

Conservation Element





Conservation Element

Purpose

To become an international model of sustainable development. To provide for the long-term conservation and sustainable management of the rich natural resources that help to define the City's identity, contribute to its economy, and improve its quality of life.

Introduction

Conservation is the planned management, preservation, and wise utilization of natural resources and landscapes. The Conservation Element contains policies to guide the conservation of the resources that are fundamental components of San Diego's environment, that help define the City's identity, and that are relied upon for continued economic prosperity. San Diego's resources include, but are not limited to: water, land, air, biodiversity, minerals, natural materials, recyclables, topography, viewsheds, and energy. Over the long-term, conservation is the most cost-effective strategy to ensure that there will be a reliable supply of the resources that are needed now and in the future.



Sustainable conservation practices help ensure that future generations will be able to use and enjoy these resources to achieve and maintain a healthy and diverse environment and economy. Sustainable, "clean," or "green" industries include those that are using or developing new technologies or processes to make better use of resources, to reduce pollution, to allow for greater use of renewable resources, or to achieve other environmental benefits. Sustainability is a global issue that extends beyond the realm of City planning. However, local land use planning and resource management affect the natural environment and the resources that support San Diego, contributing to sustainability.

Multiple conservation challenges and their solutions are inextricably linked. For example, almost sixty percent of the energy used by the City of San Diego (City) is utilized for pumping water and sewage, so policies for water conservation also help us save energy, which in turn reduces fossil fuel consumption and air pollution. The City of Villages strategy to direct compact growth in limited areas that are served by transit is, in itself, a conservation strategy. Compact, transit-served growth is an efficient use of urban land that reduces the need to develop outlying areas



Conservation Element

and creates an urban form where transit, walking and bicycling are more viable alternatives to automobile travel. Reducing dependence on automobiles reduces vehicle miles traveled, which, in turn, improves water quality by decreasing automobile-related oil and gas leaks that pollute water bodies throughout the City.

The Conservation Element reflects key goals contained in many other City and regional plans and programs and will help guide their future updates. Examples of City planning documents and programs that currently address conservation issues are included in Appendix CE-1. The Conservation Element sets forth a citywide vision that ties these various natural resource-based plans and programs together using a village strategy of growth and development. It contains policies for sustainable development, preservation of open space and wildlife, management of resources, and other initiatives to protect the public, health, safety and welfare.

A. Sustainable Development

Goal

- ◆ To become a City that is an international model of sustainable development.

Discussion

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."¹ The City is implementing sustainable development policies that will reduce its environmental footprint, including: conserving resources, following "sustainable building" practices, reducing greenhouse gas emissions, and encouraging clean technologies. In sustainable development practices, economic growth is closely tied with environmental, "clean," or "green" technologies and industries. Environmental and economic initiatives are planned and managed together, each reinforcing and being an integral component of the other.

San Diego is well positioned to become a leader in clean technology industries due to its highly qualified workforce, world-class universities and research institutions, and established high technology industries (see also the Economic Prosperity Element, Section A). "Clean technologies" incorporate those practices and/or produce products that ultimately meet the goals of a sustainable community. Clean technology encompasses advancements in solar power, wind power, hybrid vehicles, fuel cell technology, tidal and wave power, bioenergy, energy efficient building materials and technologies, and water treatment systems. It often involves substituting biologically-based materials and processes for chemically-based approaches. Clean technology is becoming cost-competitive with its traditional counterparts and offers promising opportunities for new businesses, job creation, and technological innovation in San Diego. Clean technology

¹ World Commission on Environment and Development, Brundtland Report, 1987.



industries demonstrate that environmental protection and economic competitiveness goals are aligned and mutually beneficial.

Buildings account for nearly half of the total energy used in the United States, and represent a significant portion of the nation's consumption of energy and raw materials, and waste output. Sustainable or "green" buildings use resources such as building materials, water, energy, and land more efficiently than other buildings. "Green" buildings provide an array of environmental, economic and health benefits for building owners and occupants, and help the broader community by conserving resources and reducing pollution. The City's Sustainable Building Policy requires City projects to achieve the U.S. Green Building Council's LEED silver standard for all buildings and major renovations over 5,000 square feet (Council Policy 900-14), and encourages private developers to use sustainable practices.

City of San Diego Refuse and Recyclables Materials

Chapter 14, Article 2, Division 8 of the City of San Diego Municipal Code requires all new multiple unit residential, commercial, and industrial development to provide on-site areas for the storage of refuse and recyclable materials. The purpose of the regulations is to provide permanent, adequate, and convenient space for the collection of refuse and recyclable material.

The design of commercial and residential developments is a significant factor in creating what is known as an "Urban Heat Island Effect." Heat islands form as cities replace natural land cover with dark-colored impermeable pavement for roads and parking lots; construct buildings that block natural cooling from wind; and otherwise collect and retain heat so much that, a city can be up to ten degrees warmer than nearby open spaces.² The hotter it is, the more ground level ozone is created. Ground level ozone results in public health impacts that seriously affect sensitive members of the population including people with respiratory problems, the elderly, and children. Implementation of sustainable development practices, including heat island mitigation measures, may reduce temperature increases and the associated Urban Heat Island effects in San Diego.

Policies

- CE- A.1 Encourage the development of "clean" or "green" sector industries that benefit San Diego's environment and economy.
- CE-A.2. Encourage the construction and operation of sustainable or "green" buildings.
 - a. Require all new and major remodels to City buildings to achieve, at a minimum, the Silver Rating goal identified by the Leadership in Energy and Environmental Design (LEED™) Green Building Rating System to conserve resources, including but not limited to energy and renewable resources.
 - b. Require all City-funded construction projects to incorporate "green" building

² U.S. Environmental Protection Agency, see <http://www.epa.gov/hiri/about/index.html>



Conservation Element

components.

- c. Provide incentives to builders/owners that employ "green" building techniques.
- d. Provide technical service for "green" buildings in partnership with other agencies.

- CE-A.3. Design and build energy efficient buildings using "green" technology and principles.
- a. Design mechanical and electrical systems that achieve maximum energy efficiency with currently available technology.
 - b. Strive for innovative site design and building orientation to minimize energy use by taking advantage of sun-shade patterns, prevailing winds, landscaping, and sun-screens.
 - c. Support self-generation of energy using renewable technologies.
 - d. Combine energy efficiency measures that have longer payback periods with measures that have shorter payback periods.
 - e. Reduce levels of non-essential lighting, heating and cooling.
- CE-A.4. Construct and operate buildings using materials, methods, and mechanical and electrical systems that ensure a healthful indoor air quality. Avoid contamination by carcinogens, volatile organic compounds, fungi, molds, bacteria, and other known toxins.
- a. Eliminate the use of chlorofluorocarbon-based refrigerants in newly constructed facilities and major building renovations and retrofits for all heating, ventilation, air conditioning, and refrigerant-based building systems.
 - b. Reduce the quantity of indoor air contaminants that are odorous or potentially irritating to protect installers and occupants' health and comfort. Select low-emitting adhesives, paints, coatings, carpet systems, composite wood, agri-fiber products, and others.
- CE-A.5. Reduce waste by renovating or adding on to existing buildings, rather than constructing new buildings where feasible.
- CE-A.6. Reuse building materials, use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible.
- a. Encourage contractors to schedule time for deconstruction and recycling activities to take place during project demolition and construction phases.
 - b. Use life cycle costing in decision-making for materials and construction techniques. Life cycle costing analyzes the costs and benefits over the life of a particular product, technology, or system.
 - c. Remove code obstacles to using recycled materials in buildings and for construction.
- CE-A.7. Include features in buildings to facilitate recycling of waste generated by building



occupants and associated refuse storage areas.

- a. Provide permanent, adequate, and convenient space for individual building occupants to collect refuse and recyclable material.
- b. Provide a recyclables collection area that serves the entire building or project. The space should allow for the separation, collection and storage of paper, glass, plastic, metals, and other materials as needed.

CE-A.8. Encourage sustainable landscape design and maintenance.

- a. Encourage the use of integrated pest management to reduce dependence on the use of pesticides, herbicides, and synthetic fertilizers.
- b. Encourage composting.
- c. Decrease the amount of impervious surfaces in developments, especially where public places, plazas and amenities are proposed to serve as recreation opportunities (see also Recreation Element, Policy RE-F.6 and F.7).
- d. Increase use of deciduous trees (which lose their leaves at the end of the growing season) and drought tolerant native vegetation.
- e. Reduce use of lawn types that require high levels of irrigation.
- f. Incorporate existing mature trees and vegetation into site designs.
- g. Minimize the use of landscape equipment powered by fossil fuels.
- h. Implement water conservation measures in site/building design and landscaping.
- i. Use high efficiency irrigation technology, and recycled site water to reduce the use of potable water for irrigation.

CE-A.9. Develop and adopt an Urban Heat Island Mitigation policy.

- a. Develop measures to limit or mitigate the use of dark materials on roofs and roads.
- b. Develop measures to increase vegetation, particularly shade trees, to cool air temperatures.
- c. Minimize the development of, and where possible retrofit, large surface parking lots (see also Urban Design Element, UD-A.12).



B. Open Space and Landform Preservation

Goal

- ◆ Preservation and long-term management of the natural landforms and open spaces that help make San Diego unique.

Discussion

Open space may be defined as land or water areas generally free from development or developed with low-intensity uses that respect natural environmental characteristics. Open space is generally non-urban in character and may have utility for: park and recreation purposes; conservation of land, water, or other natural biological resources; or historic or scenic purposes. San Diego's many canyons, valleys, mesas, hillsides, beaches, and other landforms create a unique setting that fosters biodiversity, a sense of place, and recreational opportunities. Designated parks and open spaces are shown on the General Plan Land Use and Street System Map (Land Use Element, Figure LU-2).

San Diego has a long history of planning for open space preservation and protection, including:

- 1868 – the City of San Diego Board of Trustees set land aside for a City park, later named Balboa Park.
- 1908 – John Nolen's comprehensive plan for San Diego called for development to conform to and respect the natural environment.
- 1972 – the City amended the charter to establish the Environmental Growth Fund, two-thirds of which could be used as debt service for bond issuance to acquire, improve, and maintain open space for park or recreational purposes.
- 1978 – San Diego voters approved Proposition C which authorized the sale of bonds to purchase open space.
- 1979 – the Progress Guide and General Plan, Open Space Element called for providing an open space system.
- 1987 – the City's Residential Growth Management Program included a policy recommendation to allow topography and environmentally sensitive lands to define the City's urban form.
- 1997 – the Multiple Species Conservation Program (MSCP) was adopted to preserve and manage sensitive species at the ecosystem level through habitat protection.



The City's Environmentally Sensitive Lands (ESL) regulations help protect, preserve, and restore lands containing steep hillsides, sensitive biological resources, coastal beaches, sensitive coastal bluffs, or Special Flood Hazard Areas. The intent of the ESL regulations is to assure that development occurs in a manner that protects the overall quality of the resources, encourages a sensitive form of development, retains biodiversity and interconnected habitats, maximizes physical and visual public access to and along the shoreline, and reduces hazards due to flooding in specific areas while minimizing the need for construction of flood control facilities. Steep hillsides are shown on Figure CE-1.

The development regulations and guidelines for environmentally sensitive lands also serve to implement the MSCP by placing priority on the preservation of biological resources within the Multi-Habitat Planning Area (MHPA) (see Figure CE-2). The goal of the MSCP is to achieve a sustainable balance between species preservation and smart growth by identifying areas for habitat/species protection (within the MHPA) and areas for development (outside the MHPA), as further discussed in Section G.

The City's parks, open space, trails and pedestrian linkages are part of an integrated system that connect with regional and state resources and provide opportunities for residents and visitors to experience San Diego's open spaces. The Recreation Element describes the attributes of designated and dedicated park and open space lands for the provision of outdoor recreation. Some important open space areas are not preserved as dedicated park land, but are protected through regulations or other private property restrictions such as conservation or open space easements.

Policies

- CE-B.1. Protect and conserve the landforms and open spaces that: define the City's urban form; provide public views/vistas; serve as core biological areas and wildlife linkages; are wetlands habitats; provide buffers within and between communities, or provide outdoor recreational opportunities.
- a. Pursue funding for the acquisition and management of MHPA and other important community open space lands.
 - b. Support the preservation of rural lands and open spaces throughout the region.
 - c. Protect community urban canyons and other important open spaces that have been designated in community plans for the many conservation benefits they offer locally, and regionally as part of a collective citywide open space system (see also Recreation Element, Sections B and E).



THE CITY OF SAN DIEGO
General Plan

Conservation Element

Pacific Ocean

San Diego Bay

MEXICO

Figure CE-1

**Step Slopes and
200 Ft. Contours**

-  Step Slopes (25% or steeper)
-  Topographic Contours (200 Ft. Interval)

0 1 2 4 6 Miles



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Copyright SanGIS. All Rights Reserved.



- d. Minimize or avoid impacts to canyons and other environmentally sensitive lands, by relocating sewer infrastructure out of these areas where possible, minimizing construction of new sewer access roads into these areas, and redirection of sewage discharge away from canyons and other environmentally sensitive lands.
 - e. Encourage the removal of invasive plant species and the planting of native plants near open space preserves.
 - f. Pursue formal dedication of existing and future open space areas throughout the City, especially in core biological resource areas of the City's adopted MSCP Subarea Plan.
 - g. Require sensitive design, construction, relocation, and maintenance of trails to optimize public access and resource conservation.
- CE-B.2. Apply the appropriate zoning and Environmentally Sensitive Lands (ESL) regulations to limit development of floodplains, sensitive biological areas including wetlands, steep hillsides, canyons, and coastal lands.
- a. Manage watersheds and regulate floodplains to reduce disruption of natural systems, including the flow of sand to the beaches.
 - b. Limit grading and alterations of steep hillsides, cliffs and shoreline to minimize erosion and landform impacts.
- CE-B.3. Use natural landforms and features as integrating elements in project design to complement and accentuate the City's form (see Urban Design Element, Section A).
- CE-B.4. Limit and control runoff, sedimentation, and erosion both during and after construction activity.
- CE-B.5. Maximize the incorporation of trails and greenways linking local and regional open space and recreation areas into the planning and development review processes.



THE CITY OF SAN DIEGO
General Plan

Conservation Element

Pacific Ocean

San Diego Bay



Figure CE-2

Multi-Habitat Planning Area

-  Multi-Habitat Planning Area (MHPA)
-  City-Owned Lands in MHPA
-  Military Use



MEXICO



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Copyright SanGIS, All Rights Reserved.



C. Coastal Resources

Goals

- ◆ Coastal resource preservation and enhancement.
- ◆ Clean coastal waters by continuing to improve the quality of ocean outfall discharges.
- ◆ Enhanced public access to the shoreline and coast.

Discussion

San Diego's environment, its coastal location, temperate climate, and diverse topography, contribute to the City's natural beauty and resources. Many of San Diego's most appreciated natural resources are located within the coastal zone. These include the City's beaches, bays, shoreline, coastal canyons and the many rivers, streams and other watercourses that drain inland areas, eventually reaching the coastal environment and waters. In the City of San Diego, the Coastal Zone encompasses approximately 40,000 acres of public and private land and waters.

Development in the coastal zone in California is governed by the California Coastal Act of 1976. The Act arose out of Proposition 20, the California Coastal Conservation Initiative and responds to the public concern for protecting and enhancing coastal resources. The California Coastal Commission (CCC) is the regulatory agency established to implement the provisions of the Coastal Act. The Coastal Act directs local governments to prepare Local Coastal Programs (LCPs) in accordance with the Act's policies. These policies are designed to guide: development in the coastal areas, beach and lagoon resource management, public access, low-cost visitor-serving recreational uses and conservation of the unique qualities and nature of the coast (see the Land Use Element, Section E, for information on how the City prepares and implements LCPs).

San Diego offers many coastal resources that contribute to the local economy and provide opportunities for tourism, recreation, and marine-related industry. Some of the most prominent coastal uses in San Diego include:

- *San Diego Bay*: As one of the largest natural harbors in California, it is the home of the Navy (Eleventh Naval District) and provides facilities for commercial and sports fishing, recreational activities, oceanic research, shipbuilding/repair, and wildlife habitat. Most of the San Diego Bay is under the jurisdiction of the Unified Port District
- *Pacific Ocean Offshore Area*: The City's jurisdiction extends from the tip of Point Loma northerly to the northern boundary near Sorrento Valley, and three nautical miles seaward from the mean low tide line. This area offers commercial kelp harvesting, commercial fishing, recreational boating, oceanographic research activities, and a marine life refuge (La Jolla Underwater park) and ecological reserve (San Diego Underwater Ecological Reserve).



THE CITY OF SAN DIEGO
General Plan

Conservation Element

Pacific Ocean

San Diego Bay

MEXICO

Figure CE-3

Coastal Zone Boundary

 Coastal Zone

0 1 2 4 6 Miles



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Copyright Sagis. All Rights Reserved.



- *Mission Bay*: Originally a marshy lagoon draining the San Diego River and various canyon creeks, Mission Bay has been dredged and developed into a resource-based park to accommodate aquatic recreation: water skiing, swimming, boating, small boat harboring, and tourist-based leaseholds.
- *Coastal Lagoons*: Los Peñasquitos Lagoon, San Diego National Wildlife Refuge, Salt Ponds, wetlands in Mission Bay Park and the Tijuana Slough are a few of San Diego's remaining coastal wetlands/lagoons that provide critical vegetation, wildlife and marine life habitats both locally, and as part of the Pacific Migratory Flyway.
- *Fishing*: Many commercial and sport-fishing boats operate out of San Diego Harbor and Mission Bay. These bring in fish and shellfish both from the coastal Offshore Area and from more distant areas. For various reasons, the local fishing industry has been declining for the past 25 years, as it has elsewhere in the state.

Policies

- CE-C.1. Protect, preserve, restore and enhance important coastal wetlands and habitat (tide pools, lagoons and marine canyons) for conservation, research, and limited recreational purposes.
- CE-C.2. Control sedimentation entering coastal lagoons and waters from upstream urbanization using a watershed management approach that is integrated into local community and land use plans (see also, Land Use Element, Policy LU-E-1).
- CE-C.3. Minimize alterations of cliffs and shorelines to limit downstream erosion and to ensure that sand flow naturally replenishes beaches.
- CE-C.4. Manage wetland areas as described in Section H, Wetlands, for natural flood control and preservation of landforms.
- CE-C.5. Limit the use of beaches and shorelines to appropriate coastal dependent and ocean-oriented recreational/educational uses as identified in local coastal/community plans.
- CE-C.6. Implement watershed management practices designed to reduce runoff and improve the quality of runoff discharged into coastal waters.
- CE-C.7. Encourage conservation measures and water recycling programs that eliminate or discourage wasteful uses of water.
- CE-C.8. Protect coastal vistas and overlook areas from obstructions and visual clutter where it would negatively affect the public's reasonable use and enjoyment of the resource.



Conservation Element

- CE-C.9. Develop an integrated system of pedestrian, bicycle, local transit and automobile access to the shoreline that will connect major coastal activity areas with a focus on the ocean and natural scenic corridors.
- CE-C.10. Work with local fishing and other coastal-related industry representatives to enhance their possibilities of economic survival in San Diego.
- CE-C.11. Integrate the many coastal resources and recreational opportunities into the City's proposed Parks Master Plan (see also the Recreation Element, Policy RE-F.1).
- CE-C.12. Ensure that all City beaches and shorelines are accessible and available for appropriate public use for all users.
- CE-C.13. Acquire remaining beach and shoreline areas for public use.

D. Water Resources Management

Goals

- ◆ Effective long-term management of watershed resources so that their demand is in balance with efficient, sustainable supplies.
- ◆ A safe and adequate water supply that effectively meets the demand for the existing and future population through water efficiency and reclamation programs.

Discussion

San Diego has a semi-arid coastal climate with coastal areas receiving an average of ten inches of rain annually. The City's historically reliable water supply is credited to its ability to import and store water supplies from the Colorado River and Northern California. However, as these imported water supplies become scarce because of population increases, economic growth, and competing regional demands, San Diego must develop additional water resources to ensure an adequate supply for present and future generations.





The City of San Diego has no direct control over the imported water supply, but is a member agency of the San Diego County Water Authority (SDCWA), which is responsible for securing the region's water supply. Additional dedicated water supplies and increased water-use efficiency programs are needed for the region to support growth projections and industry needs. In response to imported water supply uncertainties, the City prepared a Long-Range Water Resources Plan, which defines a flexible 30-year strategy and includes evaluation tools for continued water resources planning.

The City operates local drinking water supply reservoirs that are critical components of the regional water supply system also Public Facilities Element, Section H). Rainfall in reservoir areas averages 15-25 inches per year. These reservoirs store imported water, provide emergency water storage, and capture rainfall and runoff that provides ten to twenty percent of the City's water supply. Water quality is threatened by the continued urbanization of watershed lands. Runoff from storms or other human activities picks up pollutants that enter the reservoirs. Watershed planning is an interdisciplinary approach that provides an opportunity to understand the relationship between land use, biology, engineering, geology, and other disciplines on a landscape level using water as the interconnecting element. It should be used to identify major water resource management issues for each area of the City and refine land use policies at the community plan level.

Pollutants of concern for drinking water include materials that are not typically addressed under storm water regulations; nutrients and related algae, organic carbon, and dissolved solids are of particular concern. To fill this gap, the City of San Diego has written Source Water Protection Guidelines which help development project proponents and reviewers determine if their projects pose a threat to water quality in accordance with the Municipal Storm Water Permit (see Section E, Urban Runoff Management). Where a threat exists, the guidelines offer suggestions on site designs and the use of Best Management Practices (BMPs) to minimize potential problems. Applying the guidelines and reducing runoff pollution is particularly challenging, as the reservoirs and their tributary watersheds are located almost entirely outside of the City of San Diego.

Policies

- CE-D.1. Implement a balanced, water conservation strategy as an effective way to manage demand by, reducing dependence on imported water supplies, maximizing the efficiency of existing urban water and agricultural supplies through conservation measures/programs, and developing alternative, reliable sources to sustain present and future water needs.



Conservation Element

- a. Integrate watershed planning with water supply and land use studies to achieve an integrated approach to ensure that the City can provide adequate water supplies for present uses, accommodate future growth, attract and support commercial and industrial development, and supply local agriculture (see also Public Facilities Element, PF-H.1).
- b. Manage groundwater and surface water resources and capacity through an integrated approach to meet overall water supply and resource management objectives (see also Public Facilities Element, PF-H.1).
- c. Participate in advanced water treatment processes such as brackish groundwater and seawater desalination programs.
- d. Emphasize and refine recycled water programs to help meet non-potable irrigation demands.
- e. Develop and expand water-efficient landscaping to include urban forestry, urban vegetation, and demonstration projects.
- f. Pursue water transfers and other cost-effective ways to increase reliable supplies with minimal environmental effects, where it benefits the City, to help achieve a balanced and integrated water conservation strategy.
- g. Support regional efforts towards ensuring that imported water is reliable, cost-effective, and is of high quality.
- h. Maintain existing and future water supply, storage, treatment and distribution facilities with minimal or no impact to the environment.
- i. Implement conservation incentive programs that increase water-use efficiency and reduce urban runoff.
- j. Develop a response plan to assist citizens in reducing water use during periods of water shortages and emergencies.
- k. Encourage local water agencies to use state-mandated powers to enforce conservation measures that eliminate or penalize wasteful uses of water.
- l. Explore alternative conservation measures and technology as they become available.
- m. Review/update the City's landscaping regulations as needed to ensure they effectively address the efficient use of water in landscaping.



- CE-D.2. Protect drinking water resources by implementing guidelines for future development that may affect water supply watersheds, reservoirs and groundwater aquifers. The guidelines should address site design, best management practices (BMPs) and storm water treatment measures.
- a. Collaborate with other jurisdictions to reduce the potential for polluted runoff to impact water supplies.
 - b. Enter into cooperative, voluntary agreements with other jurisdictions to enable the City to provide advisory review of development projects outside of the City's boundaries that may impact the watershed and its reservoir areas.
- CE-D.3. Continue to participate in the development and implementation of watershed management plans.
- a. Control water discharge in a manner that does not reduce reasonable use by others, damage important native habitats and historic resources, or create hazardous conditions (e.g., erosion, sedimentation, flooding and subsidence).
 - b. Protect reservoir capacity from sedimentation.
 - c. Improve and maintain drinking water quality and urban runoff water quality through implementation of source water protection guidelines and storm water protection measures (see also Urban Runoff Management, Section E).
 - d. Encourage proper sustainable agricultural practices (if applicable) such as tillage, use of grass filter strips, runoff detention basins, and organic farming.
- CE-D.4. Coordinate local land use planning with state and regional water resource planning to help ensure that the citizens of San Diego have a safe and adequate water supply that meets existing needs and accommodates future needs (see also the Public Facilities Element, Section H).
- CE-D.5. Integrate water and land use planning into local decision-making, including using water supply and land use studies in the development review process.



THE CITY OF SAN DIEGO
General Plan

Conservation Element

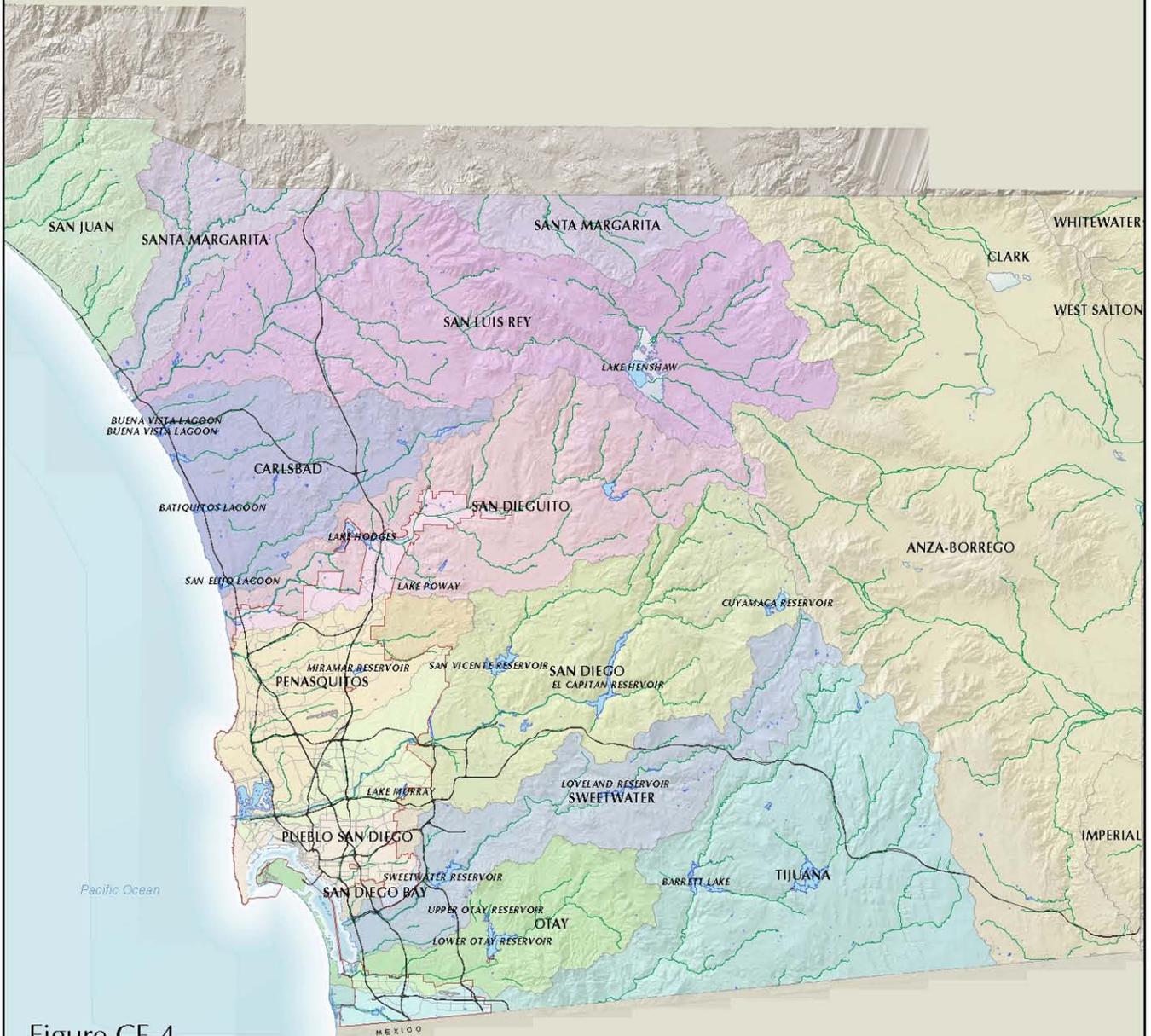


Figure CE-4

San Diego County Watersheds

-  City of San Diego
-  Reservoirs and Lagoons
-  Rivers

0 1 2 4 6 Miles



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. COPYRIGHT © 2010 SARGIS, INC.



E. Urban Runoff Management

Goals

- ◆ Protection and restoration of water bodies, including reservoirs, coastal waters, creeks, bays, and wetlands.
- ◆ Preservation of natural attributes of both the floodplain and floodway without endangering life and property.

Discussion

When water runoff from rainfall or human activities flows across impervious urban areas it picks up a host of pollutants in its path, such as: trash, debris, organic waste, pesticides, bacteria, viruses, oil, grease, sediments, nutrients, metals, and toxic chemicals. This runoff is a major source of water pollution as it enters storm drain systems, untreated, and is directed to our creeks, bays, wetlands, beaches, and open spaces. The diverse origins and types of runoff pollution make it very difficult to treat, so pollution prevention is the key to a successful urban runoff program. There are five major rivers within or partially within the City: San Dieguito; San Diego; Sweetwater; Otay; and Tijuana Rivers. Due mainly to the dry climate and local impounding reservoirs, most of these are normally dry except during periods of abnormally heavy rainfall. In addition to these rivers, there are also numerous canyons and creeks which drain uplands areas, ultimately reaching the ocean.

Watersheds are areas in which water, sediment, and dissolved materials flow to a common outlet. What happens in one part of the watershed can affect the quality and quantity of water supply. Open space areas and permeable surfaces are important to ensuring water quality. When storm water (or other urban water runoff) passes over these areas and surfaces, some of it is absorbed into the ground and cleansed by natural filtration processes. Maintaining water quality is important to public health, wildlife, and economic

The Clean Water Act of 1972 (CWA) is the cornerstone of surface water quality protection in the United States. The CWA employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the integrity of the nation's waters so they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

In the early decades of the Act's implementation, efforts focused on regulating discharges from traditional "point-source" facilities, such as municipal sewage plants and industrial facilities, with little attention paid to runoff from streets, construction sites, farms, and other "wet-weather" sources. Starting in the late 1980s, efforts to address polluted runoff have increased significantly. Evolution of CWA programs over the last decade has also included a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach, equal emphasis is placed on protecting healthy waters and restoring impaired ones.



THE CITY OF SAN DIEGO
General Plan

Conservation Element

Pacific Ocean

San Diego Bay

MEXICO

Figure CE-5

Flood Hazard Areas

100 Year Flood Plain

0 1 2 4 6 Miles



THIS MAP IS PROVIDED WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Copyright SanGIS. All Rights Reserved.



prosperity, and is a requirement of the federal Clean Water Act. As runoff increases in developed areas, water quality preservation and runoff management requires protection of key open space areas and permeable surfaces within watersheds, (Figure CE-4).

The City's storm water pollution prevention efforts include watershed management, Best Management Practices (BMP) development/implementation, planning and development measures, public education, employee training, water quality monitoring, source identification, and code enforcement components. Storm Water BMPs are specific management practices designed to prevent pollutants from entering storm water and urban runoff. These efforts are documented in the City's annual Urban Runoff Management Plan (URMP). This plan is a requirement of the City's municipal storm water National Pollutant Discharge Elimination System (NPDES) Permit. The permit is issued by the Regional Water Quality Control Board, San Diego Region, in response to the Clean Water Act.

In addition to the water quality impacts from storm water runoff, heavy storms periodically cause flooding damage. San Diego's semi-arid climate makes it more susceptible to flooding because of local soil and vegetation characteristics. While the City's numerous canyons and valleys comprise an efficient natural drainage system that results in a low ratio of floodplain area to total land area, there are areas that experience flooding during heavy rains, such as in the case of the San Diego River Valley. Figure CE-5, the Flood Hazard Areas Map, depicts the 100-year floodplains, which are areas subject to major flooding. Flood control has been addressed in the City both through engineered flood control channels as well as floodplain and open space zones that significantly restricts development and protects the public from flood hazards.

The City of San Diego enacted the Storm Water management and Discharge Control Ordinance in 1993. This ordinance prohibits pollutants from entering the storm water conveyance system. The City has also amended grading and drainage regulations to better control storm water pollution from sediments, erosion, and construction materials during construction and during permanent use of developed sites.



Planted areas and grass swales can serve to treat adjacent impervious areas



Conservation Element

The following policies address land development practices for erosion control, decreased use of impervious surfaces, and design that captures or reduces runoff from development sites. The policies also provide a summary of the City's overall water quality protection policies.

Policies

- CE-E.1. Continue to develop and implement public education programs.
- a. Involve the public in addressing runoff problems associated with development and raising awareness of how an individual's activities contribute to runoff pollution.
 - b. Work with local businesses and developers to provide information and incentives for the implementation of Best Management Practices for pollution prevention and control.
 - c. Implement watershed awareness and water quality educational programs for City staff, community planning groups, the general public, and other appropriate groups.
- CE-E.2. Apply water quality protection measures to land development projects early in the process-during project design, permitting, construction, and operations-in order to minimize the quantity of runoff generated on-site, the disruption of natural water flows and the contamination of storm water runoff.
- a. Increase on-site infiltration, and preserve, restore or incorporate natural drainage systems into site design.
 - b. Direct concentrated drainage flows away from the MHPA and open space areas. If not possible, drainage should be directed into sedimentation basins, grassy swales or mechanical trapping devices prior to draining into the MHPA or open space areas.
 - c. Reduce the amount of impervious surfaces through selection of materials, site planning, and the narrowing of street widths where possible.
 - d. Increase the use of vegetation in drainage design.
 - e. Maintain landscape design standards that minimize the use of pesticides and herbicides.
 - f. Avoid development of areas particularly susceptible to erosion and sediment loss (e.g., steep slopes) and, where unavoidable, enforce regulations that minimize their impacts.
 - g. Apply land use, site development, and zoning regulations that limit impacts on, and protect the natural integrity of topography, drainage systems, and water bodies.
 - h. Enforce maintenance requirements in development permit conditions.



- CE-E.3. Require contractors to comply with accepted storm water pollution prevention planning practices for all projects.
- Minimize the amount of graded land surface exposed to erosion and enforce erosion control ordinances.
 - Continue routine inspection practices to check for proper erosion control methods and housekeeping practices during construction.
- CE-E.4. Continue to participate in the development and implementation of Watershed Management Plans for water quality and habitat protection.
- CE-E.5. Assure that City departments continue to use "Best Practice" procedures so that water quality objectives are routinely implemented.
- Incorporate water quality objectives into existing regular safety inspections.
 - Follow Best Management Practices and hold training sessions to ensure that employees are familiar with those practices.
 - Educate City employees on sources and impacts of pollutants on urban runoff and actions that can be taken to reduce these sources.
 - Ensure that contractors used by the City are aware of and implement urban runoff control programs.
 - Serve as an example to the community-at-large.
- CE-E.6. Continue to encourage "Pollution Control" measures to promote the proper collection and disposal of pollutants at the source, rather than allowing them to enter the storm drain system.
- Promote the provision of used oil recycling and/or hazardous waste recycling facilities and drop-off locations.
 - Review plans for new development and redevelopment for connections to the storm drain system.
 - Follow up on complaints of illegal discharges and accidental spills to storm drains, waterways, and canyons.
- CE-E.7. Manage floodplains to address their multi-purpose use, including natural drainage, habitat preservation, and open space and passive recreation, while also protecting public health and safety.



F. Air Quality

Goals

- ◆ Regional air quality which meet state and federal standards.
- ◆ Reduction in greenhouse gas emissions effecting climate change.

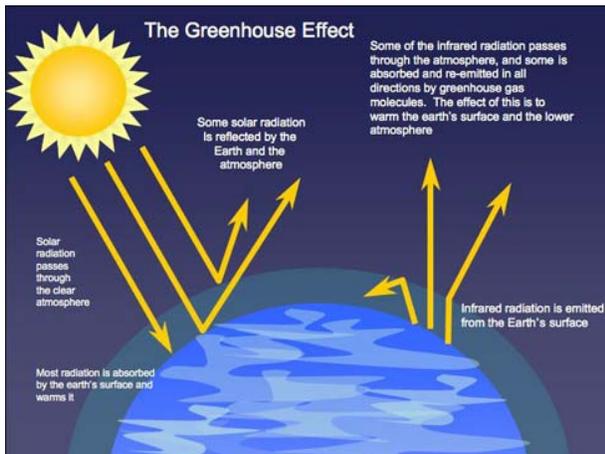
Discussion

The City of San Diego is within the San Diego Air Basin (SDAB). The SDAB includes the coastal plains and foothills in San Diego County. Air quality in the basin is dependent on meteorology, topography, and the demographics of the region. The normal wind pattern in the air basin is a gentle, onshore breeze which builds to about seven to eleven knots in the mid-afternoon. In general, air pollutants emitted along the more densely populated, semi-arid coastal areas in the morning rush hour and throughout much of the workday are blown inland on a regular basis. After sunset as the land cools, the wind direction changes to blow towards the coast at about three to four knots. Consequently, while the bulk of the air pollution in the region is produced along the populated coastline areas, these pollutants are transported inland on most days by late morning and early afternoon sea breezes.

Ozone

Historically, San Diego's primary air pollution problem has been ozone. Ozone is a colorless gas that can be good or bad depending on where it is located. Ozone in the stratosphere (seven or more miles above the earth) protects the planet from the sun's harmful rays, ozone at ground level causes smog. Ground-level ozone is formed when fossil fuel exhaust and other emissions react in the presence of sunlight.

San Diego is also affected by inter-basin pollutant transport as well as localized conditions. High smog levels in coastal communities occasionally occur when polluted air from the South Coast (Los Angeles) Air Basin drifts seaward and southward at night, and then blows onshore the next day during Santa Ana conditions typically occurring in late summer/early fall.



Source: www.epa.gov

Air pollution is clearly linked to health problems, especially for children and elderly residents, and those with respiratory conditions. Motor vehicles and other fossil-fuel burning vehicles are responsible for about 75 percent of the air pollution emissions in the San Diego region (see Table CE-1).



Diesel fuel emissions, which contain toxic particulate matter, are especially harmful to public health. Ground level ozone, a significant air pollutant in San Diego, is caused by internal combustion vehicles. It forms when sunlight and heat interact with vehicle emissions. Even at low levels, ozone can aggravate respiratory conditions, interfere with the ability of plants to produce and store food, and damage building materials. Air pollution also can cause haze, which reduces visibility. On a much broader scale, carbon dioxide emissions from vehicles and fossil-fuel burning power plants are identified as two significant contributors to global warming.

Particulates

Particulate matter (PM) is a mixture of very tiny solid or liquid particles composed of chemicals, soot, and dust. Very small particles can be inhaled into the lungs and cause or aggravate health problems including asthma, bronchitis and other lung diseases.

TABLE CE-1 Sources of Emissions in the San Diego Region

Motor Vehicles (cars, trucks, buses)	50%
Other Mobile (trains, planes, ships, agricultural equipment)	26%
Industry and Commerce (which includes power plants)	14%*
Home Products	9%
Agriculture	1%

Source: San Diego County Air Pollution Control District, 2002 1-Hour Ozone Maintenance Plan.

* This percentage includes emissions generated by power plants producing electricity in the San Diego region. Local fossil-fuel based power plants produce about 2500 megawatts (MW) of electricity. During peak periods, the San Diego region imports about another 1500 MW of power, the generation of which affects skies outside our region.

Under the federal Clean Air Act, the Environmental Protection Agency (EPA) sets limits on how much of a pollutant is allowed in the air anywhere in the United States. National standards were established in 1971 for six pollutants of concern. The federal government has identified health standards for six criteria pollutants: ozone (smog), carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and inhalable particulates. States have the option to add other pollutants, require more stringent compliance, or to include different exposure periods.

The California Clean Air Act mandated that a state clean air plan be developed to address meeting state standards as well as the often less stringent federal criteria. A basin plan was therefore developed and adopted in 1991 and then updated in 1994 to meet the federal one-hour standard for ozone. This 1994 local plan was combined with other regional plans to create the California State Implementation Plan (SIP). At the state level, the California Air Resources Board (ARB) gathers air quality data for the state of California, ensures the quality of this data, designs and implements air quality models, and sets ambient air quality standards for the state. California regulates the same pollutants as the federal government under the SIP, plus three others: sulfates,



Conservation Element

visibility reducing particulates, and hydrogen sulfide. The SIP was adopted by the Air Resources Board (ARB) in 1994 and was approved by the U. S. Environmental Protection Agency (EPA) in 1996.

Locally, the San Diego County Air Pollution Control District (APCD) is the agency responsible for enforcing the federal and state air pollution regulations, and for developing local rules for the county. The attainment planning process is embodied in a regional air quality management plan developed jointly by the APCD and San Diego Association of Governments (SANDAG). San Diego's air quality has improved over the past quarter century because of effective emission control devices on motor vehicles and stricter, more enforceable regulations for industry. This accomplishment is especially noteworthy considering the region's substantial growth in population and motor vehicle mileage. Air quality will remain a persistent challenge as the number of people and cars in the region grows.

The City of San Diego has taken an additional step toward improving air quality through participation in the Cities for Climate Protection program. This program's goal is to improve local air quality and to reduce greenhouse gas emissions (GHG) that contribute to climate change.

Policies

- CE-F.1. Develop and adopt a fuel efficiency policy to reduce fossil fuel use by City departments, and support community outreach efforts to achieve similar goals in the community.
- CE-F.2. Continue to upgrade energy conservation in City buildings and support community outreach efforts to achieve similar goals in the community.
- CE-F.3. Continue to use methane as an energy source from inactive and closed landfills.
- CE-F.4. Preserve and plant trees, and vegetation that are consistent with habitat and water conservation policies and that absorb carbon dioxide and pollutants.
- CE-F.5. Promote technological innovations to help reduce automobile, truck, and other motorized equipment emissions.
- CE-F.6. Encourage alternatives to single-occupancy vehicle use, including using public transit, carpooling, teleworking, bicycling, and walking.
- CE-F.7. Support state, federal, and local actions to increase the use of alternative fuels.

- CE-F.8. Support state, federal, and local efforts to increase fuel efficiency and reduce greenhouse gas emissions.



G. Biological Diversity

Goal

- ◆ Preservation of healthy, biologically diverse regional ecosystem and conservation of endangered, threatened, and key sensitive species and their habitats.

Discussion

San Diego County is a "hot spot" of biodiversity in the United States. Many unique and endangered species are found in the San Diego region. Ensuring their survival is essential to maintaining a healthy local ecosystem. Human activity is creating a "biodiversity deficit" by destroying ecosystems faster than nature can adapt or create new ones. Rates of species extinction are currently estimated at 100 to 1,000 times higher than pre-human levels.

Many native vegetation communities in the region are considered sensitive because they have been greatly reduced by development. San Diego County contains more than 200 plant and animal species that are federally and/or state listed as endangered, threatened or rare, proposed or candidates for listing, or otherwise considered sensitive. Over half of these species occur in the Multiple Species Conservation Program (MSCP) study area. The MSCP, adopted in 1997 to preserve and manage sensitive species at an ecosystem level, will protect habitat for more than 1,000 native and non-native plant species and more than 380 species of fish, amphibians, reptiles, birds and mammals.



Western Spadefoot Toad
Jim Rocks

The MSCP is a comprehensive, long-term habitat conservation planning program for southwestern San Diego County (the planned habitat preserve is shown on Figure CE-2) that has been developed cooperatively by participating jurisdictions/special districts in partnership with federal/state wildlife agencies, property owners, and representatives of the development industry and environmental groups. The purpose of the MSCP is to preserve a network of habitat and open space. The plan is designed to preserve native vegetation and meet the habitat needs of multiple species, rather than focusing preservation efforts on one species at a time. By placing priority on the preservation of biological resources within a Multi-Habitat Planning Area (MHPA), the MSCP has streamlined existing permit procedures for development projects which impact habitat.



Conservation Element

The MSCP, and the associated subarea plans, meets the requirements of the federal Endangered Species Act and the California Natural Community Conservation Program. Signatory agencies/districts administer their portions of the MSCP through the subarea plans and Implementing Agreements (IA). The City of San Diego's MSCP Subarea Plan and IA was adopted by City Council and approved by the wildlife agencies in 1997.

Policies

- CE-G.1. Preserve natural habitats pursuant to the MSCP, preserve rare plants and animals to the maximum extent practicable, and manage all City-owned native habitats to ensure their long-term biological viability.
- Educate the public of the impacts invasive plant species have on open space.
 - Remove, avoid, or discourage the planting of invasive plant species.
 - Pursue funding for removal of established populations of invasive species within open space.
- CE-G.2. Prioritize, fund, acquire, and manage open spaces that preserve important ecological resources and provide habitat connectivity.
- CE-G.3. Implement the conservation goals/policies of the City's MSCP Subarea Plan, including providing connectivity between habitats and limiting recreational access and use to appropriate areas.
- CE-G.4. Consider important ecological resources when determining where to apply floodplain regulations and development guidelines.
- CE-G.5. Promote aquatic biodiversity and habitat recovery by reducing hydrological alterations, such as grading a stream channel.

H. Wetlands

Goals

- ◆ Preservation of San Diego's rich biodiversity and heritage through the protection and restoration of wetland resources.
- ◆ Preservation of all existing wetland habitat in San Diego through a "no net loss" approach.



Discussion

San Diego supports a unique assemblage of wetlands that are not specifically addressed in the Multiple Species Conservation Program (see Section G). These include tidal and freshwater marshes, riparian wetlands and vernal pools. Wetlands are vitally important to the survival of many fish, birds, and plants. Waterways and their riparian areas are critical habitats for a variety of wildlife. Straightening, cementing over, and otherwise altering waterways and wetlands removes the opportunities for biodiversity and also impacts important ecological processes that remove pollutants and improve water quality. The health of wetland areas is an important indicator of ecosystem health, and of the sustainability of human activity within a watershed.



Endangered species monitoring

Wetlands protect surface water quality by slowing the erosive forces of moving water. They provide a natural means of flood control and damage prevention by reducing flood peaks, thereby protecting against the loss of life and property. Wetlands intercept and filter waterborne sediments, excess nutrients, heavy metals and other pollutants, thereby improving water quality.



Otay Mesa vernal pool

California has lost 90 percent of its historical wetlands, and only five percent of the state's coastal wetlands remain. Appreciation of the value of wetlands has grown, as have laws calling for their protection, yet wetlands are still threatened. The following policies highlight the importance of wetlands and offer guidance for their protection and restoration.

Policies

- CE-H.1. Use a watershed planning approach to preserve and enhance wetlands.
- CE-H.2. Facilitate public-private partnerships that improve private, federal, state and local coordination through removal of jurisdictional barriers that limit effective wetland management.



Conservation Element

- CE-H.3. Seek state and federal legislation and funding that supports efforts to research, classify, and map wetlands including vernal pools and their functions, and improve restoration and mitigation procedures.
- CE-H.4. Support the long-term monitoring of restoration and mitigation efforts to track and evaluate changes in wetland acreage, functions, and values.
- CE-H.5. Support research and demonstration projects that use created wetlands to help cleanse urban and storm water runoff, where not detrimental to natural upland and wetland habitats.
- CE-H.6. Support educational and technical assistance programs, for both planning and development professionals, and the general public, on wetlands protection in the land use planning and development process.
- CE-H.7. Encourage site planning that maximizes the potential biological, historic, hydrological and land use benefits of wetlands.
- CE-H.8. Implement a “no net loss” approach to wetlands conservation in accordance with state and federal regulations.
- CE-H.9. Consider public health, access, and safety, including pest and vector control, on wetland creation and enhancement sites.

I. Energy Independence

Goal

- ◆ An increase in local energy independence through conservation, efficient community design, reduced consumption, and efficient production and development of energy supplies that are diverse, efficient, environmentally-sound, sustainable, and reliable.

Discussion

California's energy supply has fluctuated in its ability to meet demand over the last 30 years, notably during peak economic growth periods. San Diego's main drivers of energy demand are population, economic development, housing, and land use. Establishing more local energy sources, with an emphasis on clean, renewable sources, will provide increased economic stability and environmental benefits. Using renewable energy sources reduces dependence on fossil fuels and also helps to reduce carbon dioxide and other gases in the atmosphere. Water conservation also helps reduce energy use, as almost 60 percent of the energy used by the City of San Diego goes for pumping water and sewage. Energy efficient land use and transportation policies are addressed in this section, as well as in the Land Use and Mobility Elements.

Policies



- CE-I.1. Maintain a centralized Energy Conservation and Management Program and Comprehensive Plan for all City of San Diego operations.
- CE-I.2. Coordinate City energy planning programs with federal, state and regional agencies.
- CE-I.3. Pursue state and federal funding opportunities for research and development of alternative and renewable energy sources.
- CE-I.4. Maintain and promote water conservation and waste diversion programs to conserve energy.
- CE-I.5. Seek funding to support the installation of photovoltaic panels, or other forms of energy production, on residences and public buildings.
- CE-I.6. Develop emergency contingency plans, in cooperation with other local agencies and regional suppliers, to assure essential energy supplies and reduce non-essential consumption during periods of energy shortage.
- CE-I.7. Pursue investments in energy efficiency and direct sustained efforts towards eliminating inefficient energy use.
- CE-I.8. Increase energy efficiency and demand management to reduce consumption of fossil fuels.
- CE-I.9. Support local and regional transportation policies that improve mobility and increase energy efficiency and conservation.
- CE-I.10. Support the development of facilities that generate renewable energy.
- CE-I.11. Promote facilities that use renewable energy sources or reduce use of non-renewable energy sources.
- CE-I.12. Encourage small, decentralized, aesthetically-designed energy efficient power generation facilities.
- CE-I.13. Promote energy conservation education.



J. Urban Forestry

Goal

- ◆ Protection and expansion of a sustainable urban forest.

Discussion

Trees in the urban landscapes are an effective, low-technology way to help meet "green" building goals and reduce heat islands, while also achieving other environmental and economic benefits. The City's urban forest, comprised of publicly and privately owned trees, helps reduce energy consumption, improve air quality, reduce storm water runoff, decrease soil erosion, improve the pedestrian environment, reduce glare, and improve community image and aesthetics. These benefits increase when the size and extent of the tree canopy is increased. Studies have shown that urban trees offer returns far greater than their cost of planting and upkeep. For these reasons, the City has landscape standards and a policy for tree protection.

Policies

- CE-J.1. Develop, nurture, and protect a sustainable urban/community forest.
- Seek resources and take actions needed to plant, care for, and protect trees in the public right-of-way and parks and those of significant importance in our communities.
 - Encourage the planting of large canopy shade trees in order to maximize environmental benefits.
 - Seek to retain significant and mature trees.
 - Develop a program and funding source to maintain desired trees.

The Benefits of Trees

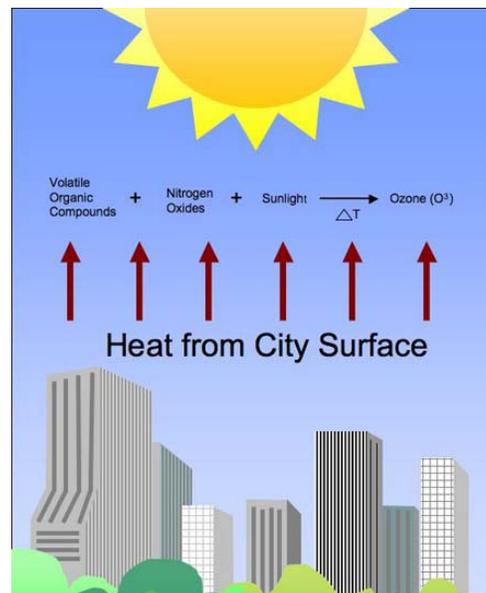
- Strategically placed trees around buildings can lower air conditioning bills, and windbreak trees can reduce winter heating bills.
- Tree root systems hold soil in place, preventing erosion. Trees also absorb storm water and reduce peak storm runoff.
- Trees help cleanse the environment. During photosynthesis, trees absorb, or sequester, carbon dioxide and convert it into oxygen. Trees also remove sulfur dioxide, nitrogen oxide, and particulates from the air.
- City trees help to counter the urban heat island effect.
- Trees reduce noise pollution by acting as a buffer and absorbing urban noise.
- Trees help create attractive and desirable shopping districts. Mature trees also raise property values.
- Trees provide homes for animals that would otherwise be unable to survive in an urban habitat.
- Tree-lined streets help calm traffic and encourage walking.



- e. Provide forest linkages to connect and enhance public parks, plazas, recreation and open space areas (see also Mobility Element, Policies ME-A.6 and ME-A.7, and Recreation Element, Policy RE-C.6).
- CE-J.2. Include community street tree master plans in community plans.
- a. Prioritize community streets for street tree programs;
 - b. Identify the types of trees proposed for those priority streets by species (with acceptable alternatives) or by design form;
 - c. Integrate known protected trees to glossary trees and inventory other trees that may be eligible to be designated as a protected tree.
- CE-J.3. Develop a citywide urban forest master plan comprised of the community plan street tree master plans.
- CE-J.4. Continue to require the planting of trees through the development permit process.
- a. Consider tree planting as mitigation for air pollution emissions, storm water runoff, and other environmental impacts as appropriate.
- CE-J.5. Support public outreach efforts to educate City staff, the business community, and the general public on the environmental and economic benefits of trees.

City of San Diego Landscape Regulations

Landscape regulations (Municipal Code Chapter 14, Article 2, Division 4) are in place and designed to: minimize the erosion of slopes and disturbed lands through revegetation, conserve energy by the provision of shade trees over streets, sidewalks, parking areas and other paving; conserve water through low-water-using planting and irrigation design; reduce the risk of fire through site design and the management of flammable vegetation; and to improve the appearance of the built environment by increasing the quality and quantity of landscaping visible from public rights-of-way, private streets, and adjacent properties.



Heat islands contribute to ground level ozone formation or smog

Source: www.epa.gov

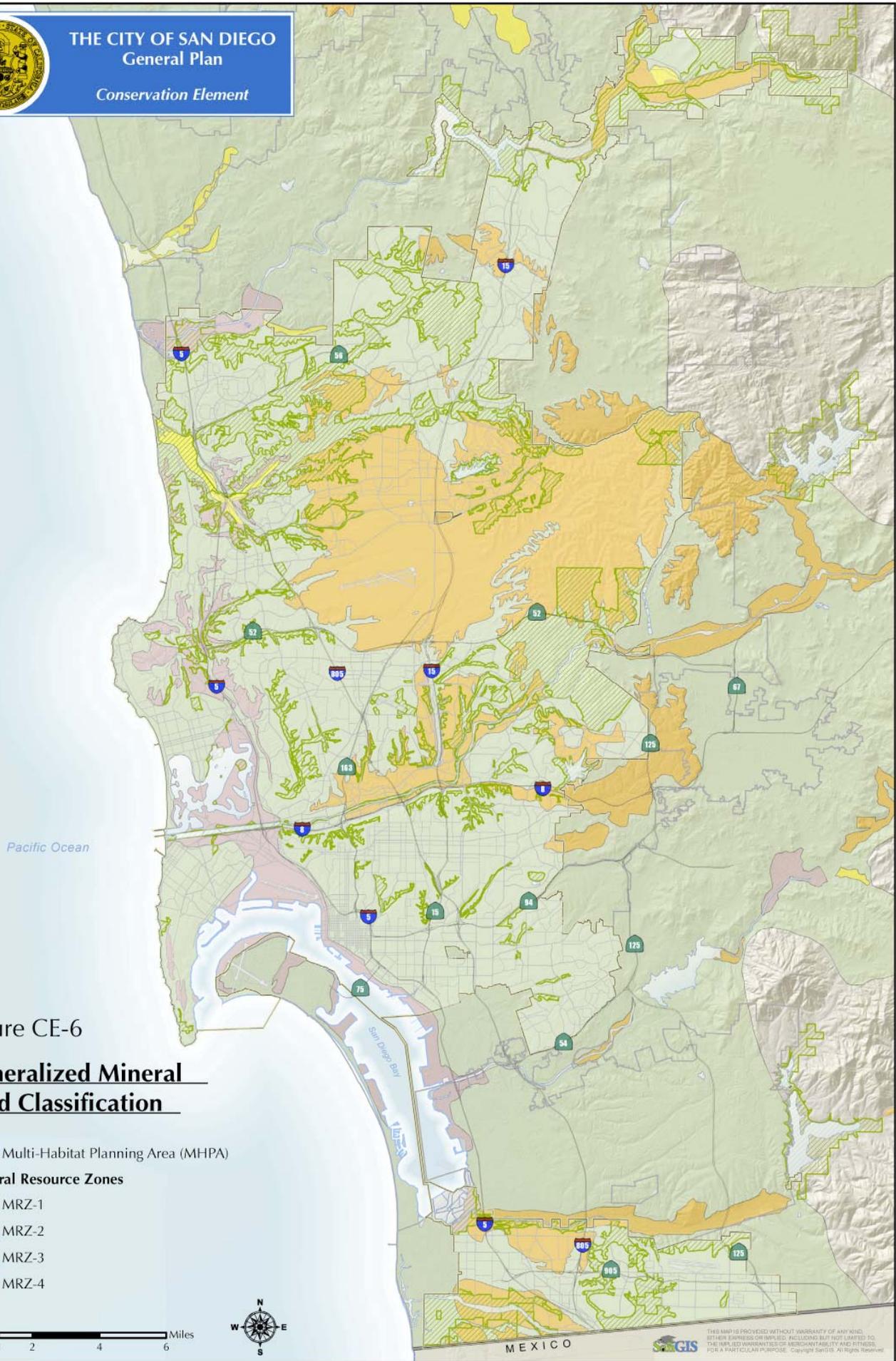


Figure CE-6

**Generalized Mineral
Land Classification**

-  Multi-Habitat Planning Area (MHPA)
- Mineral Resource Zones**
-  MRZ-1
-  MRZ-2
-  MRZ-3
-  MRZ-4

0 1 2 4 6 Miles



MEXICO



K. Mineral Production

Goal

- ◆ Balance mineral production and conservation with habitat and topography protection.

Discussion

San Diego's important mineral resources include salt, sand, and gravel, all of which have been produced in San Diego for many decades. San Diego's aggregate mineral resources (sand and gravel) provide necessary materials for the local economy. Extraction of sand, rock, and gravel, began in Mission Valley in 1913. Extraction still occurs in Mission Valley and in other areas of the City such as Carroll Canyon and Mission Gorge. There are also mining operations within the Multiple Species Conservation Program (MSCP) subarea plan, consisting mainly of sand, rock, and gravel extraction using open pit mining.

Mineral deposits that are acceptable for use as Portland Cement Concrete (PCC) grade aggregate are the rarest and most valuable of aggregate resources. The location of San Diego's high quality mineral resource areas are shown on Figure CE-6 as Mineral Resource Zone (MRZ)-2 areas. These are areas designated for the managed production of mineral resources. State law requires cities to plan for the beneficial management of these valuable mineral resources.

The use of locally mined materials for San Diego's development is desirable as it reduces the need for trucking materials over long distances. This, in turn, results in decreased energy use, and fewer traffic, infrastructure, and air quality impacts, as well as lower direct costs to the consumer and local government. Local use may also result in fewer direct mining environmental impacts to remote, less regulated areas outside the City.

Due to competing demands for precious open lands, access to aggregate reserves in western San Diego County have significantly decreased over the past 20 years. Urbanization, as well as the designation of lands within the MSCP, and the depletion of active mines, contributes to the shortage of materials. Reclamation and recycling of building materials must take on a greater importance in order to continue meeting our local needs. Recycling has the added benefit of reducing the amount of waste entering landfills.

Many of the City's existing mining operations are located along rivers and water courses, in areas with the City's Multi-Habitat Planning Area (MHPA). In general, the City's MSCP provides for the continuation of existing mining operation. However, new or expanded mining operations on lands conserved as part of the MHPA are incompatible with MSCP preserve goals for covered species and their habitats, unless otherwise agreed to by the wildlife agencies at the time the parcel is conserved. New operations could be permitted in the MHPA if: 1) impacts have been assessed and conditions incorporated to mitigate biological impacts and restore mined areas; 2) adverse impacts to covered species in the MHPA have been mitigated consistent with the Subarea Plan; and 3) requirements of other City land use policies and regulations, have been satisfied. The MSCP requires that existing



Conservation Element

and new mining operations adjacent to or within the MHPA adequately protect adjacent preserved areas and covered species.

San Diego's salt production occurs within the South San Diego Bay Unit of the San Diego National Wildlife Refuge. Within this refuge, approximately 1,050 acres of salt ponds are currently in active salt production. A commercial solar salt operation is permitted to operate within the refuge. This operation, which occurs on approximately 1,035 acres at the southern most end of San Diego Bay, has produced salt at this site for more than 130 years. The current facility consists of a series of diked ponds that facilitate the concentration and precipitation of salts from bay water. Although the salt ponds are a unique local industry, they do not represent a large share of the salt production market. As a result, salt production may be relocated. The salt ponds are also valuable as an irreplaceable habitat for many bird species. Each year, birds use the ponds to nest, feed, and roost. It is one of the few large areas remaining along the highly urbanized Southern California coast where large bird populations can gather. The U.S. Fish and Wildlife's draft Comprehensive Conservation Plan (CCP) is considering restoring the commercial salt ponds for wildlife.

Policies

- CE-K.1. Promote the recycling and reclamation of construction materials to provide for the City's current and future growth and development needs.
- CE-K.2. Permit new or expanding mining operations within the MHPA in accordance with MSCP policies and guidelines.
- CE-K.3. Produce sand and gravel with minimal harm and disturbance to adjacent property and communities.
- CE-K.4. Plan rehabilitation of depleted mineral areas to facilitate reuse consistent with state requirements, the Surface Mining and Reclamation Act (SMARA), and local planning goals and policies, including the MSCP.
- CE-K.5. Consider local evaporative salt production for future economic value, open space use, and for important ecological habitat.



L. Agricultural Resources

Goals

- ◆ Retention of productive agricultural lands.
- ◆ Greater use of sustainable agriculture practices.
- ◆ Reduction in land use conflicts between agriculture and other land uses
- ◆ Retention of the rural agricultural character of river valleys.

Discussion

Agriculture has been an important factor in the history and local economy of San Diego. San Diego's unique location and combination of climate, soil types, and international border location have created an agricultural industry which produces off-season and specialty crops, including avocados, citrus, tomatoes, flowers and nursery stock.

There is a wide variety of agricultural soil in San Diego. Soils in the City vary appreciably in origin, degree of weathering, depth and texture. The Natural Resource Conservation Service (formerly Soil Conservation Service) has classified lands according to their productive capability, taking into account specific qualities of the soil slope of the land, degree of wetness, flooding hazards and other factors. There are still many locations in San Diego which have the productive soil and the other requisites to be especially well suited for agricultural purposes. In San Diego, the best remaining agricultural soils are found in broad river valley. The City has developed programs to keep these valleys predominately agricultural through lease agreements, such as in San Pasqual Valley where agriculture comprises approximately 30 percent of the land use.

The San Pasqual Valley agricultural and open space preserve demonstrates the many benefits of open space preservation. The approximately 14,000-acre San Pasqual Valley Plan Area, largely owned by the City of San Diego Water Department, lies within the San Dieguito River Basin and contains the Hodges Reservoir and significant groundwater resources. The City of San Diego acquired the valley in the late 1950s for water supply purposes. The valley also serves as a valuable agricultural, biological, scenic, and recreational resource. The San Pasqual Valley Plan (1995) calls for: optimization of water supply and quality, preservation of rural character, retention of agriculture, habitat preservation, and creation of an open space park among other goals. The City of San Diego has reaffirmed its commitment to protection and wise management of the San Pasqual Valley through development of the San Pasqual Vision Plan together with a series of ten directives which identify detailed plan implementation actions.



Conservation Element

Policies

- CE-L.1 Manage agricultural activity to minimize soil erosion and minimize the release of contaminants into surface and groundwater resources.
- CE-L.2 Limit retail activity in agriculturally-designated areas to uses that are reasonably related to agriculture (e.g., sale of locally grown farm products).
- CE-L.3 Encourage agricultural operations (especially on City-leased lands) to provide for educational experiences which demonstrate the history, importance and value of agricultural operations.
- CE-L.4 Continue water reclamation research programs to develop realistic methods of providing inexpensive means of leaching soils, irrigating crops and preventing salt water intrusion.
- CE-L.5 Encourage sustainable agricultural and water quality best management practices, such as tillage, use of grass filter strips, runoff detention basins, and organic farming, on all private land and require BMPs on new or renewed City land leased for agricultural purposes. Provide the minimum amount of flood control/channelization.
- CE-L.6. Provide mechanisms to permit private land owners of prime agricultural lands to take advantage of the Williamson Act.
- CE-L.7. Balance the economic benefits provided by agricultural uses with the competing water resource, biological and cultural resource management and recreation priorities.

M. Border/International Conservation

Goal

- ◆ A sustainable, safe, and healthy San Diego-Baja California border environment.

Discussion

San Diego is a part of the California-Baja California border region. While divided by the U.S. - Mexico international border, the region shares environmental issues that cross political boundaries. Rapid population growth and economic development have resulted in environmental problems and challenges. Collaboration at the local, state and federal government levels of both countries is needed to address these challenges and work toward achieving a sustainable, safe, and healthy environment.



Many environmental protection and public health programs have arisen from the U.S. - Mexico collaborations. One of these is the Border Environmental Program: Border 2012 Program. This program was developed by the U.S. Environmental Protection Agency (EPA) and Mexico's Secretariat of Environment and Natural Resources (SEMARNAT), in partnership with the U.S. Department of Health and Human Services, the Mexican Secretariat of Health, and other federal agencies, with the active participation from local and state governments from both sides of the border, and U.S. border tribes. The mission of the Border 2012 program is "To protect the environment and public health in the U.S. - Mexico border region, consistent with the principles of sustainable development." The City of San Diego participates in several Border 2012 task forces, as well as other border-area committees and initiatives.

San Diego's environment is also influenced by national security measures related to San Diego's location on the international border. Cars and trucks idling at the port of entry affect air quality and traffic. If biological or chemical substances were released on either side of the border, it could impact our shared air and water resources. The economic impact of border activities is discussed in the Economic Prosperity Element, and the potential response to a hazardous materials emergency (accidental or terrorist) is discussed in the Public Facilities, Services and Safety Element.

Key border environmental issues and their associated conservation efforts include:

Habitat – The border region is one of the most ecologically diverse in the world, with a large number of threatened and endangered species and habitats. Organizations from both countries are working together to promote binational habitat corridors and protect biodiversity. The San Diego Association of Governments (SANDAG) is responsible for coordinating habitat corridor planning in the San Diego region and across San Diego's borders.

Water Quality – Water is the most limited resource in this primarily arid region. Surface and groundwater resources are threatened by contamination, including agricultural runoff, industrial discharge, and untreated sewage. Increasing demand for water has led to the rapid depletion of aquifers. Inadequate water supply and inefficient use of water could limit future regional development.



Tijuana River

The cities of San Diego, Tijuana, and Tecate share the Tijuana River Watershed, which encompasses approximately 1,750 square miles (approximately one-third in California and two-thirds in Baja California). A watershed is an area that drains water, sediment, and dissolved materials to a common outlet. A diverse team of researchers and practitioners, as a part of a Binational Vision Project for the Tijuana River Watershed, has been working to gather baseline information, identify stakeholders, develop a



Conservation Element

binational vision, and recommend strategies for achieving the vision.

A major source of watershed pollution is derived from extensive urbanization from the cities and communities in both countries. These pollutants include toxins and sewage that flow into the Tijuana River and drain into the Pacific Ocean. The pollutants cause public health hazards and beach closures. Corrective action is underway through the Tijuana Sewer Rehabilitation Project to rehabilitate or replace deteriorated sewer pipes in Tijuana. In addition, the International Wastewater Treatment Plant (IWTP), constructed in the U.S. in 1997, has helped reduce the amount of dry weather flows that cross the border. However, the plant is still not in compliance with its discharge permit which requires secondary treatment. U.S. federal government actions are needed to improve the level of treatment and the quantity of sewage treated.

Groundwater is also impacted by pollutants that enter the watershed. Groundwater quality is impacted by factors including the release of toxic and non-toxic pollutants, overuse resulting in subsidence or seawater intrusion of aquifers, and pollution at wellheads and water recharge areas.

The City of San Diego has been involved in several binational projects related to water quality and wastewater, including working on a Tijuana aquifer report with the U.S. Department of Energy, participating in technology transfer workshops, testing wastewater in Tijuana, and exploring opportunities for the sale of recycled water to Mexico.

Air Quality – Pollutants from a number of sources including trucks and passenger vehicles, power plants and industrial facilities, agricultural operations, mining, dust from unpaved roads, and open burning of trash have affected urban and regional air quality along the U.S. - Mexico border.

Air quality concerns have traditionally been dealt with separately in each nation. However, there is growing concern that air pollution from one side of the border may have negative effects on the other side, particularly since a number of new power plants have been built and are planned along the California-Baja California border. In addition, heightened security measures have slowed border-crossing times for the more than 2,500 trucks that cross the border every day. These idling trucks impact San Diego's air quality. Auto emissions from older vehicles in Mexico, that are not subject to California emissions control regulations, are also a concern. Various legislative solutions and pilot projects are being discussed to address these issues.



U.S. – Mexico border



Waste Management – The inappropriate disposal of hazardous and solid waste poses a threat to environmental and public health. Binational workgroups have been established to assess hazardous and solid waste problems in the border area, improve the monitoring of the trans-boundary movements of hazardous waste, identify hazardous waste generators and management facilities in the region, and establish a notification system regarding new facilities. The City of San Diego has signed a binational agreement along with the county of San Diego and the city of Tijuana for the notification of hazardous materials incidents along the two miles north and south of the border area.

Workgroups are also investigating waste management capacity (both institutional and in terms of infrastructure) and working to increase capacity where needed. Related to this effort, the City of San Diego has provided technical assistance to the city of Tijuana in its efforts to site a new landfill. The City of San Diego is also actively pursuing solutions to address used tire disposal. Piles of scrap tires are an environmental problem because they pose a risk to health and the environment from emissions from tire fires, which are difficult to extinguish, and because they serve as breeding grounds for mosquitoes.

Policies

- CE-M.1. Collaborate with SANDAG to plan for, conserve, and manage habitat corridors that cross political boundaries.
- CE-M.2. Continue to participate in the Tijuana River Watershed Binational Vision Project to improve the health of the watershed.
- CE-M.3. Continue to support intergovernmental collaboration and participate in initiatives, programs and task forces at all three levels of government, in the U.S. and Mexico, to protect the environment, conserve resources, and protect public health in the California-Baja California border region. Areas of concern include but are not limited to those listed below.
 - a. Shorten border crossing times to lessen the idling of cars and trucks.
 - b. Prevent untreated sewage from entering the U.S. and affecting the Tijuana River Valley and South San Diego beaches.
 - c. Stop trash, waste tires, and silt from crossing the border and polluting the Tijuana River Valley.
- CE-M.4. Continue to develop relationships and collaborate with the Baja California cities of Tijuana, Playas de Rosarito, and Tecate to further environmental protection and conservation efforts.
- CE-M.5. Collaborate with U.S. and Mexican authorities to protect the residents of border communities from harmful environmental impacts from projects on both sides of the San Diego-Baja California border.



Conservation Element

- a. Recognize that border-area residents are disproportionately at risk from environmental pollutants and take steps to reduce those risks.
- b. Promote the participation of local residents and stakeholders in developing solutions to environmental problems.
- c. Work with appropriate organizations to establish a trans-border environmental impact assessment process.
- d. Encourage participation in, and development of mutually beneficial educational outreach projects on issues of common concern, such as illegal tire disposal.

N. Environmental Education

Goals

- ◆ Widespread public awareness of how the individual and cumulative actions of individuals, organizations, and businesses affect the environment.
- ◆ Provision of programs that increase awareness of and promote conservation.

Discussion

Environmental education and opportunities for public discussion of environmental issues are important ways to share information about the environment and how we impact it. Education offers individuals the information they need to make informed decisions on how their everyday actions may affect the environment. Increased public awareness also leads to better collective decisions on solutions to environmental issues. Decision makers are better able to determine a successful approach to complex environmental issues with an informed citizenry participating and monitoring progress.





Policies

- CE-N.1. Continue and expand City programs that create and sponsor environmental education in cooperation with K-12 schools, colleges, museums, community groups, non-profits, and government agencies.
- CE-N.2. Maintain educational programs to sustain public awareness of the importance of resource conservation (e.g., energy, water, open space), the continued existence of long-term resource demand challenges, and specific conservation tactics that are recommended.
- CE-N.3. Continue and expand City and regional transportation demand management programs that promote fuel-efficient alternatives to driving alone, such as ridesharing, transit, bicycling, walking, and teleworking (see also the Mobility Element, Section E).
- CE-N.4. Publicize voluntary water and energy conservation measures that focus on reducing waste and decreasing the possibility of rationing and other undesirable restrictions.
- CE-N.5. Actively encourage public discussion of air quality policies, understanding that it is individual decisions that are an essential component to their success.
- CE-N.6. Educate citizens and City staff about both short- and long-term risks associated with the use and disposal of hazardous materials.
- CE-N.7. Support education programs on waste minimization, reuse, recycling and resource recovery that involve the media, schools, industry, government, and academia.
- CE-N.8. Implement water quality education programs focused on pollution prevention techniques for the public, municipal employees, and businesses.
- CE-N.9. Expand educational opportunities within open space lands and regional parks.

