the community and municipal greenhouse gas inventories, monitor changes in the identified sustainability indicators and periodically update the Climate Change Action Plan to achieve greenhouse gas reduction goals.

Responsibility: Community Development

Timeframe: Ongoing

Resources: Staff Time, grants

SU-13b. Future Development and Capital Improvements.

Evaluate future development applications and the City's Capital Improvement Program against compliance with the Sustainability Element and the GHG Emissions Reduction Strategy.

Responsibility: Community

Development Timeframe: Ongoing

Resources: Staff Time, grants

Sustainability Indicators

Indicators are quantifiable objectives that allow us to monitor and gauge our effectiveness at achieving sustainability goals.

1. Decrease miles travelled in single-occupant vehicles on local streets.

Between 2005 and 2020 achieve:

- A 10% reduction community-wide.
- 20% of City employees using alternate modes of commuting.
- 500 new housing units within ½ mile of high frequency transit.

2. Promote energy savings from transportation.

Between 2005 and 2020 achieve:

- A 20% reduction in annual per vehicle gallons of fuel purchased.
- 100 electric vehicle charging stations in public locations.

3. Reduce material consumption and achieve resource re-use.

Between 2005 and 2025 achieve:

- A 94% diversion of waste from landfills.

4. Reduce dependency on non-renewable resources.

Between 2005 and 2020 achieve:

- A 20% reduction community electricity and natural gas use.
- A 30% reduction in household water use.

5. Enhance social equity among all segments of the community.

Between 2005 and 2020 achieve:

- 560 new units of deed-restricted affordable housing.

SU-13c. Annual Reports. Prepare an annual report to the Planning Commission and City Council assessing the implementation of sustainability programs and the GHG Emissions Reduction Strategy.

Responsibility: Community

Development

Timeframe: Ongoing

Resources: Staff Time

SU-12d. Sustainability Coordinator. (Deleted per Amendment on 12/5/16)

SU-13d. Sustainability Commission.

Maintain a Sustainability Commission to advance sustainability efforts.

Continue to hold the Climate Change Action Plan (CCAP) Quarterly Forum, which provides oversight on the implementation progress of sustainability programs.

Responsibility: Community

Development

Timeframe: Short Term

Resources: General Fund

GOAL 26:

It is the goal of San Rafael to have municipal operations that are highly resource efficient and anticipate the effects of climate change. *Municipal operations constitute only one percent of the community's greenhouse gas emissions, but can be a leader in sustainable practices. The City should anticipate and mitigate the effects of sea level rise and natural disasters which will be exacerbated by climate change.*

SU-14. Municipal Programs.

Implement municipal programs to demonstrate the City's commitment to sustainability efforts and reducing greenhouse gases.

SU-14a. Alternative Transportation Options. Provide transit and carpool incentives to City employees, including alternative work schedules and telecommuting opportunities.

Responsibility: Public Works

Timeframe: Long Term

Resources: General Fund, grants

Incorporated CON-23a (City Carpool)

SU-14b. Alternative Fuel for City Fleet. Continue to implement existing City policy to purchase alternative fuel vehicles and increase the efficiency of the vehicle fleet.

Responsibility: Public Works

Timeframe: Ongoing

Resources: General Fund, grants

Incorporated CON-24c (City Vehicle Fleet)

SU-14c. Limit Idling of City Vehicles. Adopt a policy to limit City vehicle idling where practical. Evaluate equipping trucks with an auxiliary electrical system for illumination and warning signs.

Responsibility: Public Works, Police Fire

Timeframe: Short Term

Resources: Staff Time

SU-13d. Green Purchasing (Deleted per Amendment on 12/5/16)

SU-13e. Energy Audits Municipal Buildings (Deleted per Amendment on 12/5/16)

SU-14d. City Electricity. Participate in the Marin Energy Authority by switching all City accounts over to the Light Green option in 2010 and the Deep Green option (100% renewable power) by 2020. Consider the use of renewable energy technology such as solar, cogeneration and fuel cells in the construction or retrofitting of City facilities.

Responsibility: City Manager

Timeframe: Short Term

Resources: Staff Time

Incorporated CON-24d (Renewable Energy Sources in City Facilities)

SU-14e. Streetlights and Traffic Signals. Pursue funding to complete the retrofit of City traffic signals and retrofit streetlights with LED fixtures.

Responsibility: Public Works

Timeframe: Short Term

Resources: Staff Time

SU-14f. Employee Awareness. Increase City employees' awareness of climate protection issues, and develop an internal committee to implement plans.

Responsibility: City Manager
Timeframe: Short Term
Resources: Staff Time

SU-14g. Local Government Agency Involvement. Continue to provide a leadership role with other local governmental agencies to share best practices and successes.

Responsibility: Community Development, Marin Climate and Energy Partnership
Timeframe: Ongoing
Resources: Staff Time

SU-14h. Advancing GHG and Sustainability Efforts. Advocate for state and federal legislation that advance greenhouse gas reductions and other sustainability efforts.

Responsibility: City Manager
Timeframe: Ongoing
Resources: Staff Time

SU-14i. Civic Buildings. Require that new, expanded or renovated City buildings that exceed 5,000 square feet achieve CalGreen standards. This requirement shall not apply to City facilities which are leased.

Responsibility: Public Works Department
Timeframe: Ongoing
Resources: General Fund, Capital Improvement Program, bonds or grants

Previously CON-18f (Civic Buildings)

SU-14j. Green Business Certification. Participate in Marin County's Green Business program to become certified as a Marin Green Business. As part of the programs, review ways for the City to improve recycling and resource-efficient purchases and designate a staff person in each department to establish and maintain recycling in City facilities.

Responsibility: Community Development, City Manager
Timeframe: Ongoing
Resources: Staff Time

Previously CON-24a (Green Business Certification)

SU-14k. Regional Collaboration. Participate in regional collaborations between public agencies to enact and support new programs or shared improvements which promote or utilize renewable energy sources or reduce energy demand.

Responsibility: City Manager
Timeframe: Ongoing
Resources: Staff Time

Previously CON-24b (Regional Collaboration)

SU-14l. Backup Energy Provision. Evaluate backup energy provisions for critical city facilities and upgrade as needed. Encourage the use of alternatives, such as fuel cell and solar generator backups, to the sustained use of gasoline-powered generators.

Responsibility: Public Works
Timeframe: Short Term
Resources: Staff Time

See S-34a (Disaster Preparedness Plan) and S-34c (Neighborhood Disaster Preparedness).

Previously CON-25a (Backup Energy Provision)

SU-15. Adapting to Climate Change.

Increase understanding and preparation to adapt to the effects of climate change, including sea level rise.

SU-15a. Vulnerability Assessment. Participate in Marin County's regional vulnerability assessment, and prepare a local vulnerability assessment for San Rafael.

Responsibility: Public Works

Timeframe: Long Term

Resources: Staff Time, grants

SU-15b. Emergency Planning. Continue to provide emergency planning and community awareness.

Responsibility: Emergency Services

Timeframe: Ongoing

Resources: Staff Time, grants

SU-15c. Levee Analysis. Develop a program of levee analysis, including inventorying heights, testing and maintaining public and private levees.

Responsibility: Public Works

Timeframe: Long Term

Resources: Staff Time, grants, private property owners

SU-15d. Sea Level Monitoring and Planning. Work with the Bay Conservation and Development Commission (BCDC), and other regional agencies, to monitor sea level rise and plan for shoreline defense.

Responsibility: Public Works

Timeframe: Short Term

Resources: General Fund, grants

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