Conservation Element

Purpose and Intent

To provide for the long-term preservation and sustainable management of San Diego's rich natural and historic resources -- including open space, biological habitat, water, air quality, forests, soils, wildlife, mineral deposits and archeological and historic features -- resources that help to define the city's identity, contribute to our economy and maintain and improve the quality of life.

Plan Issues

- Anticipated population growth and development results in increased pressure on existing/remaining natural resources, especially open space, water and energy resources.
- Preservation of city's natural and historic resources provides community/civic identity and enhances quality of life.
- Acquisition and management of remaining open space, especially "other important community areas" not designated in the Multi-Habitat Planning Area (MHPA) or as Open Space.
- Preservation, protection and restoration of all natural water bodies and floodplains.
- Increased local water and energy independence through conservation, efficient production, efficient community design, and reduced consumption.
- Collaborate with SANDAG and Mexico on conservation issues that cross political boundaries.
- Protection of prime agriculturally productive lands from urban encroachment.

Introduction

Conservation is the planned management, preservation, and wise utilization of natural resources and landscapes. Its objective is to prevent the wasteful exploitation, destruction and neglect of resources such as natural habitat, water resources, air quality, and historic resources that help define San Diego's character, heritage and identity. It involves both identification of a community's natural resources and adoption of policies for their preservation, development, and wise use. Conservation is one of the most important strategies for managing San Diego's

resources. Resources include, but are not limited to, water, energy, land, biodiversity, minerals, natural materials, recyclables, viewsheds and air. Sustainable conservation practices help ensure that future generations will be able to balance the use and enjoyment of renewable and non-renewable resources and achieve and maintain a healthy and diverse economy. 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, thus impacting sustainability. Over the long-term, conservation is the most cost-effective strategy to ensure a reliable supply of the resources that are key to San Diego's quality of life.

Multiple environmental problems and solutions are inextricably linked. For example, policies for water conservation also help us save energy, which in turn reduces fossil fuel consumption, which then translates into improved air quality. Similarly, the City of Villages strategy for compact growth in limited areas by redeveloping urban centers where facilities/infrastructure are in place is, in itself, inherently a conservation strategy. Compact growth in villages and transit corridors results in the more efficient use of urban land, a reduced need to develop outlying areas, and support for more transit, walking and bicycling. A better transit, pedestrian, and bicycling infrastructure will reduce vehicle miles traveled. A reduction in automobile dependence and associated trips, in turn, plays an important role in achieving water quality and urban runoff management goals by decreasing the need for new roads, as well as attendant oil and gas leaks on the streets.

Just as conservation policies are inter-related, the Conservation Element is interlinked with other General Plan elements, including Land Use and Community Planning, Recreation, Mobility, Public Facilities and Services, and Urban Design. The Conservation Element also 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 at various levels include the following by general conservation resource area:

- *Open Space/Landform Preservation*: Natural Resource Management Plans, Park Master Plans, Multiple Species Conservation Program.
- *Biological Diversity*: Natural Resource Management Plans, Park Master Plans, Multiple Species Conservation Program and related documents (e.g., Vernal Pool Management Plan).
- *Energy*: Regional plans such as Energy 2030: the San Diego Regional Energy Strategy, SANDAG's Regional Comprehensive Plan, the Regional Transportation Plan.
- *Landscapes/Viewsheds*: Natural Resource Management Plans, Park Master Plans, Multiple Species Conservation Program and related documents (e.g., Vernal Pool Management Plan).
- *Mineral Resources*: State Mining and Reclamation Act (SMARA) and related mining closure plans.
- *Recycling/Waste Reduction*: The Source Reduction and Recycling Element (AB 939), the Household Hazardous Waste Element, the Non-Disposal Facility Element, the Siting Element.

- *Air Quality*: San Diego County Air Pollution Control District Regional Air Quality Standards (RAQS).
- *Water Resources*: City's Strategic Plan, Water Reuse Study, Integrated Watershed Planning, Think Blue Education.
- *Historic Resources*: State Historic Preservation Office (SHPO) standards, Planning Historic database.
- *Urban Runoff*: The Urban Runoff Management Plan, the Strategic Plan for Water Supply, Watershed Urban Runoff Management Plans (WURMP).

A. Open Space and Landform Preservation

Goal

- Preservation and long-term management of San Diego's natural landforms, open space and features.

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, for 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. Open spaces are shown on the General Plan Land Use and Streets Map as designated parks and open spaces. In addition, the Recreation Element describes the attributes of designated and dedicated park and open space lands. Some important open space areas are not preserved as public parks or dedicated open spaces, but are protected through regulations or other private property restrictions such as conservation or open space easements.

The city uses base zones, overlay zones, grading regulations, and supplemental development regulations to assure that development occurs in a manner that protects environmental quality. 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 regulations assurance that development occurs in a manner that protects the overall quality of the resources, and the natural and topographic character of the area, 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.

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Multi-Habitat Planning Area (MHPA)
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The development regulations and guidelines for Environmentally Sensitive Lands also serve to implement the Multiple Species Conservation Program (MSCP) by placing priority on the preservation of biological resources within the Multi-Habitat Planning Area (MHPA), as identified in the City of San Diego MSCP Subarea Plan (March 1997) and Implementing Agreement (IA). The MSCP is a comprehensive, long-term habitat conservation planning program 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, to achieve a sustainable balance between species preservation and smart growth by identifying areas for species protection (within the MHPA) and areas for development (outside MHPA). Signatory agencies/districts administer their portions of the MSCP through 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 (see Section E of this element for additional information). MHPA lands in the city of San Diego are shown on Figure CE-2.

Policies

CE-A.1. Protect and conserve the landforms and open spaces that define the city's urban form, serve as habitat consistent with the MSCP, and provide recreational opportunities.

a. Pursue funding for the acquisition and continued management of existing, remaining MSCP targeted and other important community open space lands.
b. Take an active leadership role in promoting rural and open space preservation throughout the region.
c. Ensure the protection of urban canyons and other community open spaces that have been designated in community plans for long-term open space use primarily because of their value in protecting landforms, providing buffers within and between communities or potentially incompatible land uses, providing visually appealing open spaces, and protecting watershed and other open space systems of community importance (see also Recreation Element, RE-F.2, for urban canyons).
d. Minimize and make it a city priority to avoid impacts to canyons and other environmentally sensitive lands, consistent with adopted council policies, by relocating sewer infrastructure out of these areas, 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 planting of native plants near open space preserves.
f. Pursue formal dedication of existing and future open space areas through the city, especially in core resource areas of the city's adopted MSCP.

CE-A.2. Apply the appropriate zoning and environmentally sensitive lands regulations to limit development of floodplains, wetlands, steep hillsides, canyons, and coastal and waterfront lands.

a. Manage watersheds and regulate floodplains to reduce disruption of natural systems, including the flow of sand to the beaches. Limit grading and alterations of steep hillsides, cliffs and shoreline to minimize erosion and landform impacts.

CE-A.3. Balance the city's housing goals and conservation goals, through the City of Villages strategy of targeting mixed-use development into the existing urban fabric of the city.

CE-A.4. Use natural landforms and features as integrating elements in project design to complement and accentuate the city's form (See Urban Design Element).

CE-A.5. Limit and control runoff, sedimentation, and erosion both during and after construction activity.

CE-A.6. Limit use of beaches and shorelines to appropriate ocean-oriented recreational and educational functions, and natural resource preservation.

CE-A.7. Protect and preserve important tide pools, lagoons and marine canyons for research, conservation, and limited recreational purposes.

CE-A.8. Manage wetland areas as described in Section F, Wetlands, for natural flood control and preservation of landforms.

CE-A.9. Retain prime agriculturally productive lands in agricultural usage, as identified in community plans.

B. Water Resources Management

Goals

- Effective long-term management of watershed resources so that the demand on resources is in balance with efficient, sustainable supplies.
- Use watershed planning to identify major water resource management issues for each area of the city and to refine land use policies at the community plan level. 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.
- Maximum water-use efficiency.

Discussion

San Diego has a semi-arid coastal climate with coastal areas receiving an average of 10 inches of rain annually (rainfall in reservoir areas averages 15-25 inches per year). 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. By 2030, the city's water demands are projected to increase by

approximately 55 million gallons a day (MGD) or 25 percent over 2002 levels. To accommodate this demand, the challenge is to continue providing existing and new customers with a safe and reliable water supply in a cost-effective manner.

The majority of San Diego's water supply is imported from Northern California and the Colorado River. 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 San Diego 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 nine local drinking water supply reservoirs that are critical components of the regional water supply system. These reservoirs store imported water, provide emergency water storage, and capture rainfall and runoff that provides 10 to 20 percent of the city's water supply. However, when runoff from storms or other human activities picks up pollutants, the runoff becomes a significant threat to water quality. The continued urbanization of watershed lands increases this threat.

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 Stormwater Permit (see Section C, 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-B.1. Implement a balanced, water conservation strategy as an effective way to manage demand, reduce dependence on imported water supplies, maximize the efficiency of existing supplies and conservation measures/programs, and develop the use of alternative, reliable sources to sustain present and future uses.

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, Services and Safety 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, Services and Safety 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/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.

CE-B.3. Protect drinking water resources by implementing guidelines for development projects that may impact water supply watersheds, reservoirs and groundwater aquifers. The guidelines should address development project evaluation, 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 that may impact our watershed and reservoir areas, but are outside of the city's boundaries.

CE-B.4. 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).

d. Encourage proper agricultural practices (if applicable) such as tillage, use of grass filter strips, runoff detention basins, and organic farming.

C. Urban Runoff Management

Goal

- Protection and restoration of all natural water bodies, including coastal waters, creeks, bays, and wetlands.
- Preservation of natural attributes of both the floodplain and floodway without endangering life and property.
- Integration of urban runoff management into watershed and land use planning.

Discussion

When water from rainfall or human activities flows across 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 is conveyed by the storm drain system, untreated, directly to our creeks, bays, wetlands, beaches, and open spaces. Polluted runoff also threatens our drinking water, as discussed in the Water Supply section of this element. The diverse origins and types of urban runoff pollution make it very difficult to treat, so pollution prevention is the key to a successful urban runoff program.

Water quality preservation and urban runoff management also requires preservation of key open space and permeable areas within watersheds, as runoff increases in developed areas (see Figure CE-3). Watersheds are areas in which water, sediment, and dissolved materials flow to a common outlet, so what happens in one part of the system can affect the water quality and quantity over a broad area. Open space and permeable areas are important because when storm water (or other urban water runoff) passes over natural 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 prosperity, and is a requirement of the federal Clean Water Act.

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.

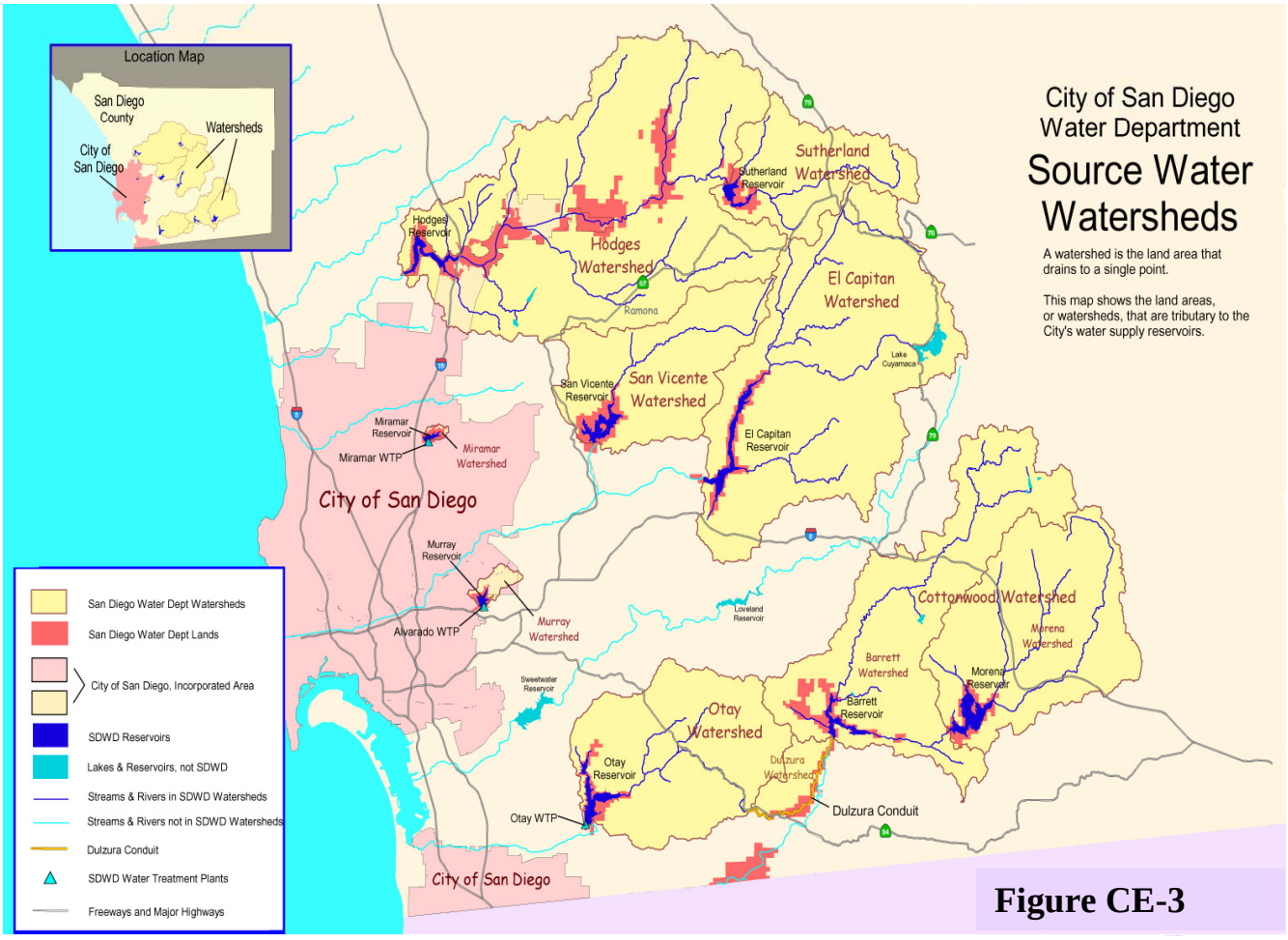


Figure CE-3

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-4, the "Flood Hazard Areas Map," depicts the 100-year floodplains which are areas subject to major flooding (provide major rivers on map w/watersheds). Flood control has been addressed in the city both through engineered flood control channels and floodplain zoning to significantly restrict building.

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-C.1. Continue to develop and implement public education programs.

a. Involve the public in addressing urban runoff problems and raising awareness of how individual's activities contribute to urban 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.

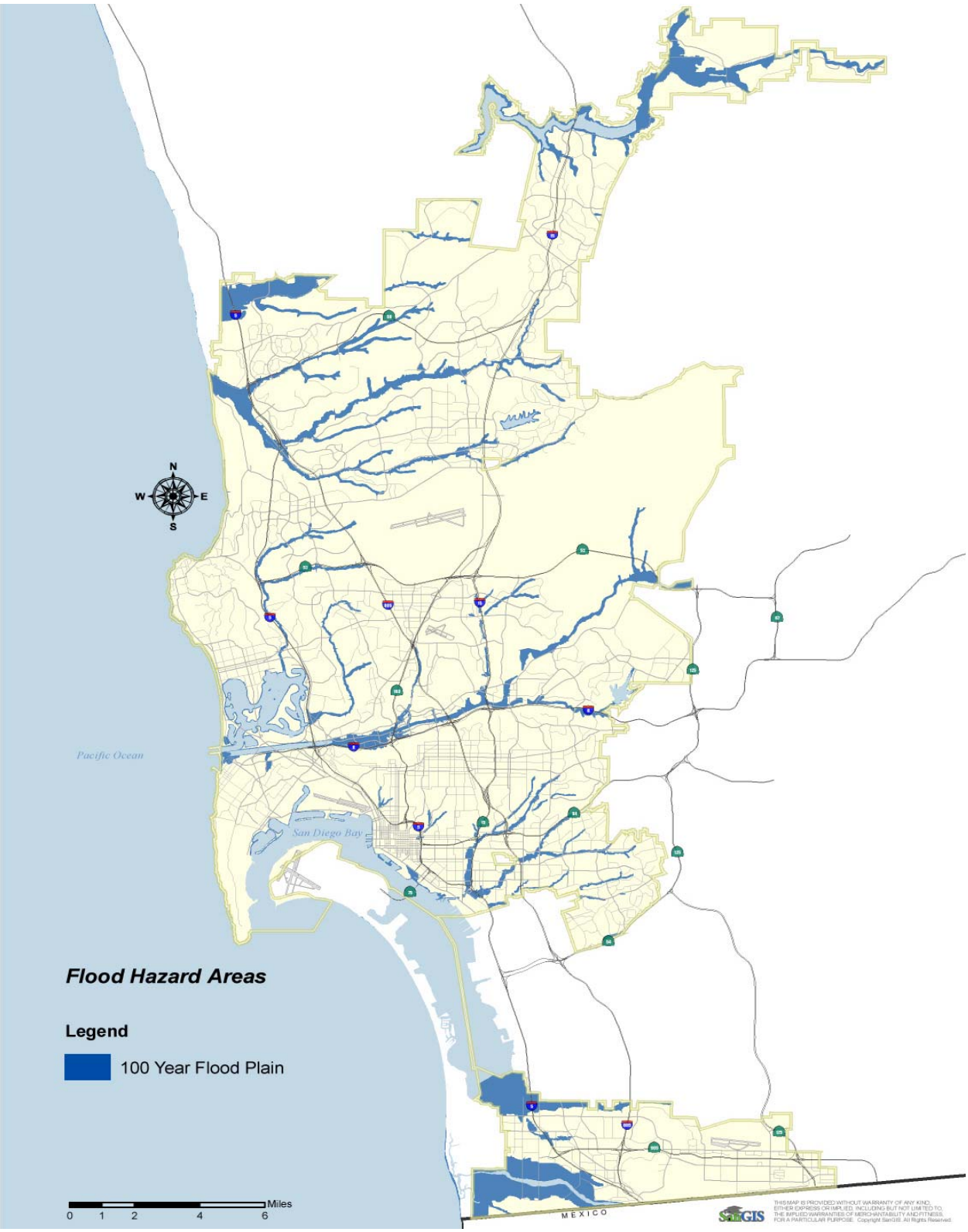
CE-C.2. Apply water quality protection measures to land development projects during project design, permitting, construction, and operations in order to minimize the quantity of runoff generated on-site, the disruption of natural water flows and the contamination of storm water runoff.

a. Increase on-site infiltration, and preserve, restore or incorporate natural drainage systems into site design.
b. Reduce the amount of impervious surfaces through selection of materials, site planning, and narrowing street widths where possible.
c. Increase the use of natural vegetation and landscaping in drainage design.
d. Avoid conversion of areas particularly susceptible to erosion and sediment loss (e.g., steep slopes) and where unavoidable, enforce regulations that minimize these impacts.
e. Apply land use, site development, and zoning regulations that limit impacts on, and protect the natural integrity of topography, drainage systems, and water bodies.
f. Maintain landscape design standards that minimize the use of pesticides and herbicides.
g. Enforce maintenance requirements in development permit conditions.

CE-C.3. Require contractors to comply with accepted storm water pollution prevention planning practices for all projects.

a. Minimize the amount of graded land surface exposed to erosion and enforce erosion control ordinances.
b. Continue routine inspection practices to check for proper erosion control methods and housekeeping practices during construction.

CE-C.4. Continue to participate in the development and implementation of Watershed Management Plans for water quality and habitat protection.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CE-C.5. Assure that city departments continue to use "Best Practice" good housekeeping procedures so that water quality objectives are routinely implemented.

a. Incorporate water quality objectives into existing regular safety inspections.
b. Follow Best Management Practices and hold training sessions to ensure that employees are familiar with those practices.
c. Educate city employees on sources and impacts of pollutants on urban runoff and actions that can be taken to reduce these sources.
d. Ensure that contractors used by the city are aware of and implement urban runoff control programs.
e. Serve as an example to the community-at-large.

CE-C.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.

a. Promote the provision of used oil recycling and/or hazardous waste recycling facilities and drop-off locations.
b. Review plans for new development and redevelopment for connections to the storm drain system.
c. Follow up on complaints of illegal discharges and accidental spills to storm drains, waterways, and canyons.

CE-C.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.

D. Air Quality

Goals

- Continued improvement in regional air quality.
- Reduction in greenhouse gas emissions.

Discussion

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 (see also Mobility Element, Section L). 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.

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. The federal government has identified health standards for six criteria pollutants: ozone (smog), carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and inhalable particulates (those smaller than 10 microns are commonly called PM10 and those particles 2.5 microns or smaller are called PM2.5).

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 plus three others: sulfates, visibility reducing particulates, and hydrogen sulfide.

Locally, the San Diego County Air Pollution Control District is the agency responsible for enforcing the federal and state air pollution regulations, and for developing local rules for the county. San Diego's air quality has improved over the past quarter century because of effective emission control devices on motor vehicles and stricter, enforceable regulations for industry. This accomplishment is especially noteworthy considering our region's substantial growth in population and motor vehicle mileage. However, in April 2004 the Environmental Protection Agency (EPA) moved to enforce tougher clean-air standards for ozone, and San Diego was listed among 474 counties in the United States that do not meet EPA's new eight-hour ozone standard.

San Diego is also out of compliance with the California PM10 particulate standards. Air quality will remain a persistent challenge as the number of people and cars in our region grows.

In order to improve local air quality and to reduce greenhouse gas emissions (GHG) that contribute to climate change, the city of San Diego is participating in the Cities for Climate Protection program. The goal put forward by the Mayor and City Council in 2002 is to achieve a 15 percent reduction in GHG by 2010, using 1990 as baseline.

Policies

CE-D.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-D.2. Continue to upgrade energy conservation in city buildings and support community outreach efforts to achieve similar goals in the community.

CE-D.3. Continue to use methane as an energy source from inactive and closed landfills.

CE-D.4. Preserve and plant trees, and vegetation that are consistent with habitat and water conservation policies and that absorb carbon dioxide and pollutants.

CE-D.5. Promote technological innovations to help reduce automobile, truck, and other motorized equipment emissions.

CE-D.6. Encourage alternatives to single-occupancy vehicle use, including using public transit, carpooling, teleworking, bicycling, and walking.

CE-D.7. Support state, federal, and local actions to increase the use of alternative fuels.

CE-D.8. Support state, federal, and local efforts to increase fuel efficiency and reduce GHG, including California's Greenhouse Gas Rule adopted in 2004 (see http://www.arb.ca.gov/cc/cc.htm for more information).

E. Biological Diversity

Goal

- A healthy regional ecosystem with biological diversity 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.

The city adopted the Multiple Species Conservation Program (MSCP) in 1997 to preserve and manage sensitive species at an ecosystem level. The MSCP is a comprehensive habitat conservation planning program for southwestern San Diego County (the planned habitat preserve is shown on Figure CE-2). 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 identifying priority areas for conservation and other areas for future development, the MSCP has streamlined existing permit procedures for development projects which impact habitat.

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 MSCP study area. The MSCP 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.

Local jurisdictions and special districts will implement their portions of the MSCP Plan through subarea plans, which describe specific implementing mechanisms. The MSCP, with its attached subarea plans, meets the requirements of the federal Endangered Species Act and the California Natural Community Conservation Program.

Policies

CE-E.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.

a. Educate surrounding residents and businesses of impacts invasive plant species have on open space.
b. Discourage the planting of any invasive plant species adjacent to open space preserves.
c. Pursue funding for removal of established populations of invasive species within open space preserves.

CE-E.2. Implement the City of Villages strategy as a means to meet the city's substantial housing needs while reducing pressure to develop open space.

CE-E.3. Prioritize, fund, acquire, and manage open spaces that preserve important ecological resources and provide habitat connectivity.

CE-E.4. Implement the conservation goals/policies of the city's MSCP, including providing connectivity between habitats and limiting recreational access and use to appropriate areas.

CE-E.5. Consider important ecological resources when determining where to apply floodplain regulations and development guidelines.

CE-E.6. Promote aquatic biodiversity and habitat recovery by reducing hydrological alterations, such as grading a stream channel.

F. Wetlands

Goals

- Protection and restoration of wetland resources to preserve San Diego's rich biodiversity and heritage.
- Assure no net loss of wetland habitat in San Diego.

Discussion

San Diego supports a unique assemblage of wetlands, including tidal and freshwater marshes, riparian wetlands and vernal pools. Most of San Diego's coastal wetlands are open to the ocean's tides and contain a mix of ocean and fresh water. 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 stream channels and wetlands removes the opportunities for biodiversity and also impacts important ecological processes that remove pollutants and improve water quality. The health of riparian, marsh, and other wetland areas is an important indicator of ecosystem health, and of the sustainability of human activity within a watershed.

In addition, wetlands protect surface water quality by slowing the erosive forces of moving water. Wetlands provide a natural means of flood control and damage prevention by reducing flood peaks, thereby protecting against the loss of life and property. Wetlands also improve water quality by intercepting and filtering waterborne sediments, excess nutrients, heavy metals and other pollutants.

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

Policies

CE-F.1. Use a watershed planning approach to preserve and enhance wetlands.

CE-F.2. Facilitate public-private partnerships that improve private, federal, state and local coordination through removal of jurisdictional barriers that limit effective wetland management.

CE-F.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-F.4. Support the long-term monitoring of restoration and mitigation efforts to track and evaluate changes in wetland acreage, functions, and values.

CE-F.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-F.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-F.7. Encourage site planning that maximizes the potential biological, historic, hydrological and land use benefits of wetlands.

CE-F.8. Implement a 'no net loss' approach to wetlands conservation in accordance with state and federal regulations.

CE-F.9. Consider public health, access, and safety, including pest and vector control, on wetland creation and enhancement sites.

G. Energy Independence

Goals

- Increase local energy independence through conservation, efficient production, efficient community design, and reduced consumption.
- Develop/sustain 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 (see Water Supply section) also helps reduce energy use. 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-G.1. Maintain a centralized Energy Conservation and Management Program and Comprehensive Plan for all city of San Diego operations.

CE-G.2. Coordinate city energy planning programs with federal, state and regional agencies.

CE-G.3. Pursue state and federal funding opportunities for research and development of alternative and renewable energy sources.

CE-G.4. Maintain and promote water conservation and waste diversion programs to conserve energy.

CE-G.5. Seek funding to support the installation of photovoltaic panels, or other forms of energy production, on residences and public buildings.

CE-G.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-G.7. Pursue investments in energy efficiency and direct sustained efforts towards eliminating inefficient energy use.

CE-G.8. Increase energy efficiency and demand management to reduce consumption of fossil fuels.

CE-G.9. Support local and regional transportation policies that improve mobility and increase energy efficiency and conservation.

CE-G.10. Support the development of facilities that generate renewable energy.

CE-G.11. Promote facilities that use renewable energy sources or reduce use of non-renewable energy sources.

CE-G.12. Encourage small, decentralized, aesthetically-designed energy efficient power generation facilities.

CE-G.13. Promote energy conservation education.

H. Sustainable Development and Urban Forestry

Goals

- Citywide integrate of sustainable or "green" buildings and site design.
- Protect and expand of a sustainable urban forest.

Discussion

Buildings account for a significant portion of the United States' 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.

Green buildings and site design can also help mitigate the Urban Heat Island effect in San Diego. The term "heat island" refers to urban air and surface temperatures that are higher than nearby rural areas. Heat islands form as cities replace natural land cover with dark-colored impermeable

pavement, construct buildings that block natural cooling from wind, and otherwise collect and retain heat so much so that compared with open space nearby, a city can be up to 10 degrees warmer. Collateral benefits for implementing heat island mitigation measures are that it can also result in energy savings, and reduced ground level ozone production.

Trees are an effective, low-technology way to help meet green building goals and reduce heat islands, while also achieving other environmental and economic benefits. Our urban forest, comprised of all of the 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.

Policies

CE-H.1. Encourage the construction and operation of "Green Buildings" (see also UD-A.4).

a. Require all 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 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-H.2. Design and build energy efficient buildings.

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-H.3. 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-H.4. Reduce waste by renovating or adding on to existing buildings, rather than constructing new buildings where feasible.

CE-H.5. 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-H.6. 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-H.7. Encourage sustainable landscape design, and landscape and park 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.
d. Increase use of trees which lose their leaves at the end of the growing season and 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, drought tolerant native plants, and recycled site water to reduce the use of potable water for irrigation.

CE-H.8. 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.

CE-H.9. Develop, nurture, and protect a sustainable urban/community forest.
a. Seek resources and take actions needed to plant, care for, and protect trees in the public right-of-way and parks.
   1. Encourage the planting of large canopy shade trees in order to maximize environmental benefits.
   2. Seek to retain significant and mature trees.
   3. Develop a program and funding source to maintain trees.
b. Include community street tree master plans in community plans.
   1. Prioritize community streets for street tree programs;
   2. Identify the types of trees proposed for those priority streets by species (with acceptable alternatives) or by design form;
   3. Integrate known protected trees and inventory other trees that may be eligible to be designated as a protected tree.
c. Develop a citywide urban forest master plan comprised of the community plan street tree master plans.
d. Continue to require the planting of trees through the development permit process.
e. Consider tree planting as mitigation for air pollution emissions, storm water runoff, and other environmental impacts as appropriate.
f. Support public outreach efforts to educate city staff, the business community, and the general public on the environmental and economic benefits of trees.

I. 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 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. It produces approximately

60,000 to 80,000 tons of common salt (sodium chloride) annually. 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 to the Salton Sea.

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.

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 MSCP subarea plan, consisting mainly of sand, rock, and gravel extraction using open pit mining.

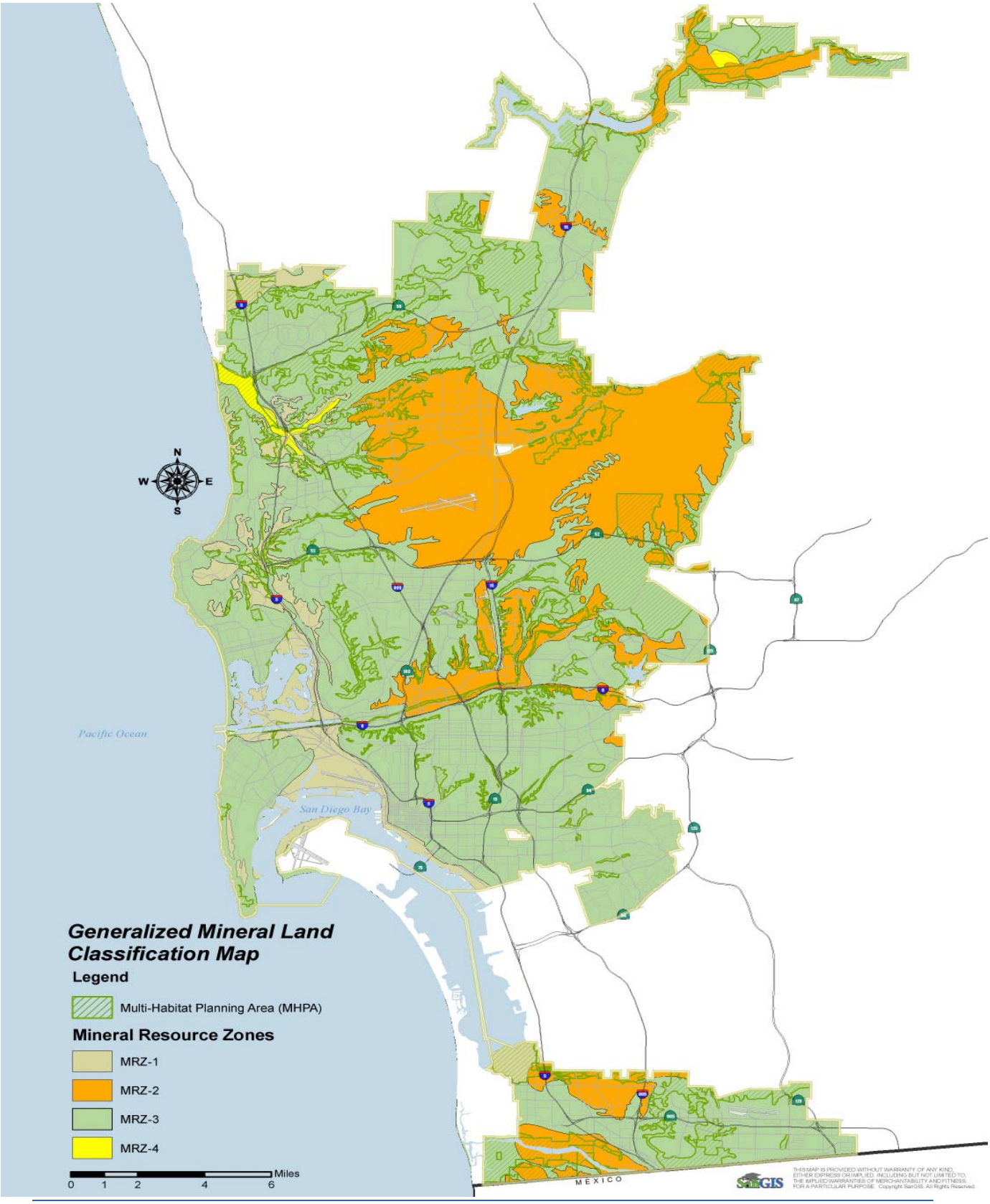
Mineral deposits that are acceptable for use as Portland cement concrete (PCC) grade aggregate are the rarest and most valuable of aggregate resources. The location of San Diego's high quality mineral resource areas are shown on Figure CE-6 as Mineral Resource Zone (MRZ)-2 areas. State law requires cities 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 also may result in fewer direct mining environmental impacts to remote, less regulated areas outside of the city. However, because of 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 Multiple Species Conservation Plan, and the depletion of active mines contributes to the shortage of materials. Many of the city's existing mining operations are located along rivers and water courses, in areas with the city's Multiple-Habitat Planning Area. The city's MSCP specifically addresses mining operations.

In accordance with the city's MSCP Subarea Plan (Section 1.4.2):

> "Current mining operations that have approved restoration plans may continue operating in the MHPA. 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 are 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. Existing and any newly permitted operations adjacent to or within the MHPA shall meet noise, air quality and water quality regulation requirements, as identified in the conditions of any existing or new permit, in order to adequately protect adjacent preserved areas and covered species. Such facilities shall also be appropriately restored upon cessation of mining activities."


Generalized Mineral Land Classification Map
Legend
Multi-Habitat Planning Area (MHPA)
Mineral Resource Zones
MRZ-1
MRZ-2
MRZ-3
MRZ-4
Miles
0 1 2 4 6
N
W
E
S
Pacific Ocean
San Diego Bay
MEXICO
SanGIS
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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.

Policies

CE-I.1. Promote the recycling and reclamation of construction materials to provide for the city's current and future growth and development needs.

CE-I.2. Permit new or expanding mining operations within the MHPA in accordance with MSCP policies and guidelines.

CE-I.3. Produce sand and gravel with minimal harm and disturbance to adjacent property and communities.

CE-I.4. Plan rehabilitation of depleted mineral areas to facilitate reuse compatible with local planning goals and policies, including the MSCP.

CE-I.5. Consider local evaporative salt production for future economic value, open space use, and for important ecological habitat.

J. 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 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 "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.

Our 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. The location of a potential third port of entry would also impact the border environment. In addition, 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 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 on the Las Californias Binational Conservation Initiative 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 our 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.

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 stream 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 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 toxics 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 well-heads 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 our 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.

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-J.1. Collaborate with SANDAG to plan for, conserve, and manage habitat corridors that cross political boundaries.

CE-J.2. Continue to participate in the Tijuana River Watershed Binational Vision Project to improve the health of the watershed.

CE-J.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-J.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-J.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.

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.

K. Environmental Education

Goal

- Individuals, organizations, and businesses in San Diego that are aware of and more responsible for their impacts on the environment.

Discussion

Environmental education and opportunities for public discussion of environmental issues are important ways to share information about our 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-K.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-K.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-K.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 Mobility Element).

CE-K.4. Publicize voluntary water and energy conservation measures that focus on reducing waste and decreasing the possibility of rationing and other undesirable restrictions.

CE-K.5. Actively encourage public discussion of air quality policies, understanding that it is individual decisions that are an essential component to their success.

CE-K.6. Educate citizens and public servants about both short- and long-term risks associated with the use and disposal of hazardous materials.

CE-K.7. Support education programs on waste minimization, reuse, recycling and resource recovery that involve the media, schools, industry, government, and academia.

CE-K.8. Implement water quality education programs focused on pollution prevention techniques for the public, municipal employees, and businesses.

CE-K.9 Expand educational opportunities within open space lands and parks, including programming at the Mission Trails Visitor and Interpretive Center and the Tecolote Nature Center.