

HEALTHY ENVIRONMENT

INTRODUCTION

To ensure a healthy environment, the region must protect key open spaces and sensitive habitat areas, ensure that the air and water are clean, and restore eroding beaches. Also important to our healthy environment is urban ecology: those natural areas that remain in or around urbanized areas.

A number of issues must be addressed in order to implement a comprehensive, regional habitat preservation system to sustain natural features in urbanized areas of the region. While preserve areas provide habitat for threatened and endangered species, urban canyons and natural landscapes outside preserve areas also are important. They provide visual relief from urbanization as well as public access to the region's natural resources.

Viable natural habitats, water quality, a well-managed shoreline, and air quality are critical components to the overall economic prosperity of our region. Also, they are critical to the health and well being of our residents.

The indicator data included in this chapter establish a baseline for tracking progress toward the following policy objectives included in the RCP:

NATURAL HABITATS

- Preserve and maintain natural biological communities and species native to the region
- Protect agricultural lands for future crop production and for functions described in habitat conservation plans

WATER QUALITY

- Restore, protect, and enhance the water quality and the beneficial uses of local coastal waters, inland surface waters, groundwaters, and wetlands
- Reduce or eliminate pollutants at their source before they enter our region's water bodies

SHORELINE PRESERVATION

- Preserve and enhance the region's beaches and nearshore areas as environmental and recreational resources

AIR QUALITY

- Achieve and maintain federal and state clean air standards

The indicators designated for tracking progress toward the above healthy environment policy objectives are as follows:

NATURAL HABITATS

1. Habitat Conserved Within Designated Preserve Areas (future indicator)
2. Percent of Habitat Preserve Area Actively Maintained (future indicator)

WATER QUALITY

3. Number of Beach Closure Days
4. Impaired Waterbodies (miles or acres) Based on Federal Clean Water Act 303(d) Criteria

SHORELINE PRESERVATION

5. Beach Widths
6. Lagoon Health (future indicator)

AIR QUALITY

7. Air Quality Index

1. Habitat Conserved Within Designated Preserve Areas

Significance and Future Reporting

The RCP aims to preserve and maintain natural biological communities and species native to the region. The number of acres of sensitive habitat conserved (as denoted by “designated preserve areas”) indicates how well the region is doing at protecting native ecosystems.

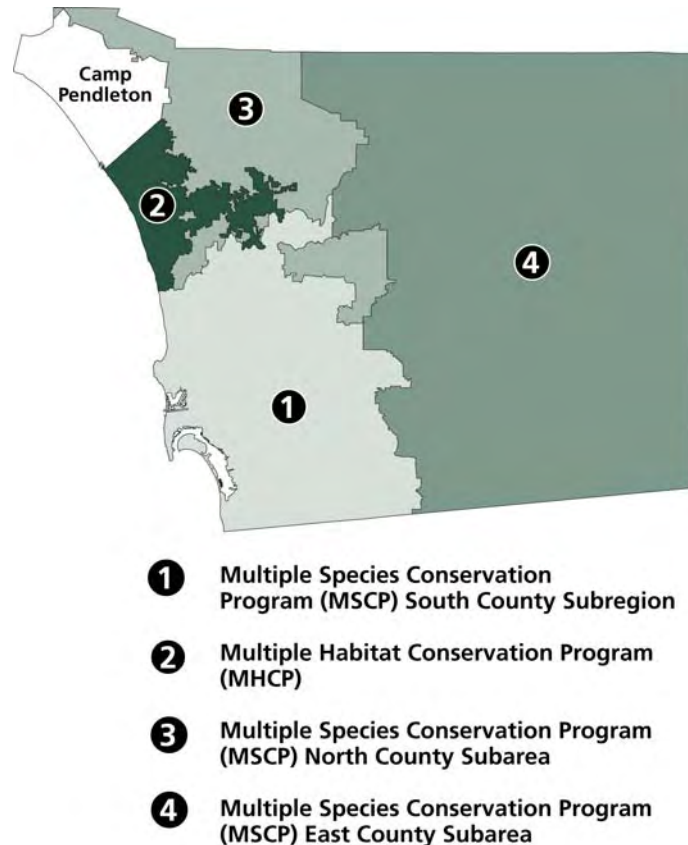
There are a total of four habitat conservation planning programs in the San Diego region as shown in Map 3. Of these, plans have been completed for the MSCP South County Subregion and the Multiple Habitat Conservation Program (MHCP). The MSCP for the North County and East County Subareas are underway.

When the plans are completed, local jurisdictions are required to prepare annual habitat tracking reports that show how and where lands are being conserved, how well their conservation goals are being achieved, and how the habitat preserve system is being built out. A Regional Conserved Lands Database is being constructed which will allow the region to have a more complete accounting of conserved lands. The database will not limit itself to only those jurisdictions that prepare annual habitat tracking reports.

Findings

Since 1997, when the MHCP and the South County MSCP and were adopted, over 30,000 acres of land have been conserved in the City of San Diego and the unincorporated areas of the South County MSCP.

Map 3
SAN DIEGO REGION HABITAT CONSERVATION PLANNING AREAS



2. Percent of Habitat Preserve Area Actively Maintained

Significance and Future Reporting

The RCP recognizes that just preserving open space and habitats is not enough to maintain the biological value of the land, particularly in the urbanized western portion of the region where conserved areas are in close proximity to developed/urban areas. Similar to other infrastructure in the region, such as roads, transit systems, and water and sewer conveyance systems, natural habitat areas must be actively maintained to support the species and their habitats in perpetuity. This can be accomplished through adaptive land management activities and ongoing biological monitoring.

The responsibility to manage lands conserved to protect biological resources is that of the individual owner of the land – a government agency, a non-profit organization such as a land conservancy, a homeowner association, or an individual. There is currently no centralized strategy for preserve implementation; therefore there is no centralized data source from which to obtain data on land management activities.

SANDAG's Environmental Mitigation Program has identified the need to establish an implementing structure to perform the functions of regional coordination. For example, with a coordinating structure in place, preserve data would be available to comprehensively track preserve build-out progress, including the percentage of the preserve being managed.

The first step of regional coordination is underway with the Regional Conserved Lands Database slated for completion in the summer of 2007. This database will provide general information on the status of land management activities for conserved areas. The database may also assist in identifying land areas in need of funds for land management activities. If a regional coordinating structure is developed, then activities pertaining to the preserve – land acquisition, habitat management, and biological monitoring, can be readily determined.

3. Number of Beach Closure Days

Significance

For environmental, economic, and recreational reasons, a goal of the RCP is to reduce or eliminate pollutants in our region's water bodies. Beach closures pinpoint specific instances in which pollutants affect water quality in our ocean and bays. Fewer beach closures mean less pollution. It is necessary that beach closure days be examined with regard to the amount of rainfall each year, as this amount influences the number of beach closure days.⁵ The following data signify the number of days in the year during which the region experienced at least one beach closure, adjusted by inches of rainfall measured at Lindbergh Field.

Findings

The number of weather-adjusted beach closure days in the region has been decreasing over time. Beach closures within the region are largely attributed to pollution in urban runoff that is transported to rivers, bays, and ultimately the ocean via the stormwater conveyance system. To reduce pollution in urban runoff, the San Diego Regional Water Quality Control Board (RWQCB) has issued a permit to local jurisdictions requiring them to develop and implement water quality programs that address this issue. The decrease in beach closures may be the result of the region's jurisdictions working together to address this issue since the issuance of the permit in 2001.

The reduction in the number of weather-adjusted beach closure days also may be attributed to stricter water quality regulations. Over the last several years, the RWQCB has increased its standards and requirements placed on local jurisdictions. Furthermore, over the last several years the RWQCB has been stricter in its enforcement.

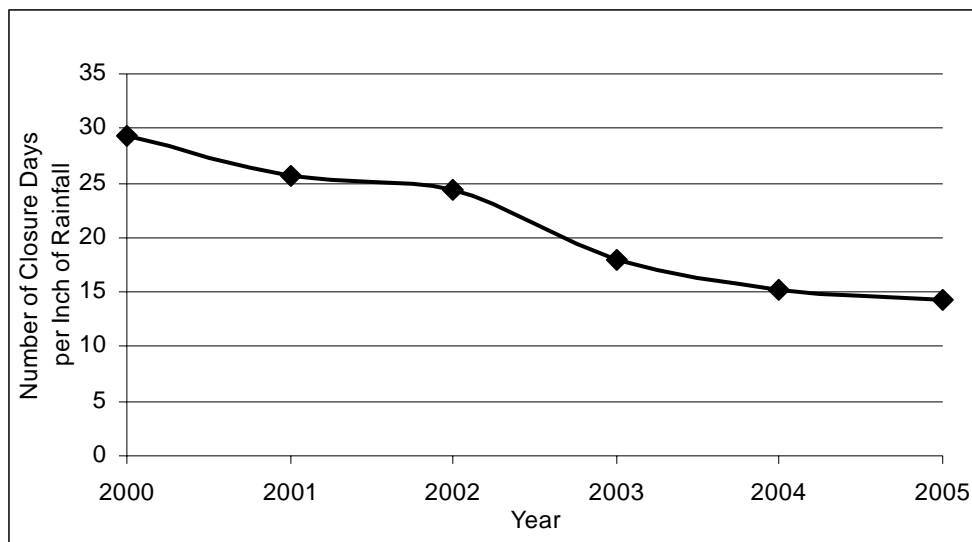
Figure 16 and Table 8 show the steady reduction of beach closure days since 2000. Although during 2005 the region had its highest yearly rainfall in the five-year period analyzed for this report, the

⁵ Rainfall often results in beach closures due to elevated bacteria levels in ocean waters. Levels of bacteria rise significantly in ocean waters especially those adjacent to storm drains, creeks, and rivers during and after rainstorms. Elevated levels of bacteria may continue for a period of up to three days following rainstorms, depending upon the intensity of the rain and the volume of runoff.

weather-adjusted closures continued to decrease. Knowing that rainfall events have a large impact on beach closures, progress made by local jurisdictions in implementing stormwater programs now and in the future may lessen the correlation between rainfall and beach closures. Increases in rainfall events may not necessarily mean an increase in beach closure days.

However, as standards set by the RWQCB become stricter over the next several years, the local jurisdictions may find it more difficult to meet these requirements. Funding for local stormwater programs must increase as the demands placed on local jurisdictions increase, in order to meet the ultimate goal of zero weather-adjusted beach closure days per year.

Figure 16
WEATHER-ADJUSTED BEACH CLOSURE DAYS (2000-2005)



Source: Annual Beach Closure and Advisory Report, County of San Diego Department of Environmental Health; Western U.S. Historical Summaries, Western Regional Climate Center.

Table 8
WEATHER-ADJUSTED BEACH CLOSURE DAYS

	Weather-Adjusted Closures	Beach Closure Days	Rainfall (inches)
2000	29	202	7
2001	26	217	8
2002	24	103	4
2003	18	165	9
2004	15	203	13
2005	14	203	14

Source: Annual Beach Closure and Advisory Report, County of San Diego Department of Environmental Health; Western U.S. Historical Summaries, Western Regional Climate Center.

4. Impaired Waterbodies (miles or acres) based on Federal Clean Water Act 303(d) Criteria

Significance

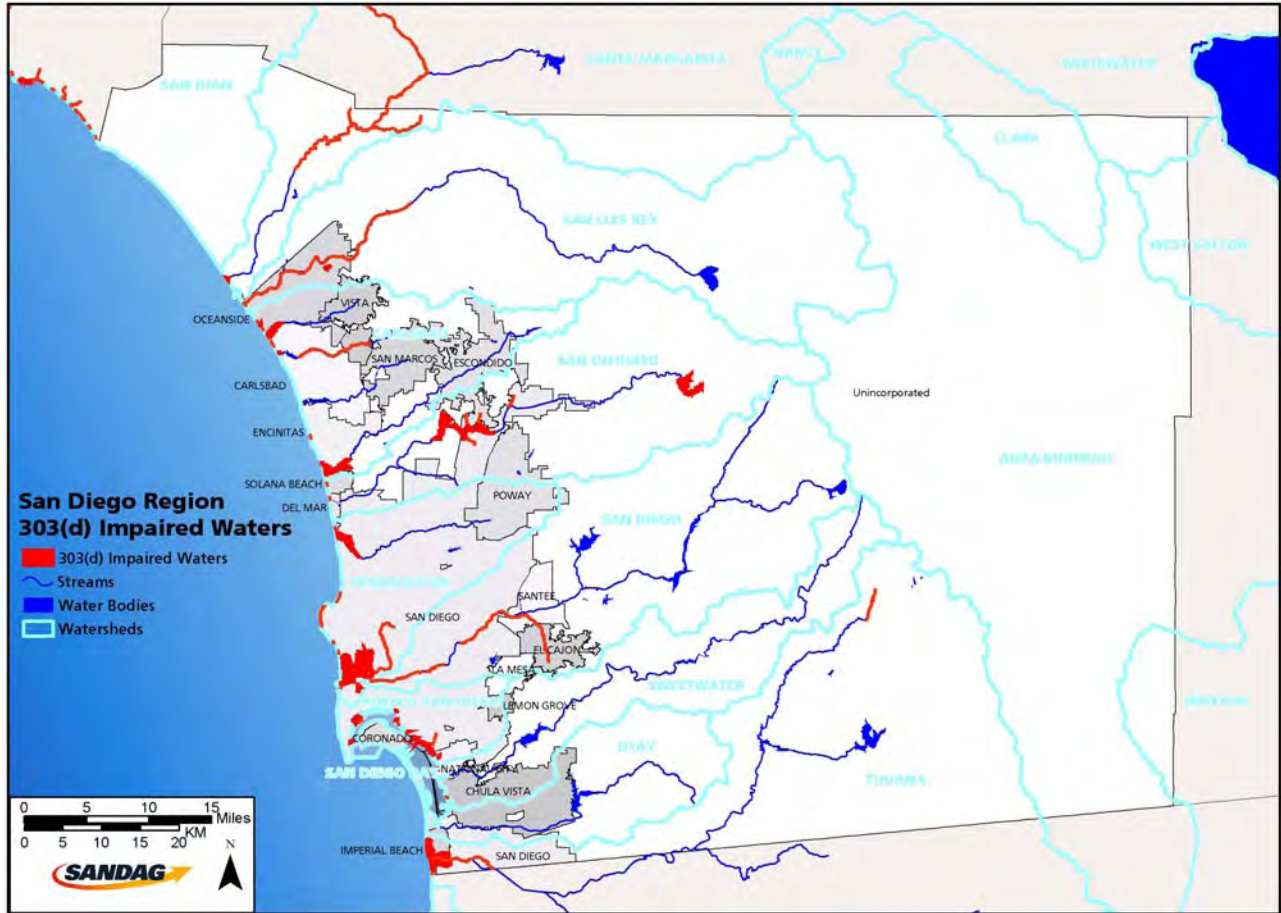
The Federal Clean Water Act (Section 303(d)) mandates that states develop a list of segments of water that do not meet water quality standards, even after pollution control technology has been implemented for point sources of pollution. The State Water Resources Control Board (SWRCB) works with the regional water quality control boards and local jurisdictions to prepare this list. Local jurisdictions are required by law to establish action plans and rank the waters in order to move towards improvement of these segments.

For environmental, economic, and recreational reasons, a goal of the RCP is to reduce or eliminate pollutants in our region's waterbodies. The list of 303(d) impaired waterbodies pinpoints specific instances in which pollutants affect water quality in our lakes, rivers, and streams. Fewer impairments mean less pollution.

Findings

As of 2002, there are 52 water segments in the San Diego region, such as streams, waterbodies, and the shoreline, that are considered impaired and do not meet water quality standards. As seen below, the data represents the 303(d) list prepared for 2002. Currently, the SWRCB is updating the 303(d) list for 2006 and collecting comments from local jurisdictions. The 303(d) list is usually updated every two years and as information becomes available, the data will be included in future RCP performance monitoring reports.

Map 4
SAN DIEGO REGION 303(d) IMPAIRED WATERS



5. Beach Widths

Significance

The beaches of the San Diego region are an important environmental, economic, and recreational resource. The shoreline is an erosional coast, consisting primarily of narrow beaches backed by steep sea cliffs. The beaches and cliffs have been eroded for thousands of years by ocean waves and rising sea levels. Episodic and site-specific coastal retreat, such as bluff collapse, is inevitable, although some coastal areas have remained stable for many years.

In recent times, this erosion has been accelerated by urban development. The natural supply of sand to the region's beaches has been significantly diminished by flood control structures, dams, water quality control devices, removal of sand and gravel through extraction operations, and the creation of impervious surfaces. With more development, the region's beaches will continue to suffer increased erosion, thereby reducing, and possibly eliminating their physical and economic benefits.

Preserving the region's beaches is a key policy objective of the RCP. The average beach widths representing all segments along the San Diego coastline are in Table 9.

Targets

Targets for individual shoreline segments were set in the SANDAG Shoreline Preservation Strategy in 1993. These targets are listed in Table 9, and are designated as the estimated total need for design property protection in the Strategy. Four shoreline segments (Silver Strand State Beach, Coronado, Ocean Beach, and Pacific/Mission Beaches) exceeded the 2010 target in 2004. The remainder of the shoreline segments are short of their 2010 targets.

Findings

Beach widths in the region have been declining since the Regional Beach Sand Project in 2001.

The SANDAG Regional Shoreline Monitoring Program (Monitoring Program) was initiated in 1996. The Monitoring Program provides physical measurements of the region's beaches and is essential to the design and evaluation of future efforts to replenish beaches and manage the region's shoreline. Specifically, the Monitoring Program measures the changes in beach width over time, documents the benefits of sand replenishment projects, and helps to improve the design and effectiveness of beach fills.

Since the Monitoring Program was first implemented, there has been regular nourishment of our beaches through the dredging of harbors and lagoons and the Regional Beach Sand Project (RBSP), which nourished 12 of the region's beaches in 2001. Since the completion of the RBSP, little to no sand has been placed on area beaches, the impact of which has been the return to pre-RBSP sand levels.

As seen in Table 9, with the exception of a couple of segments, after the RBSP the beach widths slowly declined and the data for 2004 looks very similar to the pre-RBSP beach width data for 1998.

**Table 9
BEACH WIDTHS AND TARGETS OF SHORELINE SEGMENTS,
SAN DIEGO REGION (IN FEET) (1998-2004)**

Fall Averages		1998	1999	2000	2001	2002	2003	2004	2010 Target
Silver Strand Littoral Cell	Imperial Beach	150.0	118.0	109.0	202.7	154.0	145.0	151.3	238
	Silver Strand State Beach	427.0	461.0	448.0	451.5	451.0	449.0	434.5	210
	Coronado	759.0	758.0	767.0	784.0	767.0	768.0	764.0	232
Mission Beach Littoral Cell	Ocean Beach	278.0	282.0	274.0	283.0	295.0	259.0	264.0	220
	Pacific/ Mission Beaches	217.3	257.3	265.3	273.3	271.8	272.5	278.3	200
	La Jolla	182.0	141.0	192.0	213.0	183.0	229.0	219.0	n/a
Oceanside Littoral Cell	San Diego	185.0	189.8	219.8	253.2	253.6	213.8	219.4	228
	Del Mar	185.5	227.0	166.0	133.3	173.3	161.8	133.3	232
	Solana Beach	134.0	123.0	108.0	171.0	141.0	138.0	133.0	232
	Encinitas	157.5	134.0	152.3	183.0	177.3	181.3	175.0	240
	Carlsbad	161.3	171.5	182.8	190.4	210.2	212.8	189.4	216
	Oceanside	227.5	229.8	234.0	262.0	257.3	258.8	225.0	232

6. Lagoon Health

Significance and Future Reporting

The RCP sets out the following policy objectives regarding water quality: restoring, protecting, and enhancing the water quality and the beneficial uses of local coastal waters, inland surface waters, groundwater and wetlands; and reducing or eliminating pollutants at their source before they enter our region's water bodies.

The Lagoon Health indicator tells us about the health of the lagoon itself. The Federal Clean Water Act mandates that local governments develop plans for attaining or maintaining water quality in water bodies, which include rivers, bays, estuaries, lagoons, and the ocean. The three indicators together (beach closures, impaired water bodies, and lagoon health) provide an overall picture of

the health of the region's water bodies. Just as beaches and rivers perform an essential function in the region's ecosystem, lagoons perform a valuable function as well.

Lagoons act as a filter that removes pollution from runoff; they are critical to the survival of various types of birds, fish, and other wildlife through their provision of diverse habitat types, and similar to beaches, lagoons can be used for recreation.

As part of the San Diego Regional Water Quality Control Board (RWQCB) permit issued in 2001, parties to the permit are required to monitor the health of a majority of the region's lagoons. Starting in 2007, monitoring data collected regarding bacterial levels in the lagoons will be included in this report. Currently, the City of Encinitas is charged with overseeing the collection of this data. They are re-evaluating their methodology over the next year and plan to implement a new program with the issuance of the new San Diego RWQCB permit. Once this methodology is finalized, SANDAG will likely utilize this data for this indicator.

7. Air Quality Index

Significance

Air quality affects public health, productivity, and the environment. Thus, for environmental, economic, and equity reasons, a goal of the RCP is to achieve and maintain federal and state clean air standards. Air quality can be measured by the number of days that the region fails to meet clean air standards.

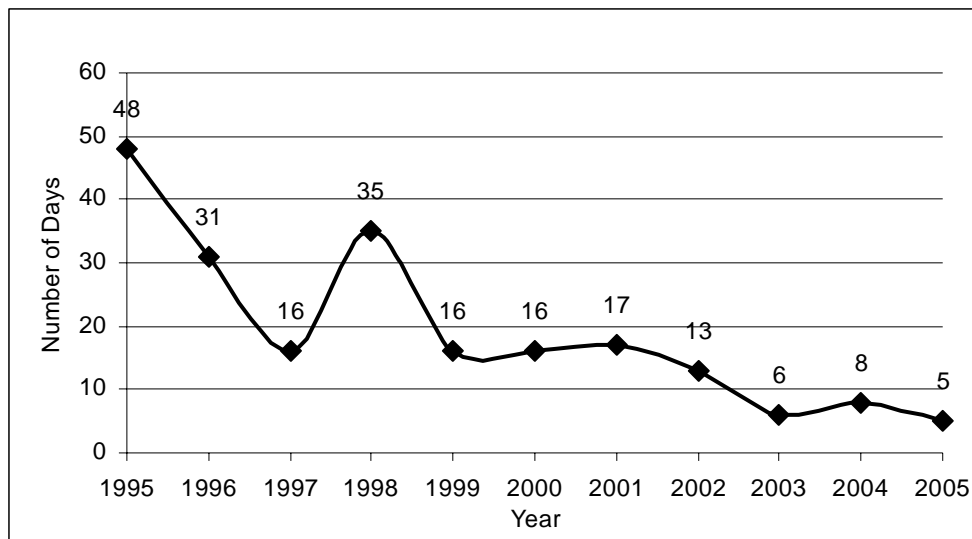
The Air Quality Index (AQI) can be used for reporting daily air quality. It tells us how clean or polluted the air is, and what associated health effects might be a concern. The AQI focuses on the health effects people may experience within a few hours or days after breathing polluted air. The United States Environmental Protection Agency (EPA) calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, the EPA has established national air quality standards to protect public health. In the San Diego region, ground-level ozone and particulate matter pollutant levels are responsible for the majority of days during which the region experiences an AQI over 100.

An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level US EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy - first for certain sensitive groups of people, then for everyone as AQI values get higher. Sensitive groups are defined as those "at greater risk than the general population from the toxic effects of a specific air pollutant," such as older adults, children, or those with heart or lung disease.

Findings

Air quality in the region has improved significantly since the early 1990s, as evidenced by the decrease in the number of days during which air quality was deemed unhealthy for sensitive groups. Effective emission control efforts have resulted in cleaner vehicles, power plants, industries, and consumer products, as well as transportation plans that integrate transit and other alternatives to solo vehicle travel. Air quality improvements are expected to continue despite projected growth in population, employment, industrial activity, and vehicles miles traveled.

Figure 17
NUMBER OF DAYS AIR QUALITY WAS DEEMED
UNHEALTHY FOR SENSITIVE GROUPS (1995-2005)



Source: San Diego Air Pollution Control District.

HEALTHY ENVIRONMENT SUMMARY

Conclusions

Some of the indicators for which data is currently available show a relatively positive picture. Beach closures have declined and air quality has improved. On the other hand, many of our waterbodies have some degree of impairment, and many of our beaches are losing sand. We are making progress in habitat conserved with designated preserve areas.

Future Target Setting

At this point only the Beach Widths indicator has official targets. These targets are for the year 2010 and were established in 1993 as a part of the SANDAG Shoreline Preservation Strategy. The

Shoreline Preservation Working Group, which developed the Strategy and targets, is still active and may wish to establish later-year targets.

As the habitat conservation plans are completed, targets will be established by default. For example, the target for the South County MSCP is to conserve a total of 172,000 acres in that planning area.

Another potential target for air quality can be derived from requirements embodied in the federal and state Clean Air Acts. The San Diego air basin is classified as a “serious” non-attainment area for 1-hour ozone under the state Clean Air Act. At the federal level, the San Diego region has been designated as non-attainment for the 8-hour ozone standard. The California Air Resources Board, in cooperation with the San Diego Air Pollution Control District and SANDAG, is developing an attainment plan for 8-hour ozone to demonstrate how the region will attain required 8-hour ozone levels by the June 2009 attainment date.

Targets for the other indicators in this section may be set after discussions among local elected officials, stakeholders, and SANDAG staff.

SANDAG Role

Habitat Conservation Planning

The largest subregional plan, the Multiple Species Conservation Program (MSCP), spans eleven cities and a portion of unincorporated San Diego County in southwestern San Diego County. Approved in 1997, the plan targets more than 172,000 acres for conservation and protects 85 sensitive plants and animal species.

The Multiple Habitat Conservation Program (MHCP) includes seven incorporated cities in northern San Diego County. This subregional plan, approved by the SANDAG Board of Directors in March 2003, provides the guidelines for the preservation of a 20,000-acre preserve system and the protection of 61 plant and animal species.

Environmental Mitigation Program

A component of the *TransNet* Extension is the creation of an Environmental Mitigation Program (EMP), which goes beyond traditional mitigation for regional and local transportation projects. While the EMP includes an allocation for the estimated direct costs for mitigation of upland and wetland habitat impacts for regional and local transportation projects, it also includes additional funding for habitat acquisition, management, and monitoring activities. The EMP will help implement the Multiple Species Conservation Program (MSCP) and the Multiple Habitat Conservation Program (MHCP). Satisfying the mitigation requirements for priority projects will be addressed comprehensively rather than on a project-by-project basis in order to maximize early land acquisition opportunities.

The Environmental Mitigation Program will be a collaborative effort among SANDAG, the cities, the County, the wildlife agencies (California Fish and Game and the U.S Fish and Wildlife Service), and other regulatory agencies (Coastal Commission, U.S Army Corps of Engineers, U.S Environmental Protection Agency, and the Regional Water Quality Control Board) as well as representatives of various stakeholder groups, including the environmental community and the science/technical community.

Shoreline Preservation Working Group

The Shoreline Preservation Working Group (Working Group) was formed as a committee in the 1980s and currently advises the Regional Planning Committee on issues related to the implementation of the Shoreline Preservation Strategy (Strategy) adopted in 1993. The Strategy proposes an extensive beach building and maintenance program for the critical shoreline erosion areas in the region. It contains a comprehensive set of recommendations on the beach building program and on financing and implementation. The Working Group has technical expertise and background knowledge of regional shoreline issues, which is useful in applying the principles and goals laid out in the Strategy and The Regional Comprehensive Plan (adopted in 2004). Continuing to support the region's ongoing and future beach nourishment efforts is a top priority for the Working Group. Additionally, in 1996, SANDAG enacted a shoreline monitoring program and the Working Group will continue to oversee and implement this program.

MOBILITY 2030/Regional Transportation Improvement Conformity with the State Implementation Plan (Air quality)

SANDAG and the U.S. Department of Transportation (DOT) must make a determination that the Regional Transportation Plan (RTP) and the Regional Transportation Improvement Program (RTIP) conform to the California State Implementation Plan (SIP) for air quality. Conformity to the SIP means that transportation activities will not create new air quality violations, worsen existing violations, or delay the attainment of the national ambient air quality standards.