

# **CITY OF CATHEDRAL CITY**

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## **COMPREHENSIVE GENERAL PLAN**

### **CHAPTER IV**

#### **ENVIRONMENTAL RESOURCES**

This chapter of the General Plan discusses the environmental resources of the City and surrounding areas. The elements addressed in this chapter include Biological Resources, Archaeological and Historic Resources, Water Resources, Air Quality, Open Space and Conservation, and Energy and Mineral Resources. The City of Palm Desert has substantial environmental resources which contribute to the quality of life for City residents and attract a significant tourist trade. This chapter addresses the importance of and need for conservation of these valued resources.

# ***BIOLOGICAL RESOURCES ELEMENT***

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## **PURPOSE**

The purpose of the Biological Resources Element is to preserve and protect the integrity of the natural environment and its many biological resources. For the purposes of this element, biological resources represent the plants and wildlife species, as well as the ecosystems and habitats, which contribute to an area's natural setting. These resources not only enhance and contribute to the natural environment; but they also add to the health, identity and image of the built environment. This element describes the natural environment and identifies the important and valuable biological resources occurring within Cathedral City and the surrounding area. It also references other information sources, which are intended to guide decision makers in regulating land use and development, while protecting these critical resources. The goals, policies, and programs set forth in this element are designed to ensure the long-term preservation of biological resources in a manner, which benefits the entire community.

## **BACKGROUND**

The Biological Resources Element has a direct relation to important policy issues in the Land Use and Open Space Elements. It is also related to the Parks and Recreation Element, which addresses the community's enjoyment of, and commitment to its natural resources. Cathedral City has been an active participant in the development of the Coachella Valley Multiple Species Habitat Conservation Plan, which is a regional effort to conserve adequate, unfragmented habitat for a wide range of special-status plant and animal species. In addition, portions of the City are included in the Santa Rosa Mountains Wildlife Habitat Area that has been established to protect sensitive Peninsular Bighorn habitat from potentially adverse development. The General Plan study area is also home to the Willow Hole-Edom Hill Preserve, a unique blowsand preserve that provides critical habitat to the special-status Coachella Valley Fringe-toed Lizard. The Biological Resources Element will influence and contribute to the effective implementation of conservation strategies, goals, policies, and programs.

The City is required to include an element, which provides for the preservation and conservation of wildlife resources by California Government Code Section 65302(d). This section of the Code also requires that the City provide inventories of natural vegetation, fish and wildlife and their habitat, including rare and endangered species in the General Plan. This element also includes, as required, goals, policies and programs, as well as plans and maps showing where important areas for the preservation of plant and animal life, including habitat for fish and wildlife species, and areas required for ecological and scientific study, are located.

There are also many state and federal regulations that have been established to protect and preserve biological resources. The Endangered Species Act is one of the most valuable laws for protecting species and habitat. It acts to identify all endangered species, and to increase their populations to sustainable levels. In addition to the Endangered Species Act, California has several additional laws and regulations that directly and indirectly protect plant and wildlife

species, such as the California Endangered Species Act, Section 404 of the Clean Water Act, and the Natural Community Conservation Planning Act.

## **The Regional Environment**

The Coachella Valley's environment has many physical attributes which have a direct effect on the type of habitats and biological communities that exist within the region. In the Valley, these attributes are largely shaped by the geographic location, climate, topography and geology of the area. The following discussion provides a brief description of these conditions in the Coachella Valley, and how they take shape to form the basis for habitat and biological resources in the planning area.

### Topography

The Coachella Valley is characterized by extreme variation in topographic features, from the low-lying desert floor to the hillsides and mountain ranges that surround most of the Valley. The Salton Sea, located at the southeast end of the Valley, occurs at an elevation of about 228 feet below sea level and has no natural outlet. The northern, western and southern edges of the Valley are bordered by major mountain ranges, including the San Bernardino, Little San Bernardino, San Jacinto and Santa Rosa Mountains. Summit elevations range from 9,600 feet to 11,502 feet above mean sea level. These topographic characteristics are primarily a result of the San Andreas, San Jacinto and other regional seismically active earthquake faults. These faults have uplifted, subsided and shifted the ground, forming the Valley's contrasting features, while erosion, weathering and other secondary geological processes shaped the mountains into a series of canyons and alluvial fans that extend onto and fill the valley floor with sediment and sand. This unique, expansive and varying geography has created a distinctive desert environment, one with a number of intricate habitats, wildlife and plant communities that make the region a rich resource area.

### Climate

The region's climatic conditions are greatly influenced by the mountain ranges to the west, which block the Valley from much of the cooler maritime conditions that occur in the Inland Empire. These mountain barriers isolate the Valley and create a subtropical desert environment characterized by low rainfall, low relative humidity, and large levels of direct sunshine, with very hot summers and mild winters. Daytime temperatures during the summer months generally exceed 100° F, sometimes reaching more than 120° F. In the winter, daily temperatures range from 80°F to 30°F. The surrounding mountains, however, are cooler than the valley floor and have an approximate 5°F decrease for every 1,000-foot increase in elevation. Mean annual rainfall ranges between four and six inches on the desert floor, and about fifteen inches in the nearby mountains on the northern and western end of the Valley. The majority of precipitation occurs during the winter months, but infrequent intense thunderstorms may occur during late summer and early fall. However, most of the rainfall generated by these storms falls on surrounding mountain slopes, keeping the desert floor relatively dry throughout the year.

Wind also has a significant effect on the climate of the Coachella Valley. As the desert floor heats up, cool air from the west is drawn into the Valley through the narrow San Gorgonio Pass.

This concentrates the air currents and generates strong winds, which pass over the most erosive portions of the valley floor, transporting large quantities of sand and dust throughout the region. This natural sand migration and transport process is responsible for creating desert sand dunes, which are an important habitat for native wildlife.

Plants and animals in this climate survive by utilizing a variety of structural and behavioral adaptations to conserve water and endure the heat. Plants have adapted mechanisms in their leaf structure, such as tissues that can store water and thick epidermal layers, which help reduce water loss from evaporation. Many plants also produce leaves seasonally, and have spines and thorns to discourage predators while also providing shade. Animals escape the main onslaught of daytime heat by hiding in burrows or shelters, and emerging only at night to hunt for food and water. Some animals can obtain most of the moisture they need from grains and seeds they eat, and they have adaptations that allow them to eliminate body wastes without losing moisture.

## **COACHELLA VALLEY DESERT HABITATS AND NATURAL COMMUNITIES**

The Coachella Valley is located in one of the hottest and driest parts of the country, making it a harsh and sometimes inhospitable place to live. Nevertheless, the Coachella Valley Desert comprises one of the most biologically unique and diverse regions in the country. Vegetation on the desert floor is sparse and limited by heat and aridity. The climate becomes milder away from the desert floor, as elevation increases. These hillside and mountainous areas support more vegetation, including as many as nine species of cacti, a variety of woody plants such as palo verde and smoke tree and many herbaceous plants. In addition, they also contain a number of canyons and ravines, which collect snowmelt and runoff from the surrounding mountains. These niches in the mountainside support native fan palm communities and a wide variety of other plants and animals.

Plant communities are an important factor in determining the type of habitat and natural community in an area. Habitat describes the place or set of environmental conditions in which plants and animals naturally live and grow. Habitats are more specific descriptions of locations within a region, which have a distinct assortment of species. Temperature and precipitation are primary factors in determining locations of different habitats. However, in the Coachella Valley and surrounding areas, desert habitats are generally divided into topographical habitats that are identified by physical differences in slope, substrate and water supply.

### **Valley Floor**

Open space lands within the central portion of the Coachella Valley encompass the valley floor habitat. This habitat is characterized by relatively flat and low-lying terrain, with sparse vegetation and regions of blowing sands. The valley floor habitat contains active desert dunes, and stabilized and partially stabilized sand dunes and fields. These areas consist of aeolian, or windblown, sand deposits, which originated from the erosion of adjacent hills, sand deposition in nearby ravines, and sandy soils transported by strong winds. Active dunes are situated in areas on the valley floor that are highly exposed to the elements and are subject to intense heat and high wind conditions. The high winds continually amass and remove sand from the active dunes. "Active" means that the area has no windbreaks or other impediments to hinder the aeolian processes that cause sand accumulation and depletion in the sand fields. Because the dunes are

continually shifting and accumulating sand, perennial plant cover is very low, and much of the surface is barren for most of the year. Vegetation that does occur is largely limited to species such as primrose (*Oenothera*) species, desert dicoria (*Dicoria canescens*), and sand verbena (*Abronia villosa*). Stabilized and partially stabilized sand fields are sand accumulations that lack the structure of sand dunes and are considered a Community of Highest Inventory Priority (CHIP) by the State. In these areas, vegetation grows more readily and consists primarily of a variety of scattered perennial herbs and shrubs. The most visible and abundant type of vegetation within this valley floor community is the creosote bush (*Larrea tridentate*), which is an evergreen shrub. Other perennial shrubs include sand verbena (*Abronia villosa*), dalea (*Dalea*) species, and burrobush (*Oenothera deltoides*). Plants that have been identified in sand fields near the Whitewater River flood channel include four-winged saltbush (*Atriplex canescens*), Indian ricegrass (*Achnatherum hymenoides*), sandpaper plant (*Petalonyx thurberi*), and Devil's lantern (*Oenothera deltoides*).

The planning area contains two active sand transport systems. Sand accumulations in the Willow Hole-Edom Hill Preserve are dominated by extensive mesquite thickets that are supported by a high water table and blowing sand. The Willow Hole-Edom Hill Preserve provides critical blowsand habitat to the Coachella Valley Fringe-Toed Lizard and other sensitive species. Historically, the valley floor, particularly along the Whitewater River, has functioned as an active sand transport corridor for aeolian deposits blowing from the northwest. However, urban development in Cathedral City and Palm Springs to the west has restricted sand movement and resulted in a loss of this sensitive habitat.

Most of the development within the planning area and the region has occurred along the valley floor. As a result, the open space lands that comprise the valley floor habitat are largely fragmented and disturbed. As development and growth continue, this habitat will continue to shrink, removing valuable examples of plants and wildlife.

### **Sandy Washes**

The desert wash habitat consists of channels and watercourses that drain the mountains surrounding the Valley. As washes emerge from canyon mouths, they form deep channels that cut through the alluvial plain. Farther from the canyons, washes become shallower, broader and less defined, and the physical differences between the washes and the alluvial plain diminish.

The Desert Dry Wash Woodland plant community typically occurs in gravelly washes, although it is known to occasionally integrate with the valley floor's creosote bush scrub community. The Dry Wash Woodland is dominated by palo verde (*Cercidium floridum*) and smoke tree (*Psoralea spinosus*), but also includes desert willow (*Chryopsis linearis*), desert lavender (*Hyptis emoryi*), and cheesebush (*Hymenoclea salsola*). This vegetation community occurs at the Willow Hole-Edom Hill Preserve, as well as limited locations along the Whitewater River.

Desert wash habitat often serves as travel corridors for wildlife that are supported by both the wash and the alluvial plain habitats. Birds are generally abundant in desert washes. Typical species include verdin, phainopepla and black-tailed gnatcatcher. The largest desert washes in the planning area include the Whitewater River Wash, the Morongo Wash and the Long Canyon Wash. Channelization and control structures have been constructed along the majority of the

Whitewater River. However, the Morongo Wash and Long Canyon Wash are located north of the freeway in predominantly undeveloped regions, and still support adequate and viable sandy wash habitat.

### **Alluvial Plain**

Lands south of East Palm Canyon Drive and at the foothills of the Santa Rosa Mountains can be characterized as alluvial plain habitat. This habitat develops on flood-formed fans that extend from mountain canyons such as Cathedral Canyon in the Santa Rosa Mountains. At its highest points near the mountain ridges, the alluvial plain consists of coarse rock and sand that has accumulated from a number of large floods that began shaping the plain during prehistoric times. This material becomes smoother and sandier as the fan continues downward toward the valley floor. The habitat and communities found on these plains transition with increasing distance from the canyon mouths, as the substrate is slowly altered from rocky to sandy deposits.

Sonoran mixed woody and succulent scrub is the dominant plant community of the alluvial plain habitat. This community occurs along the lower slopes of the Santa Rosa Mountains and is widespread, forming the south edge of the Coachella Valley. Sonoran mixed woody and succulent scrub is a variant of the creosote scrub community, and is very typical of the Colorado Desert. Typical plant species found on the lower alluvial plain include creosote bush, indigobush (*Dalea schottii*), dyeweed (*D. emoryi*), catclaw acacia (*Acacia greggii*), smoketree (*Dalia spinosa*) and Palo verde (*Cercidium floridum*). Plant distribution and variety changes farther up the plain, and a variety of cacti including pencil cholla (*Opuntia ramosissima*) and barrel cactus (*Ferocactus acanthodes*), as well as chuparosa (*Belaperone californica*) and desert lavender become increasingly common.

### **Desert Fan Palm Oasis Woodland**

The Desert Fan Palm Oasis Woodland is a sensitive plant community considered to be a Community of the Highest Inventory Priority (CHIP) by the State of California. Its range extends from the Baja Peninsula to Death Valley National Monument, although occurrences of this plant community are discrete and isolated. Oases develop along geologic fault lines where ground water rises near the surface and is capable of supporting dense vegetation. The California fan palm (*Washingtonia filifera*), the largest palm in North America, dominates this community. Mature individuals can grow to 25 meters in height and almost one meter in trunk diameter. Other members of this plant community include desert baccharis (*Baccharis sergiiodes*) and arrowweed (*Pleuchea sericea*). A natural fan palm oasis community occurs at the Willow Hole-Edom Hill Preserve within the planning area, north of Interstate-10. Fan palm oases are also found within canyons of the Santa Rosa and San Jacinto Mountains, where natural streams flow from the snowmelt and runoff.

This habitat provides important cover and food to migrating and wintering birds as well as birds of prey such as the golden eagle (*Aquila chrysaetos*) and the prairie falcon (*Falco mexicanus*). Other wildlife found within the desert fan palm community include the southern yellow bat, common kingsnake, desert slender salamander (*Batrachoseps aridus*), and the giant palm-boring beetle (*Dianpate wrightii*). The Peninsular Bighorn sheep often visit the oases in the Santa Rosa Mountains to make use of the natural supply of water that flows through the woodland.

### **Rocky Slopes Habitat**

The Santa Rosa Mountains , which extend from the edge of the alluvial plain at the south end of the planning area, comprise the rocky slopes habitat. This habitat is characterized by steep slopes and continuous rock that is either weathered and fractured bedrock, or broken and displaced into loose debris of sand, pebbles and stone. Because of the sharp slopes and extensive rock surfaces on the lower slopes, this habitat appears incapable of supporting vegetation. However, the rocky slopes habitat supports up to 102 perennials and 115 annual species. Plant density and size increase with elevation and associated increases in annual rainfall. Plants of the rocky slopes habitat include creosote bush, brittlebush (*Encelia farinosa*), burrobush (*Ambrosia dumosa*), agave (*Agave deserti*), Ocotillo (*Fouquieria splendens*), spike moss (*Selaginella eremophila*), Parry's cloak fern (*Notholaena parryi*), arrowleaf (*Pleurocoronis plurisetata*), pigmy cedar (*Peucephyllum schottii*), bedstraw (*Rubiceae*), and crossosoma (*Crossosoma bigelovii*).

The rocky hillsides of the Santa Rosa Mountains, provide habitat for a different variety of plants and animals from those on the valley floor. Connectivity with the vast areas of wildlands in the Santa Rosa Mountains allows for the presence of wide-ranging animals, including bighorn sheep, as well as predators such as prairie falcon, golden eagle, bobcat and mountain lion.

### **SENSITIVE, RARE AND ENDANGERED SPECIES**

As noted above, the Cathedral City planning area contains a wide range of significant biological resources. A number of these resources are species of plants and animals that are highly specialized and endemic to a single habitat. Due to the loss of viable habitat, some of these species have been listed as threatened or endangered by the federal and state governments. "Endangered" species refers to those with such limited numbers that they are considered in imminent danger of extinction, while "threatened" species are those that are likely to become endangered, particularly on a local scale, within the foreseeable future. "Sensitive" species are those that are naturally rare and that have been locally depleted and put at risk by human activities. Although the perpetuation of a sensitive species does not appear to be significantly threatened, they are considered vulnerable and are often candidates for future listing. The following tables list the endangered, threatened or sensitive species within the planning area.

**Table IV-1  
Sensitive Species Occurring or Potentially Occurring  
In the Cathedral City Study Area**

Species Name (Fed/State)	<i>(Scientific Name)</i>	Status
<b>PLANT COMMUNITIES</b>		
Desert Dry Wash Woodland	N/A	ND/CHIP
Sand Dunes and Fields	N/A	ND/CHIP
Desert Fan Palm Oasis Woodland	N/A	ND/CHIP
<b>PLANTS</b>		
California ditaxis	<i>(Ditaxis californica)</i>	FSC/ND
Coachella Valley milkvetch	<i>(Astragalus lentiginosus var. coachellae)</i>	FE/ND
Flat-seeded spurge	<i>(Chamaesyce platysperma)</i>	FSC/ND
Payson's jewelflower	<i>(Caulanthus simulans)</i>	FSC/ND
<b>INVERTEBRATES</b>		
Coachella giant sand-treader cricket	<i>(Macrobaenetes valgum)</i>	FSC/ND
Coachella Valley Jerusalem cricket	<i>(Stenopelmatus cahuilansis)</i>	FSC/ND
Coachella Valley grasshopper	<i>(Spaniacris deserticola)</i>	FSC/ND
<b>AMPHIBIANS AND REPTILES</b>		
Desert tortoise	<i>(Gopherus agassizi)</i>	FT/ST
Desert slender salamander	<i>(Batrachoseps aridus)</i>	FE/SE
Flat-tailed horned lizard	<i>(Phrynosoma mcallii)</i>	FPT/CSC
Coachella Valley fringe-toed lizard	<i>(Uma inornata)</i>	FT/SE
Common chuckwalla	<i>(Sauromalus obesus)</i>	FSC/ND
<b>BIRDS</b>		
Ferruginous hawk	<i>(Buteo regalis)</i>	FSC/CSC
Golden eagle	<i>(Aquilachrysaetos)</i>	ND/CSC
Merlin	<i>(Falco columbarius)</i>	ND/CSC
Prairie falcon	<i>(Falco mexicanus)</i>	ND/CSC
Peregrine falcon	<i>(Falco peregrinus)</i>	FE/SE
Burrowing owl	<i>(Athene cunicularia)</i>	FSC/CSC
Crissal thrasher	<i>(Toxostoma crissale)</i>	ND/CSC
LeConte's thrasher	<i>(Toxostoma lecontei)</i>	FSC/CSC
Southwestern yellow flycatcher	<i>(Empidonax trailii extimus)</i>	FPE/SE
Least Bell's vireo	<i>(Vireo bellii pusillus)</i>	FE/SE
Yellow warbler	<i>(Dendroica petechia brewsteri)</i>	ND/CSC
Yellow-breasted chat	<i>(Icteria virens)</i>	ND/CSC
Summer tanager	<i>(Piranga rubra)</i>	ND/CSC
Osprey	<i>(Pandion haliaetus)</i>	ND/CSC
Northern harrier	<i>(Circus cyaneus)</i>	ND/CSC

**Table IV-1 (Continued)  
Sensitive Species Occurring or Potentially Occurring  
In the Cathedral City Study Area**

Species Name (Fed/State)	<i>(Scientific Name)</i>	Status	
Sharp-shinned hawk	<i>(Accipiter striatus)</i>	ND/CSC	
Cooper’s hawk	<i>(Accipiter cooperii)</i>	ND/CSC	
Long-eared owl	<i>(Asio otus)</i>	ND/CSC	
Southwestern willow flycatcher	<i>(Empidonax traillii extimus)</i>	FPE/SE	
Vermilion flycatcher	<i>(Pyrocephalus rubinus)</i>	ND/CSC	
Bendire’s thrasher	<i>(Toxostoma bendirei)</i>	ND/CSC	
Loggerhead shrike	<i>(Lanius ludovicianus)</i>	ND/CSC	
<b>MAMMALS</b>			
California leaf-nosed bat	<i>(Macrotis californicus)</i>	FSC/CSC	
Spotted Bat	<i>(Euderma maculatum)</i>	FSC/CSC	
California mastiff bat	<i>(Eumops perotis californicus)</i>	FSC/CSC	
Yuma myotis	<i>(Myotis yumanensis)</i>	FSC/CSC	
Western small-footed myotis	<i>(Myotis ciliolabrum)</i>	FSC/ND	
Pale big-eared bat	<i>(Plecotus townsendii pallescens)</i>	FSC/CSC	
Pallid bat	<i>(Antrozous pallidus)</i>	ND/CSC	
Pocketed free-tail bat	<i>(Tadarida femorosacca)</i>	ND/CSC	
Palm Springs ground squirrel	<i>(Spermophilus tereticaudus)</i>	FSC/CSC	
Palm Springs little pocket mouse	<i>(Perognathus longimembris ssp. bangsi)</i>	FSC/CSC	
Southern grasshopper mouse	<i>(Onychomys torridus ssp. ramona)</i>	FSC/ND	
American badger	<i>(Taxidea taxus)</i>	ND/CSC	
Peninsular bighorn sheep	<i>(Ovis canadensis cremnobates)</i>	FE/ST	
<b>Status Definitions:</b>			
FE	Federally listed as “Endangered”	FT	Federally listed as “Threatened”
FPE	Federally proposed or petitioned as “Endangered”		
FSC	Federal Species of Concern; this category replaces the previous “Category 2 Candidate		Species”,
	which was discontinued in February 1996 (U.S. Fish and Wildlife Service 1996).		
SE	State listed as “Endangered”	ST	State listed as “Threatened”
CSC	California Species of Special Concern	ND	Species not designated

### **Ecosystem Management and Biodiversity Protection**

Human life is inextricably linked to the natural environment. Native species provide us with a number of life-sustaining resources and services. Soil formation, waste disposal, air and water purification, nutrient cycling, solar energy absorption, and management of biogeochemical and hydrological cycles are all dependent on biodiversity. The Earth's ecosystems are composed of these interactions between species and the natural environment and represent the culmination of historic evolutionary processes of long standing. The complexity of these systems is not yet fully understood, but it is clear that each member of an ecosystem has an important role to fulfill.

Humans are the most dominant organisms on the earth, making use of more than half of the world's terrestrial ecosystems. While utilization of natural resources is necessary for human survival, many of our current practices are often disruptive and damaging to ecological processes and to the natural environment. The conversion of natural habitat to human uses is the largest single cause of biodiversity losses.

An important step towards protecting biodiversity is through the careful management of natural communities and ecosystems. Ecosystem management attempts to integrate ecological, economic and social goals in a unified approach. It recognizes that we cannot have sustained progress toward social goals in a deteriorating environment or economy, or vice versa. Each of these domains affects, and is affected by the others. Adapting legislation to restore, maintain and safeguard ecological systems will ensure the well being and security of future generations.

### **Public Land Agencies and Ecosystem Management**

In addition to regulations and legislation regarding biological resources, there are also several public land agencies and non-profit organizations that focus on thoughtful ecosystem management and biological resource protection. While many of the lands that are owned and managed by these agencies and organizations provide for varying degrees of disturbance from recreational uses, the mandate for most is the safeguarding of cultural, scenic and biological resources.

Within the Valley there are several of public land agencies and non-profit organizations which work together frequently in managing the Valley's open space lands. Some of these agencies include the National Park Service, the United States Forest Service, the Bureau of Land Management as well as California state agencies including the California Department of Fish and Game, and the California Department of Parks and Recreation. Predominant non-profit organizations include the Mountains Conservancy and the Nature Conservancy.

### **Endangered Species Act**

The U.S. Endangered Species Act (ESA) of 1973 provides much needed protection to biological resources, and is a dominant force in biodiversity protection. Congress passed the Endangered Species Act to "provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of these species." The Department of the Interior, acting through the U.S. Fish and Wildlife Service, is responsible for the protection of most threatened and endangered species. The Department of Commerce, through the National Marine Fisheries Service, has responsibility for marine mammals and anadromous fish. The structure of the ESA can be broken down into the following components:

1. Listing of species and designation of critical habitat,
2. recovery planning, and
3. prohibitions and exceptions to prohibitions.

#### *Listing Endangered and Threatened Species*

An "endangered" species is any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range, while a "threatened" species is any species of

animal, or plant that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

"Candidate" species is a species for which substantial information is available to support a listing proposal, but for which a lack of funding and personnel preclude listing. The Secretary of the Interior is required to publish "notices of review" which list the status of candidate species. Currently (2001), the United States has 972 species on its endangered species list, 272 threatened species and 173 candidate species - many of which have remained on the candidate list for more than a decade. Species can be added to the list of endangered or threatened species for five reasons:

1. Current or threatened destruction of habitat;
2. Overuse of the species for commercial, recreational, scientific or educational purposes;
3. Disease or predation;
4. Ineffective regulatory mechanisms; and
5. Other natural or manmade factors affecting the species chances of survival.

#### *Protecting Critical Habitat*

Critical habitat is defined as the geographic area containing physical or biological features essential to the conservation of a listed species, or an area that may require special management considerations or protection. Neither federal agencies nor private landowners may destroy or adversely modify critical habitat of any listed species. More than 80 percent of all species listed as either threatened or endangered have no designated critical habitat.

#### *Recovery Planning For Threatened and Endangered Species*

The Endangered Species Act requires the Service to develop and implement recovery plans for all threatened and endangered species that occur in the United States. Recovery plans set forth what is needed for a species to "recover" to the point that it no longer needs the protections of the ESA. The plans must include specific management recommendations for the species and objective, measurable criteria which, when met, would signal the recovery of the species.

#### *Prohibited Actions under the Endangered Species Act*

The Act establishes broad prohibitions against "taking" endangered or threatened species. In other words, on both public and private lands of the U.S., it is illegal "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" threatened or endangered animals. The Service has defined "harm" to include significant destruction of a species' habitat that results in actual death or injury.

#### *Incidental Take Permits and HCPs*

The ESA contains an exception to the strict prohibition against "take" in which the Service may permit a project to go forward and destroy threatened and endangered species and their habitat as long as the taking is "incidental" to, and not the purpose of, the project. This permit is commonly referred to as an "incidental take permit" (ITP).

The Service cannot issue an ITP unless the permit applicant submits a conservation plan known as a "Habitat Conservation Plan" (HCP). HCPs must specify the proposed project's impact to the species and include mitigation measures which will reduce the project's impacts. The City is a participant in the Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) which is intended to protect a number of species (please see further discussion below).

### **California Endangered Species Act**

The California Endangered Species Act (CESA), administered by the California Department of Fish and Game, largely parallels the federal law, and provides similar requirements and mandates to those described above. CESA, however, goes further than the ESA in that it prohibits the taking of both endangered species and those petitioned for listing at the state level. CESA also includes plant species under its protection, where the federal ESA only protects plants on federally owned lands or where there is a federal nexus. In Cathedral City and other Valley communities, local government is responsible for ensuring that all proposed projects conform to the standards and mandates of both the federal and state Acts. The MSHCP conforms to the standards of both laws, in order to receive incidental take permits from both the federal and state governments.

### **Habitat Protection**

While the ESA is a powerful tool for biological resource protection, it generally focuses on individual species, rather than entire biological communities. Nevertheless, the driving force behind today's decline in species is the destruction, degradation and fragmentation of critical and essential habitat due to increasing human population and conversion of valuable open space land to urban uses. Human exploitation of our resources is the primary cause of habitat loss, degradation and fragmentation.

While habitat loss and degradation are obvious threats to species survival, habitat fragmentation is a less obvious threat. Habitat fragmentation has two parts: a decrease in the habitat type; and the allotment of the remaining habitat into smaller, more isolated pieces. The problems that arise from habitat fragmentation include smaller populations due to small amounts of habitat, isolation of populations into fragmented parts with less genetic diversity, and potential increase in predators, competitors and parasites. As a result, habitat fragmentation is one of the greatest threats to species and the ecosystems they rely upon for survival.

Habitat protection and the widespread preservation of ecosystems provide support for maximum biological diversity, and ensure the long-term protection of all species. The efforts being made through the MSHCP propose to protect these ecosystems, and provide long-term viability for the species included in the Plan.

### **Santa Rosa and San Jacinto Mountains National Monument**

On October 24, 2000, the President of the United States signed legislation creating the Santa Rosa and San Jacinto Mountains National Monument. The new Monument encompasses approximately 272,000 acres within the Santa Rosa and San Jacinto Mountains, with lands administered by the Bureau of Land Management (BLM), the U.S. Forest Service (USFS), California Department of Fish and Game (CDFG), the California Department of Parks and Recreation, the Agua Caliente Band of Cahuilla Indians, and the Coachella Valley Mountains

Conservancy in cooperation with the county, adjacent cities and private owners. The National Monument designation provides further protection and preservation of nationally significant biological, cultural, recreational, geological, wilderness, educational, and scientific resources. The benefits of the Monument designation include the enhanced potential for funding opportunities, increased cooperative management between the federal land agencies, and additional protection for the area's natural resources.

### **Willow Hole-Edom Hill Preserve**

The Willow Hole-Edom Hill Preserve was established, as previously stated, to assist in preserving the federally listed Coachella Valley Fringed-toed Lizard, in the northern planning area of the City. The preserve, created through the implementation of the HCP for this species, provides an important environment for blowsand endemic species, and has grown over time to include 2,469 acres. Important biological resources found on the preserve include mesquite hummocks, a fan palm oasis, and habitat for the Coachella Valley milk vetch, Little San Bernardino Mountains gilia, Palm Springs ground squirrel, Palm Springs pocket mouse, burrowing owl, crissal thrasher, and the Coachella Valley giant sand treader cricket. The preserve is classified as an Area of Critical Concern (ACEC), with lands owned primarily by the Bureau of Land Management.

### **Coachella Valley Multiple Species Habitat Conservation Plan**

The Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP), approved by Riverside County and all Coachella Valley municipalities and with overall management by the Coachella Valley Association of Governments (CVAG), contains principles, policies and regional proposals to conserve the Coachella Valley's biological resources and protect biological diversity on a regional scale. Within Cathedral City, MSHCP lies within the North City Specific Plan area north of Interstate-10. The MSHCP is intended to balance environmental protection and economic development objectives and simplify compliance with endangered species-related laws.

The MSHCP's ecosystem approach recognizes the fragile and interconnected nature of biological communities, and focuses on entire natural systems. The Coachella Valley MSHCP is intended to provide a seamless network of adequate habitat for the protection and safekeeping of long-term viable populations of the species that are currently listed as threatened or endangered.

## **FUTURE DIRECTIONS**

The Coachella Valley Multiple Species Habitat Conservation Plan is a good opportunity for the City of Cathedral City to work towards long-term protection of important biological resources. Not only does the plan preserve important plant and animal species, it also establishes a regional ecological system that will be able to support important and intact ecosystems and communities. The City needs to find ways to make the built environment more harmonious with the natural environment, and establish means for doing so. This can be achieved by implementing the General Plan, and through thoughtful adoption of Zoning, Subdivision and Grading Ordinances. The City also has the opportunity to regulate growth and limit impacts through community planning and development regulation.

**Exhibit IV-1: Natural Plant Communities Distribution**

**Exhibit IV-2 Coachella Valley Milkvetch Core Habitat**

**Exhibit IV-3: Giant Sand Treader Cricket, Desert Tortoise, and Flat-Tailed Horned Lizard  
Core Habitat**

**Exhibit IV-4: Sensitive Birds Species Core Habitat**

**Exhibit IV-5: Palm Springs Ground Squirrel and Palm Springs Pocket Mouse Core Habitats**

**Exhibit IV-6: Peninsular Bighorn Sheep Critical Habitat**

**Exhibit IV-7: Coachella Valley Fringed-Toed Lizard HCP Fee Mitigation Area**

## **GOALS, POLICIES AND PROGRAMS**

### **Goal 1**

Preservation and protection of the unique biological resources in the City and planning area.

### **Goal 2**

A functional, productive, harmonious and balanced relationship between the built and natural environment.

### **Policy 1**

The City shall continue to participate in the preservation of habitat for endangered, threatened and sensitive species.

#### **Program 1.A**

Through the Coachella Valley Association of Governments, maintain an accurate and regularly updated map on sensitive plant and animal species and habitat in Cathedral City and its planning area.

**Responsible Agency:** Planning Department

**Schedule:** Continuous

#### **Program 1.B**

The City shall continue to be an active participant in the Coachella Valley Multiple Species Habitat Conservation Plan, and shall take particular interest in habitat located in the northern planning area and in the Santa Rosa Mountains adjacent to the City.

**Responsible Agency:** Planning Department, CVAG

**Schedule:** Ongoing

#### **Program 1.C**

City staff will continue to request biological resource surveys for new development in compliance with applicable state and federal requirements.

**Responsible Agency:** Planning Department

**Schedule:** Continuous

#### **Program 1.D**

When considering development proposals near the Willow Hole-Edom Hill Preserve, the City will require developers to consider the impacts of their project on wind-blown sand, and encourage creative design techniques, such as units clustering and open space areas, in project design.

**Responsible Agency:** Planning Department

**Schedule:** Continuous

### **Policy 2**

As part of the development review process, projects shall be evaluated for the project's impacts on existing habitat and wildlife, and for the land's value as viable open space.

**Program 2.A**

The City shall participate in the project review process Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP).

**Responsible Agency:** Planning Department

**Schedule:** Continuous

**Program 2.B**

The City shall encourage developers to recover native and drought tolerant plant materials, and incorporate them into project landscaping, to provide or enhance habitat and serve to extend the local desert environment into the urban design of the City.

**Responsible Agency:** Planning Department

**Schedule:** Continuous

**Program 2.C**

The City shall distribute a listing of planting materials which emphasizes native vegetation, but may also include non-native, plants which are compatible with the local desert.

**Responsible Agency:** Planning Department

**Schedule:** 2002-2003

**Policy 3**

Encourage and cooperate with other agencies in establishing multiple use corridors that take advantage of drainage channels and utility easements as wildlife corridors, public access and links between open space areas and the built environment.

**Program 3.A**

Consult and coordinate with relevant public and quasi-public agencies, including Riverside County Flood Control and Southern California Edison, to encourage the establishment of a system of multiple use wildlife and public access corridors.

**Responsible Agency:** Planning Department; Riverside County Flood Control; Southern California Edison

**Schedule:** 2002-2003, Ongoing

**Policy 4**

Assure that sensitive habitat and wildlife areas, as well as state and federal lands, are appropriately buffered from the built environment.

**Program 4.A**

The General Plan Land Use, Circulation and Open Space and Conservation Element shall recognize, reflect and provide an effective buffer between urban land use and development and valuable and sensitive habitats and natural communities within the Santa Rosa Mountains, the Edom Hill-Willow Hole Preserve, the Coachella Valley Multiple Species Habitat Conservation Plan and other open space and conservation lands.

**Responsible Agency:** Planning Department; Planning Commission; City Council

**Schedule:** Continuous

**Policy 5**

Promote the protection of biodiversity and proactively encourage an appreciation for the natural environment and biological resources.

**Program 5.A**

Encourage the Palm Springs Unified School District and other organizations such as The Living Desert, to provide educational programs which offer an understanding of the region's natural environment and make the public aware of biological resource issues.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

# ***ARCHAEOLOGICAL AND HISTORIC RESOURCES ELEMENT***

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## **PURPOSE**

The purpose of the Archaeological and Historic Resources Element is to set forth goals, policies, and programs intended to preserve the cultural heritage and historic traditions of the City of Cathedral City and its vicinity. It provides the basis for the identification and preservation of these valuable resources. The Element also references other information sources that provide detailed descriptions and evaluations of archaeological and historic resources within the General Plan planning area.

For the purpose of this element, archaeological and historic resources are divided into three separate discussions, prehistoric, historic and locally significant. These divisions are based on time periods, and the differing cultures and events of those times. While they represent different components of the City's history, they all are equally important to the preservation of the City's and Valley's unique heritage.

## **BACKGROUND**

The Archaeological and Historic Resources Element is directly related to several other General Plan elements, including Biological Resources, Land Use, and Open Space and Conservation. It may also influence the Community Image and Urban Design Element.

The issues addressed in the Archaeological and Historic Resources Element are some of those identified in subdivision (b) of California Government Code Section 65560 and Public Resources Code Section 5076. The California Environmental Quality Act (CEQA), Section 21083.2(g), also requires the City to document, or cause to be documented, cultural resources when the potential for significant resources exists. The General Plan EIR contains a detailed discussion of prehistoric and historic settlement in the Coachella Valley, as well as identification of significant sites and features. The EIR also addresses potential impacts resulting from implementation of the General Plan.

Cultural traditions and artifacts serve as important links between the past, present, and future. They are an integral part of community life and provide a meaningful sense of heritage and history. Numerous archaeological sites, established by Cahuilla Indians as early as 1500 years ago, have been identified throughout the Coachella Valley. The region also contains important historic features, including roads and trails, which were used by early European settlers beginning in the late eighteenth century.

Eight structures in the planning area are listed in the California Office of Historic Preservation's Historic Property File for Riverside County. They were established during the early 1900's, as Cathedral City was beginning to define itself as a resort and residential community.

### **Prehistoric Times**

The prehistoric period refers to the time prior to the arrival of non-Indians, when native lifestyles and traditions remained essentially undisturbed, strong and viable. The prehistoric period in the Coachella Valley is generally divided into the Late Prehistoric and Archaic Periods. The transition between these two periods is generally considered to be around AD 1000, and is identified by the introduction of ceramics into the region from the Colorado River cultures. For this reason, the Archaic Period is generally referred to as the "pre-ceramic" period. Also significant during prehistoric times was the introduction of the bow and arrow, approximately around AD 500, and the change from burial practices to cremations, around 500 BC.

### **The Cahuilla**

The Cahuilla people were the first known inhabitants that settled in the Coachella Valley. According to archaeologists, the Cahuilla came from the north approximately 2,000 to 3,000 years ago. They are thought to have migrated south from the Great Basin region of Nevada, Utah, and eastern California. The descent of these native peoples has been derived from linguistic relationships, which has offered traces of their ancestral past. The Cahuilla belong to the Uto-Aztecan language family, and are a Takic speaking people. Other people that belonged to the Takic group are the Serrano, Luiseño, and Gabrieliño people, who are located within the surrounding regions of southern California.

The Cahuilla are generally divided into three groups by anthropologists, according to their geographic locations in the region; the Pass Cahuilla of the San Gorgonio Pass/Palm Springs area; the Mountain Cahuilla of the San Jacinto and Santa Rosa Mountains and the Desert Cahuilla of the eastern Coachella Valley. All three groups spoke the Cahuilla language, had similar lifestyles and practiced the same traditions. The following discussion provides general information on their environment, way of life and society, as well as historical and present day information.

### **The Cahuilla and Their Environment**

The range of the Cahuilla people today is in the same general location within the Coachella Valley that was inhabited by their ancestors 2,000 to 3,000 years ago. The Coachella Valley provided the people tall mountains, deep valleys, rocky canyons, passes and arid desert land for sustenance, shelter and places to escape the heat or the cold. Many of the Desert Cahuilla lived around ancient Lake Cahuilla, which was located where the Salton Sea is today, and at times extended as far north as the City of La Quinta. Remains indicate that these people ate fish, shellfish, water plants and birds as well as land animals and plants. However, when the lake dried out around AD 1500, these people had to rely more heavily on the nearby hills and mountains for water, food and shelter.

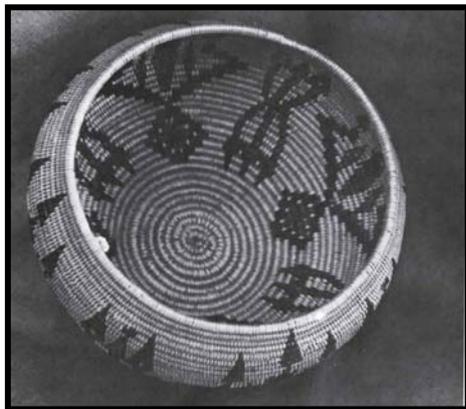
Plants were very valuable to the Cahuilla, as they provided the majority of materials necessary for shelter, clothing, and tools, as well as the majority of the people's food. The most important Cahuilla food plant was the mesquite tree, which offered blossoms and beans for sustenance.

Dried bean pods would be ground into a meal for cake or gruel, while the ripened pods were crushed and made into a beverage. The Cahuilla also used over sixty different plants in their diet, including cacti, agave, yucca, fan palm trees, pinyon trees and other seed or fruit producing plants. In more recent times, the Cahuilla also grew crops of corn, squash, beans and melons, which they acquired from the tribes of the Colorado River.

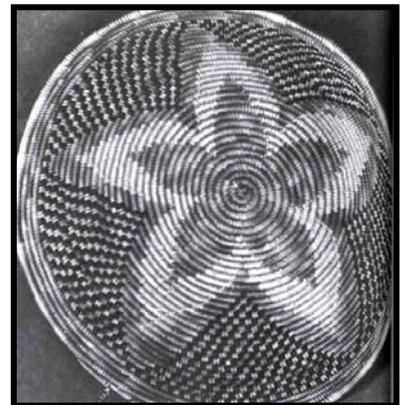
Although there was a great deal of emphasis on plant foods, many animals were also hunted and trapped for food and other raw materials. Large game animals, including mule deer, mountain sheep and pronghorn were favored because of the quantity of food and materials that could be collected from them. While they were hunted throughout the year, they were often hard and dangerous to kill. For that reason, small game animals including squirrels, rabbits and mice provided the bulk of the meat protein in the Cahuilla diet, because of their large numbers and ease of capture. In addition to food, the large and small game also provided hides and fur for blankets and clothes, as well as bones for tools and utensils.

### **Settlements and Manufactures**

Cahuilla settlements usually were clustered around hand dug wells and water holes, and many were near streams that flowed from canyons at the base of the San Jacinto and Santa Rosa Mountains. Communities were permanent as long as water supplies lasted. Cahuilla dwellings consisted of substantial rectangular structures with forked mesquite posts that held roof beams. Along the sides and on the beam tops were arranged lengths of palm fronds and brush, which were held in place by horizontal poles fastened to the thatches. On some houses the brush was smeared with a coat of mud, and a layer of dirt was added to the roof. At the front of the house was a porch, which was constructed like a house but walled only on the windward side. Settlements also included a bathhouse that was framed with posts and poles, and built into a shallow pit. The social and ceremonial leader occupied the dance house, which was forty feet in diameter with walls of fitted boards and a palm-thatched roof. At the back of the house was a room where the sacred bundle was kept, and at the front of the structure was a fenced enclosure.



An aboriginal house stayed relatively cool even in the hottest weather, the inside staying dark, with natural light filtered in only through the doorway. Toward the center of the structure was a fireplace that was encircled by cooking pots. At the back of the house, blankets and animal skins served as mattresses. Attached to the roof beams were bundles of plants or dried meat for future



use. Most artifacts around a settlement were made from plant fibers. Baskets of varied sizes and shapes were fashioned for use as utensils and food storage containers. Inside the settlements were grinding stones, which consisted of a concave stone called metate and a smaller, hand held stone called a mano.

**Cahuilla Indian Baskets**

### *Social Structure and Organization*

The broadest level of social identification and organization for the Cahuilla was the overall group of persons speaking the Cahuilla language and recognizing a commonly shared cultural heritage. However, there is no indication that the Cahuilla as a whole united for any activity as a single unit prior to European contact, but some organization did take place shortly after that time. The Cahuilla culture was seen as distinct from other Takic speaking people, and cultural nationality was determined by birth, language and socialization.

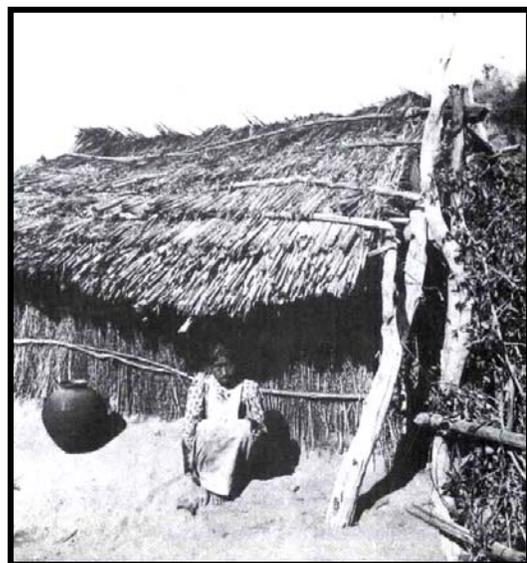
The next level of organization was the moiety, which was a social entity that had more precise definitions of membership. The Cahuilla were divided into two moieties, the wildcats (*Mukat*) and the coyotes (*Tamaioit*), which were important entities of Cahuilla mythology. Every Cahuilla was a member of his or her father's moiety. The function of this division of social organization was to regulate marriage and ritual reciprocity and continuity. The members of one moiety could only marry a member of the opposite moiety. The moieties also served an economic and ceremonial function at most Cahuilla rituals, at which inter-moiety cooperation was mandatory.

The 'sib' is the next unit of organization, and was composed of a number of lineages, varying from three to ten. Each group was named and claimed a common ancestor to which all others were related to varying degrees. The sib was a political unit, an economic-corporate unit, and a ceremonial unit. The leader (*net*) of a sib directed subsistence activities, was the mediator in intra-sib disputes, and was responsible for the correct performance of ceremonies. The sib also united for the protection of its resources; when large communal hunting activities were undertaken; or at times of impending or real disaster (floods, droughts or earthquakes).

The social organization of the Cahuilla had many adaptive and advantageous functions. The moiety principle set up a reciprocal social system. It regulated marriage, requiring that each Cahuilla lineage exchange women with another lineage of the opposite moiety. This helped to ensure the expansion of economic and political alliances to several other groups. The lineage principle defined group membership and food-producing areas. The delineation of the groups within geographical areas minimized the possibility of conflict over food resources, and guaranteed that food-producing areas were exclusively available to particular groups of people.

### *Historic Changes in Cahuilla Life*

The first Europeans to meet the Cahuillas were a group of Spaniards who came to the territory in the company of Indians from Mexico, under the direction of Juan Bautista de Anza. In 1774, Anza and his men set out to look for a good, easily passable land route between the state of Sonora in Mexico and the Monterey Peninsula of California, where one of the earliest missions was established. However, because the Valley was inland and isolated from Spanish



**Cahuilla Indian Structure**

outposts, the Cahuilla at first had little contact with the Spanish soldiers, priests and civilians. However, in the early 1800s, the Cahuilla began to hear more about mission life, and many began visiting them and returning with new material goods. By 1819, several missions were established, including those near San Bernardino, Santa Ysabel and Pala, and many Cahuilla were learning to speak Spanish. In addition, the Cahuilla were learning European farming techniques, raising cattle and using horses for farming, herding and transportation. Although the Cahuilla were acquiring new skills and abilities from the Spanish, they used them only to supplement their traditional practices. Despite all the changes that were brought by the Spanish, the Cahuilla remained economically and politically independent.

In 1822, the Mexicans succeeded in driving the Spanish forces out of Mexico and California. This change in power also brought change to the inland area. Mexicans began exploiting land for agriculture and ranching, including Cahuilla land. Many of the Cahuillas began working as skilled laborers on the ranches, and the Mexicans relied on them for ranch labor and management. By 1848, the United States had gained control over California, and was taking up much of the land. In the same year, gold was discovered and Americans began passing through the area in increasing numbers on their way to the gold fields. They also began taking choice hunting and food gathering lands, away from the Cahuillas. By the 1850s, the relationship between the Cahuilla and the non-Indians had become tense. The non-Indians viewed Cahuilla territory as desirable land, and conflicts arose over who had the right to own and use the land. In 1862 and 1863 a small pox epidemic killed many Cahuilla. The Cahuilla population, which had been as high as 6,000 to 10,000, was diminished to only 2,500. The Cahuilla could no longer make a strong stand against outsiders, whose populations in the area were growing rapidly.

In the late 1870s the first reservations were established for the Cahuilla people. These included the Cahuilla, Torres-Martinez, Cabazon and Morongo reservations. However, land on these reservations was not very well protected by the law, and many settlers continued to use Indian land for themselves. Therefore in 1891, the Mission Indian Relief Act was enacted, which formally established reservation land for the Indians of southern California. For Indians in and around the Palm Springs and Cathedral City area, the act set aside 32,000 acres for reservation land in a checkerboard pattern. While setting up reservations and defining boundaries, the Act actually took land away from the Cahuilla. After the reservation act went into effect, the Cahuillas were left with two-thirds of the land they had controlled prior to 1891. Reservation life also changed Cahuilla traditions, more so than their first contact with the Spanish and the Mexicans had. Traditional hunting and harvesting techniques were no longer sufficient to feed people. Instead, Cahuillas became more reliant on farming, cattle ranching, land rentals, wage labor and employment on the reservations.

#### *Cahuilla Life in Present Times*

Conflicts over land rights continued into more recent times. However, as more laws were enacted the Cahuilla were able to adapt more efficiently to the changing times. In 1959 two bills passed that helped to provide the Cahuillas with more economic stability. The equalization bill allotted land to all tribe members who had not receive land allotments, and ensured that the allotments were to be based on 1957-1958 appraised land values. The second bill provided that reservation lands could be leased for a period not exceeding ninety-nine years. The first large enterprise on leased land was the Palm Springs Spa Hotel complex. The spa was completed in 1960 at a cost

of \$1.8 million. In the 1970s, a court decision found that Indians have control over the zoning of their lands within a city. As a result, the City of Palm Springs and local Indian planning commissions began to work together for mutual benefit. Similar arrangements have been negotiated with both Cathedral City and Rancho Mirage.

In recent times, the Cahuilla have turned increasingly toward an emphasis on their heritage. Cahuilla work as consultants to cultural anthropologists and on archaeology field crews. Efforts are also being undertaken to preserve the Cahuilla language and other traditional aspects of their culture. Consequently, the Agua Caliente Band have opened a museum that teaches about the traditional lifestyles and practices of their ancestors, establishes a sense of roots for modern day Cahuilla, and helps to revitalize their heritage.

### **Prehistoric Resources in the Planning Area**

Several research methods were utilized to help identify archaeological resources in the planning area. A records search was conducted at the Eastern Information Center (EIC), University of California, Riverside. The EIC maintains records and maps of previously recorded archaeological resources. For information on possible sites of Cahuilla traditional cultural value, research was also done in the current scholarship on Cahuilla culture and history. A field reconnaissance was also conducted to inspect the current conditions of previously recorded properties.

According to the EIC, the Cathedral City area has not been extensively surveyed for cultural resources. In all, less than one-third of the planning area has been covered by project-related studies. The majority of the studies took place in the northern portion of the planning area on the valley floor and in Indio Hills. In the southern portions of the planning area, several relatively small-scale studies have taken place around Cathedral City's urban core and no archaeological sites were recorded.

In the planning area, only one prehistoric site has been recorded into the California Historical Resource Information System. This site consists of a rock ring feature. Members of the Coachella Valley Archaeological Society report the presence of another prehistoric site in the vicinity of Willow Hole, but the site has never been recorded. There are however, six locations within, or in close proximity to the planning area that have been identified by Cahuilla cultural authorities to be of potential cultural significance. Four of the six are found along the foot of the San Jacinto Mountains, near the southern end of the planning area, while the fifth is situated in the Whitewater River bed in the same general vicinity. All five of these locations are associated with the various streams or canyons where water sources were available. The sixth location is situated in the Edom Hill area, in the northwestern portion of the planning area. None of the six sites are located on the valley floor. The six locations of cultural value are listed in the table below. Sites are shown in Exhibit IV-8.

**Table IV-2**  
**Sites of Cahuilla Cultural Value in the Planning Area**

<b>Name</b>	<b>Location</b>	<b>Remarks</b>
<i>Ca wish is mal</i>	In Cathedral Canyon	"Painted rock," named by Cahuilla cultural hero <i>Evon ga net</i>
<i>Hou wit s sa ke</i>	Near the mouth of Eagle Canyon	"a bear-skin blanket," named by <i>Ca wis ke on ca</i> , a legendary Cahuilla leader
<i>Kick ke san lem mo</i>	Convergence of Palm Canyon Wash and Tahquitz Creek	"The place where the white flowers grow," named by <i>Ca wis ke on ca</i>
<i>Pa hal ke on a</i>	Edom Hill	Named by <i>Ca wis ke on ca</i>
<i>Pa ute em</i>	Whitewater Wash	Named by <i>Evon ga net</i> at the "ground squirrel's home"
<i>Taupakic</i>	Cathedral Canyon	Named by <i>Hiwinut</i> , the legendary "great net (chief)," "where they gathered the mescal"

**Exhibit IV-6: Cahuilla Cultural Sites**

Given the above findings, certain locations within the planning area are regarded as highly sensitive for prehistoric and archaeological sites. The foothills and canyons area along the base of the Santa Rosa Mountains, and the mesquite dunes between Seven Palms Valley and Edom Hill are highly sensitive for prehistoric archaeological resources. The balance of the planning area on the valley floor, in contrast, contains a low sensitivity for prehistoric archaeological resources (see also Exhibit IV-9).

### **Historic Period**

The Historic Period in the Coachella Valley refers to the period of time of the first European contact, which is around the late 1770's. This period ends about the time of World War II, and therefore historic resources generally refer to significant sites that are more than forty-five years of age. Historic resources and sites generally consist of structures or buildings, permanent trails or highways.

### **History of the Coachella Valley**

The primary route through the Coachella Valley was a trading route, known as the Cocomaricopa Trail, which connected the coast to the Colorado River. The route, originally used by the native peoples of the area, was used by early European explorers as early as 1815. In 1862, the Trail was rediscovered by William Bradshaw, and became known as the Bradshaw Trail. It became the primary access between the Los Angeles basin and gold mines in Arizona, until the completion of the Southern Pacific Railroad in 1877. The Bradshaw Trail was once again used in the early 20<sup>th</sup> Century, to create a portion of the "Ocean to Ocean" highway. In the Coachella Valley, Highway 111 today closely follows the Bradshaw Trail, known as East Palm Canyon Drive in Cathedral City.

The Southern Pacific Railroad brought non-Indian settlement in the Coachella Valley in the 1870s, when stations were established, and spread further in the 1880s, after public land was opened for claim under the Homestead Act, the Desert Land Act, and other federal land laws. Traditionally, farming was the dominant economic basis in the valley, thanks in part to the development of groundwater resources. In particular, the completion of the Coachella Canal in 1948-1949, provided an adequate and reliable water supply. The main agricultural staple in the Coachella Valley was the date palm, which was first introduced around the turn of the century. By the late 1910s, the date palm industry had firmly established itself. Starting in the 1920s, the Coachella Valley developed a new industry that consisted of equestrian camps, resort hotels, and eventually country clubs. This industry gradually spread throughout the Valley, transforming the area to a very popular winter retreat.

### **Historic Resources in the Planning Area**

In the early 1980s, the Riverside County Historical Commission commissioned a countywide historical resources reconnaissance, which led to the recordation of eight historic-era buildings within the planning area. All of these were located in Cathedral City's old downtown area, and their construction dates ranged between the mid-1920s and the late 1930s.

**Exhibit IV-9: Potentially Sensitive Areas for Cultural Resources**

Another historic building, located in the northern portion of the planning area has been added to the California Historical Resource Information System since the original survey. It was a 1930s highway service station on Varner Road, formerly a part of the original Ocean-to-Ocean Highway. The site was reported to be in ruins at the time of its recordation. A field survey performed in 2001 found that the majority of the buildings recorded during the 1980s survey have been removed. All of the recorded historical sites are listed in the table below.

**Table IV-3  
Recorded Historic-Era Buildings in the Planning Area**

<b>Property Number</b>	<b>Property Name</b>	<b>Location</b>	<b>Property Type</b>	<b>Year Built</b>
33-5627	Senior Citizen Center*	68-715 A Street	Community Center	1939
33-5628	None	68-537 B Street	Single-family dwelling	1925
33-5629	Desert Exteriors*	68-821 B Street	Residential/commercial	1930s
33-5630	None	37-236 Cathedral Canyon Drive	Single-family dwelling	1920s
33-5631	None**	68-773 D Street	Single-family dwelling	1930s
33-5632	None*	68-918 Dawes Street	Single-family dwelling	1931
33-5633	None*	68-681 Grover Street	Single-family dwelling	1930s
33-5634	Bargain Center*	68902 Highway 111	Commercial building	1920s
33-6885	Ruins of "Old Stone"	Varner Road, east of Mountain View Road	Commercial building	1930s

\*These buildings are no longer present today  
\*\* This building has been significantly altered

### Locally Significant Resources

Because the City of Cathedral City is a relatively new community, the number of historical resources is limited. However, the City does have some sites which are considered locally significant, and worthy of protection. These sites are generally those that contribute to the City's image, culture and integrity. This section focuses on local history and the development and founding of Cathedral City.

### The Founding of the City of Cathedral City

The City of Cathedral City was founded in 1925 by four developers, John Grove, George Allen, Glenn Plumley and M.V. Van Fleet, whose names were given to some of the original streets in the subdivision they created. The name of the town was derived from nearby Cathedral Canyon, which had been known by that name since at least the turn of the century. Created to provide affordable low-to moderate-income housing, the town was characterized by its narrow streets lined by small and often odd-shaped lots, and became known as the "blue-collar neighbor" of Palm Springs.

With the upgrading of present-day Highway 111 in 1927, several motels and restaurants were constructed along the newly paved state highway. At that time the highway was known locally as Broadway, and it formed the core of Cathedral City's downtown commercial district. During the

1930s, the Cathedral City attracted Palm Springs visitors with the opening of two prominent gambling casinos, the Dune Club and 139 Club.

The 1940s and the early 1950s marked a period of relatively rapid growth for Cathedral City. During World War II, the town served as a bedroom community to the military installations established in the vicinity as a part of the war effort. By the mid-1950s, residential development had expanded from the original townsite southward into the cove area, westward along Highway 111, and northward to the Ramon Road corridor. The rural northern portion of the planning area also saw significant growth in the early and mid-1950s. In this area, five-acre parcels were patented by the U.S. government, under the so-called "Baby Homestead Act," to residents of the Los Angeles basin who were looking for weekend retreats in southern California's desert.

During the post-WWII era, Cathedral City and the other cities along Highway 111 became the fastest growing communities in the Coachella Valley, and began to play an increasingly important role in the regional economy. In 1981, Cathedral City was incorporated as the 18<sup>th</sup> city in Riverside County. With a population over 42,000, it is currently (2001) the third largest city in the Coachella Valley.

### **Areas of Sensitivity for Historic Resources**

Although the locations identified in Table IV-3 have been in many cases either lost or altered, certain areas of the City can be considered sensitive for historic resources, parts of the City still contain buildings dating back from the 1910s through the 1950s. These include the downtown area, in the lettered streets; the Cree Road/Palm Valley School Road neighborhood, on the north side of East Palm Canyon, at the western City limit; the area along 20<sup>th</sup> Avenue, in the northern end of the planning area, which was used for ranching; and the Cove neighborhood and the flatlands at Edom Hill and Flat top Mountain, which may contain 1950s era structures. Although none of these areas contain sufficient coherent historic significance to be designated a historic district, individual structures may prove to have significance. Exhibit IV-9 shows sensitivity areas for historic cultural resources.

### **Historic Preservation Programs**

#### **Federal Programs**

The National Park Service and the State Historic Preservation Officers (SHPO) of each state administer the Certified Local Government (CLG) program, which allows local governments to take a much more active role in historic and prehistoric preservation efforts in their communities. Local governments must meet certain requirements to qualify as a CLG, including local ordinances which establish systems and standards for the preservation of resources. CLGs can also take advantage of technical assistance, professional assistance, and other state-wide programs.

The National Register of Historic Places is maintained by the Secretary of the Interior. It provides a national inventory of districts, sites, buildings, structures, objects and other features of national, state or local significance. Properties eligible for listing must meet certain pre-defined criteria. There are no properties within the planning area currently listed on the National Register.

A number of other federal statutes provide programs for the preservation of historic and prehistoric resources, including tax credits for the certified rehabilitation of historic buildings, Community Development Block Grants, and the historic building reservation program which is part of the Transportation Equity Act of 1998.

### **State Programs**

The State Office of Historic Preservation manages California's CLG program, as described above, and provides a number of services to participating local governments. In addition, the state established the California Register of Historical Resources in 1992, which is California's equivalent to the National Register. Two other registers are managed by the Office of Historic Preservation – the California Historical Landmarks register, which identifies properties of statewide historic importance; and the Points of Historical Interest register, which inventories properties of regional importance. Properties which are listed on these registers are eligible for property tax reductions, benefits provided by the California Heritage Fund, alternative building regulations under the Historic Building Code, seismic retrofit tax credits, and historic preservation bond measures. There are no properties in Cathedral City on either register at this time.

### **FUTURE DIRECTIONS**

The lack of identified and recorded resources in Cathedral City does not mean that the City is devoid of these resources. The City's modest beginnings may not have resulted in the high profile development of resort hotels and "movie star hangouts" which have been well documented elsewhere in the Valley, but the City's history is no less significant. Structures and properties within the City may bear preserving, and must be identified early in the development process.

The City of Cathedral City has a rich and interesting history that provides a meaningful sense of heritage to residents and visitors. As the city continues to grow and develop, every effort should be made to identify and preserve the artifacts, places and resources, which have a relation to the City's history. Although many historic structures have already been lost, the City should search for ways to revitalize its past. Furthermore, many present day structures, resources and traditions play a role in the City's cultural values. These resources should be identified and preserved as well for their importance to the City.

### **GOAL, POLICIES, AND PROGRAMS**

#### **Goal**

Identification, preservation, and revitalization of significant cultural, historical and archaeological resources that are valuable to the City of Cathedral City's heritage.

#### **Policy 1**

The City will ensure that sites in archaeologically and historically sensitive areas are surveyed prior to development.

**Program 1.A**

Develop and maintain a database of archaeological and historic resources, incorporating information from the Eastern Information Center (EIC) at the University of California-Riverside, General Land Office Survey, site surveys conducted in the planning area, and other data sources.

**Responsible Agency:** Planning Department; Cathedral City Historical Society

**Schedule:** 2003-2004

**Program 1.B**

City staff shall require, early in the project review process, the preparation of focused cultural resource surveys in areas of known sensitivity.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Program 1.C**

The City shall adopt specific standards for the identification, preservation and maintenance of archaeological and historic sites. These standards shall include professional qualifications for persons performing site-specific surveys.

**Responsible Agency:** Planning Department

**Schedule:** 2002-2003

**Program 1.D**

As part of the development review process, the City shall transmit development applications to the Eastern Information Center for comment.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Program 1.E**

In the event that archaeological resources are identified during construction, the City shall require that development cease, and a professional archaeologist shall be employed to examine and document the site to determine subsequent actions.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Policy 2**

The City shall make every effort to protect sensitive archaeological and historic resources from vandalism and illegal collection.

**Program 2.A**

Mapping and site-specific information shall be kept confidential, and access shall be given only to those with appropriate professional credentials.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Program 2.B**

The preservation of sensitive sites or artifacts in-situ should be considered whenever feasible.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Policy 3**

The City shall encourage the Cathedral City Historical Society to establish a program to qualify and list locally significant resources on available state and federal registers.

**Program 3.A**

The City and Historical Society shall cooperate to complete a city-wide cultural resource inventory to include both prehistoric and historic resources.

**Responsible Agency:** Planning Department; Cathedral City Historical Society

**Schedule:** 2002-2003

**Program 3.B**

The City will consider participating in the Certified Local Government program in order to secure better local control over the management of cultural resources.

**Responsible Agency:** Planning Department; City Council

**Schedule:** 2003-2004

**Policy 4**

Encourage public participation and appreciation of archaeological and historic resources.

**Program 4.A**

Continue to coordinate and cooperate with the Agua Caliente Band of Cahuilla Indians in the identification and preservation of sensitive Cahuilla Indian sites and resources, and the continued expansion of the tribal Cultural Museum.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Policy 5**

Consider offering economic incentives, such as low-interest loans from all possible sources, and application/permitting fee reductions or waivers, to property owners to encourage the maintenance of significant historical and cultural buildings and sites.

**Program 5.A**

Provide property owners with information and guidance on property rehabilitation measures and financing alternatives.

**Responsible Agency:** Planning Department; Redevelopment Agency

**Schedule:** Ongoing

# ***WATER RESOURCES ELEMENT***

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## **PURPOSE**

The purpose of the Water Resources Element is to address issues pertaining to water quantity, quality and availability for current and future City needs. An important aspect of this element is the coordination and cooperation between the City, Coachella Valley Water District, Desert Water Agency and other agencies responsible for supplying water to the area. The element also addresses water consumption trends in the Coachella Valley, groundwater recharge, recycled water and wastewater treatment, and their increasingly important roles in groundwater management. The goals, policies and programs set forth in this element direct City staff and officials in the management of this essential resource.

## **BACKGROUND**

This element is directly related to the Flooding and Hydrology Element, as both address the protection and recharge of groundwater resources; and to the Land Use Element, which potentially directly affects the need for water in the City. Water resource issues are also important components of the Emergency Preparedness, Community Design, Economic Development and Water, Sewer and Utilities Elements of this General Plan.

The Water Resources Element incorporates the requirements of California Government Code Section 65302(d). Also, the Element implements Section 21083.2(g) of the California Environmental Quality Act (CEQA), which empowers the community to require that adequate research and documentation be conducted when the potential for significant impacts to water and other important resources exists.

## **DOMESTIC WATER RESOURCES**

Native Americans in the Coachella Valley were restricted to the direct use and diversion of streams in mountain canyons, the digging of wells to intercept underground aquifers in Indian Wells, and the exploitation of artesian wells along the Banning and Mission Creek Branches of the San Andreas Fault system near Desert Hot Springs for their water.

It was not until the twentieth century that the enormous extent of the groundwater basin underlying the Coachella Valley was recognized. Analysis of groundwater repositories by the U.S. Geological Survey and the California Department of Water Resources has determined that the subsurface aquifer is separated into distinct subbasins, which are further divided into subareas.

The boundaries between these structures are generally defined by fault barriers, constrictions in basin profiles, and the unique hydrologic characteristics of each subbasin or subarea. Underlying sands, gravels and other water-bearing fill have eroded from surrounding mountains into the fault-controlled valley floor. The first 1,000 feet of these eroded materials comprise a storage capacity of more than 39 million acre-feet (one acre-foot equals about 326,000 gallons).

The Desert Water Agency (DWA) and the Coachella Valley Water District (CVWD) are responsible for providing domestic water to the General Plan planning area. Development east and north of the Whitewater River occurs within the service boundaries of CVWD, and development west and south of the river occurs within the service boundaries of DWA. These agencies utilize wells to extract groundwater from the Whitewater River subbasin, which underlies most of the planning area (lands within the Indio Hills and the Santa Rosa Mountains are not underlain by any groundwater basins due to the non-water bearing composition of these mountains).

#### Whitewater River Subbasin

The Whitewater River subbasin is the primary groundwater repository for the Coachella Valley and the City of Cathedral City. Encompassing a major portion of the valley floor, it covers approximately 400 square miles and extends from the junction of Interstate-10 and State Highway 111, to the Salton Sea about 70 miles to the southeast.

The subbasin is divided into four distinct subareas, including the Palm Springs, Thermal, Thousand Palms and Oasis subareas. The Palm Springs subarea underlies most of the City, including lands generally located west of Date Palm Drive. Lands generally east of Date Palm Drive are underlain by the upper Thermal subarea. The northernmost portion of the planning area, including lands north of Interstate-10 and south of the Indio Hills, is underlain by the Thousand Palms subarea. CVWD's Management Area, which includes all the subareas underlying the planning area, has an estimated storage capacity of 11 million acre-feet.

The Palm Springs subarea contains approximately 4.6 million acre-feet of groundwater in storage in the first 1,000 feet below the ground surface. The subarea is largely comprised of alluvial fan deposits exceeding 1,000 feet in depth. The subarea is naturally recharged by infiltration of runoff from the San Jacinto Mountains and the Whitewater River, and from subsurface inflow from the San Gorgonio Pass subbasin to the west.

The Thermal subarea extends from eastern Cathedral City, south to the Salton Sea. It contains approximately 19.4 million acre-feet of groundwater in storage in the first 1,000 feet below the ground surface, and is characterized by confined or semi-confined groundwater conditions, with free moving water conditions in alluvial fans at the base of the Santa Rosa Mountains. CVWD well logs have identified two aquifer zones in the Thermal subarea. The lower aquifer zone is estimated to be at least 500 feet and possibly more than 1,000 feet thick, and is composed of Ocotillo conglomerate, which consists of gravels and silty sands interbedded with silt and clay. The upper aquifer zone, under which Cathedral City occurs, is similar in composition to the lower aquifer zone, but is not as thick. An aquitard layer, composed of fine-grained materials that slow the vertical flow of groundwater, separates the upper and lower aquifer zones and is estimated to be between 100 and 200 feet thick throughout much of the Thermal subarea.

**Whitewater River  
Channel at Landau and  
Ramon Road**



The Thousand Palms subarea contains approximately 1.8 million acre-feet of groundwater in storage in the first 1,000 feet below the ground surface. It extends along the southerly edge of the Indio Hills and is small in comparison to the Thermal subarea. Its southwesterly boundary has been determined based on its distinctive groundwater chemical characteristics. Water in the Thousand Palms subarea is characterized by high concentrations of sodium sulfate, while water in other subareas of the Whitewater River subbasin is generally characterized by calcium bicarbonate. This is largely attributed to limited recharge to the Thousand Palms subarea. The subarea is recharged by limited runoff from the Indio Hills and experiences little, if any, inflow from other subareas or subbasins. Since there is little opportunity for intermixing or “dilution” by water of different chemical compositions, the native sodium sulfate is present in greater concentrations in the Thousand Palms subarea.

Mission Creek Subbasin

In the northern portion of the City and Sphere of Influence, north of Interstate 10, is the Mission Creek subbasin. It extends from the Mission Creek to the Banning Faults on the north and south, and from the San Bernardino Mountains to Edom Hill. Groundwater flows in a southeasterly direction within the basin, which has a storage capacity of about 2.6 million acre feet, and is estimated to have recoverable water in the range of about 1 million acre feet.

Water Demand in the Coachella Valley

CVWD estimates that, within the first 1,000 feet below the ground surface, there are approximately 28.8 million acre-feet of groundwater in storage in the Whitewater River subbasin and about 39.2 million acre-feet in all subbasins underlying the Coachella Valley. Nonetheless, since the expansion of agricultural activities in the early 1900s, and the emergence of the Coachella Valley as a destination resort area with lushly landscaped golf courses and residential communities, depletion of the groundwater in storage has continued steadily.

Continued development in the City and Coachella Valley will result in proportionate increases in the demand for domestic water. CVWD estimates that, of all water “produced” (used) in the valley, 60% is permanently “lost” to consumption, and 40% is reintroduced into the groundwater

table for later use, including a percentage of irrigation water applied to residential and golf course landscaping. CVWD estimates that the per capita water consumption rate in its Coachella Valley service area is approximately 550 gallons per day. This is an aggregate figure that accounts for all water uses in the community, including residential, commercial, industrial, golf course, irrigation and other uses, and is not intended to represent a specific land use. Project-specific consumption rates may be more or less depending on the type and density of development and the extent of water-intensive amenities (such as types of landscaping, fountains and swimming pools) incorporated into each project.

Groundwater pumped from the Upper Coachella Valley (generally extending from Whitewater to Palm Desert) is typically used for domestic purposes and golf course irrigation. Water pumped from the Lower Coachella Valley (generally extending from La Quinta to the Salton Sea) is primarily used for domestic purposes and the irrigation of approximately 72,800 acres of agricultural lands. As described in CVWD’s “Coachella Valley Draft Water Management Plan” (November 2000), total water demand in the region increased substantially during the twentieth century, from 96,300 acre-feet per year in 1936 to 668,900 acre-feet per year in 1999. The following table summarizes the major water consumers and demand rates during this period.

**Table IV-4  
Historical Water Demand in the Coachella Valley  
(acre-feet/year)**

<b>Consumer</b>	<b>Total Demand Year 1936</b>	<b>Total Demand Year 1999</b>
Crop Irrigation	82,600	332,500
Greenhouses	0	800
Municipal	10,900	202,900
Industrial	0	1,100
Fish Farms	200	21,100
Duck Clubs	1,300	4,300
Golf Courses	1,300	106,200
<b>Total Demand</b>	<b>96,300</b>	<b>668,900</b>

Source: Table 3-1, “Coachella Valley Draft Water Management Plan,” Coachella Valley Water District, November 2000.

Overdraft Conditions

The historical depletion of groundwater in the Coachella Valley has resulted in a condition known as overdraft, in which the demand for groundwater exceeds the amount of recharge into the groundwater basin. CVWD well monitoring data indicate that from the 1950s to 1970s, water levels in the Upper Coachella Valley decreased by approximately 50 to 100 feet. From the 1920s to the 1950s, water levels in the Lower Coachella Valley decreased by approximately 50 feet. They leveled off somewhat after 1949, following the introduction of Colorado River water for irrigation in 1949. However, by the 1980s, water levels in the Lower Valley continued to decline, a trend that continues to the present day. Overdraft can result in significant adverse social, environmental and economic impacts, including the increased potential for land subsidence, increased infrastructure and energy costs associated with drilling deeper wells and installing larger pumps, and the threat of a diminishing long-term water supply.

To determine the extent of overdraft in the Coachella Valley, CVWD has compared the change in freshwater storage in the groundwater subbasins over time. The change in freshwater storage is the difference between inflows and outflows of the basin, excluding inflows of poor quality water from the Salton Sea and irrigation flows that are induced by overdraft conditions.

In 1999, the change in freshwater storage in the Coachella Valley was estimated at 136,700 acre-feet per year. This amount of groundwater was being withdrawn from the basin per year, but was not being replaced. Of this, approximately 32,400 acre-feet were overdrawn from the Upper Coachella Valley, and 104,300 acre-feet were overdrawn from the Lower Coachella Valley. From 1936 to 1999, the cumulative change in freshwater storage was estimated at nearly 4.7 million acre-feet. The table below illustrates the relative imbalance between inflows and outflows in the Coachella Valley.

**Table IV-5  
Comparison of Historical Inflows and Outflows, 1936-1999  
(acre-feet)**

<b>Water Balance Component</b>	<b>Total Flows 1936</b>	<b>Total Flows 1999</b>
<b>Inflows</b>		
Natural Recharge	32,600	16,800
Agricultural Returns	37,200	130,700
Domestic Returns	4,300	59,200
Golf Course Returns	500	39,300
Wastewater Percolation	200	16,500
SWP Recharge	0	88,800
Inflows from outside area	12,900	11,500
Inflows from Upper Valley	59,100	29,400
<b>Total Inflows</b>	<b>146,800</b>	<b>392,200</b>
<b>Outflows</b>		
Groundwater Pumpage	92,400	376,100
Flows to Drains	3,200	55,800
Evapotranspiration	21,100	4,900
Net Flow to Salton Sea	5,300	-400
Outflows to Lower Valley	59,100	29,400
<b>Total Outflows</b>	<b>181,100</b>	<b>465,800</b>
Annual Change in Storage	-34,300	-73,600
Annual Change in Freshwater Storage	-41,800	-136,700
Cumulative Change in Storage since 1936	-34,300	-1,421,400
Cumulative Change in Freshwater Storage since 1936	-41,800	-4,684,000

Source: Table 3-4, "Coachella Valley Draft Water Management Plan," Coachella Valley Water District, November 2000.

The upper Whitewater River subbasin, in particular, has been characterized by historically significant declining water table conditions. To more effectively manage this area, CVWD and DWA have designated it as a "Management Area" and have carefully monitored its inflow and outflow rates. The Management Area consists of the Palm Springs and Thousand Palms subareas of the Whitewater River subbasin, and that portion of the Thermal subarea experiencing a significantly declining water table. All of these subareas underlie, to some extent, the Cathedral City General Plan planning area. Within the Management Area, overdraft is estimated at 35,621 acre-feet per year, or 0.32% per year.

#### Primary Water Sources

The principal water source for the Coachella Valley is groundwater, which is naturally recharged by precipitation and runoff from the San Jacinto, Santa Rosa and San Bernardino Mountains.

Surface water from the Whitewater River and the Snow, Falls and Chino Creeks also constitutes an important source of water, although annual supplies are highly variable due to fluctuations in annual precipitation. Other important regional water sources include recycled water from

wastewater treatment plants in the Coachella Valley, and imported Colorado River water, both of which are discussed below.

#### Groundwater Replenishment

To meet anticipated regional demand for domestic water, CVWD and DWA have contracted for State Water Project (SWP) water to supplement groundwater resources. The agreement entitles CVWD and DWA to supplemental water, which would be transported from northern California to the Coachella Valley via the Coachella Aqueduct. However, due to the extraordinary costs associated with the construction of such a project, the aqueduct has not yet been built.

Until the water delivery system is constructed, CVWD and DWA have entered into an agreement with the Metropolitan Water District of Southern California (MWD). The contract allows CVWD and DWA to exchange their SWP entitlements for like amounts of Colorado River water, which is transported to the Coachella Valley via MWD's Colorado River Aqueduct. The aqueduct passes through the northern portion of the valley, and is tapped where it crosses the Whitewater River. Exchange water is then diverted to a series of spreading ponds near Whitewater, where it percolates to replenish groundwater supplies. A substantial amount of Colorado River water is also transported to the lower valley via the Coachella Branch of the All-American Canal. This represents an important source of water for approximately 72,800 acres of agricultural lands, as well as fish farms, commercial greenhouses, and waterfowl migration ponds.

Since the inception of the artificial recharge program in 1973, more than 1.7 million acre-feet (or approximately 50,000 acre-feet per year) of Colorado River water has been diverted to recharge the Whitewater River subbasin. Temporary halts or severe reductions in recharge waters are necessary when there has been inadequate rainfall or snowfall in the western Sierras.

Despite the addition of recharge waters to the groundwater subbasins, groundwater levels in the Coachella Valley continue to decline. CVWD has sought additional methods of assuring an on-going supply of domestic water, including increasing its Colorado River water entitlements. The Seven Party Agreement of 1931 divides California's share of Colorado River water among seven California agencies, including CVWD. According to the agreement, CVWD and the Imperial Irrigation District (IID), which provides domestic water to other communities in the Coachella Valley, share the third priority for Colorado River water. However, IID has the first option to take as much third party water as it can put to reasonable and beneficial use within its service area. A new tentative agreement, the Quantification Settlement Agreement, has been drafted between CVWD, IID and MWD. It proposes that an average of approximately 456,000 acre-feet per year of Colorado River water be made available to CVWD throughout the 75 year life of the agreement; which would provide CVWD with reasonable assurances of supplemental water. Formal approval of the agreement is pending (2001).

#### Wastewater Reclamation and Recycling

CVWD and DWA have implemented programs to allow tertiary (third stage) treated wastewater to irrigate golf courses, municipal greenbelts and other landscaped areas. Wastewater typically undergoes two stages of treatment before being released to percolation ponds and being reintroduced into the groundwater table.

Tertiary treated water undergoes a third level of treatment which makes it useable for irrigation of landscaping and golf courses. In the Lower Valley, recycled effluent from fish farms has also been used for agricultural irrigation, bird migration ponds and fish farms.

The Cook Street Wastewater Reclamation Plant, owned and operated by CVWD, which serves development in Cathedral City, is capable of generating tertiary treated water. This plant has a tertiary water capacity of 10 million gallons per day (mgd) and is expected to undergo expansion to 15 mgd within the next few years.

The use of recycled water for irrigation has been effective in reducing the demand for groundwater resources. In 1999, approximately 4% of the water demanded by development in the Upper Coachella Valley consisted of recycled water.

## **WATER QUALITY**

Water quality in the Coachella Valley is generally good to excellent. Exceptions are primarily limited to perched and semi-perched water tables occurring in the lower valley, where on-going crop irrigation has increased total dissolved solids. Groundwater quality can be affected by a number of things, including the type of water-bearing materials in which the water occurs, water depth, proximity to faults, and presence of surface contaminants.

As discussed in CVWD's "Coachella Valley Draft Water Management Plan" (November 2000), historical data indicate that the amount of total dissolved solids (TDS), salts and nitrates have increased throughout the Coachella Valley groundwater basin during the past century. During the 1930s, TDS concentrations in the upper aquifer of the Coachella Valley groundwater basin were typically less than 250 milligrams per liter (mg/L). By the 1970s, TDS concentrations averaged 300 mg/L, and they have risen to a current average of about 540 mg/L.

High TDS concentrations are typically detected near major faults, and have been observed along the San Andreas fault system. In the vicinity of the fault zone separating the Thousand Palms subarea from the Thermal subarea, for example, TDS concentrations have exceeded 1,000 mg/L. However, other evidence indicates that high TDS concentrations may also be associated with the importation of Colorado River water, which is about three times higher in total dissolved solids than natural upper Whitewater River groundwater. The following table illustrates the relative quality of surface water recharging the subbasin, including that imported from the Colorado River.

**Table IV-6  
Mineral Analysis of Representative Surface Waters**

Source	Whitewater River (North)	Snow Creek	Colorado River	Whitewater River (South)
Constituent	epm <sup>1</sup> /ppm <sup>2</sup>	epm/ppm	epm/ppm	epm/ppm
Ca	1.75/35	0.50/10	3.97/79	9.08/181
Mg	0.90/11	0/0	2.31/28	3.74/45
Na	0.62/14	0.47/11	4.78/110	32.58/749
K	0.108/4.2	0.04/1.6	0.11/4.3	0.39/15
Cl	0.1/4	0/0	6.01/213	15.96/566
<b>Total</b>				
Dissolved Solids	201 ppm	55 ppm	727 ppm	2,983 ppm

Notes: <sup>1</sup> epm = chemical equivalents per million; <sup>2</sup> ppm = parts per million by weight  
Source: DWR Bulletin No. 108: Coachella Valley Investigation, California Dept. of Water Resources, July 1964.

Salts have also been added to the groundwater basin through the importation of recharge water, as well as through natural recharge processes, wastewater percolation, the application of fertilizers, and intrusion of the Salton Sea into the groundwater basin. CVWD estimates that the quantity of salts added to the groundwater basin increased from approximately 12,000 tons per year in 1936, to about 265,000 tons per year in 1999. The majority of salts (65%) come from the lower valley, where agriculture predominates. Salt removal can be accomplished via agricultural drains that drain directly into the Salton Sea, and the Coachella Valley Stormwater Channel, which isolates agricultural drainage and fish farm effluent.

Nitrate concentrations in the groundwater basin have also increased over the past century. CVWD data indicates that nitrate concentrations in the Coachella Valley's groundwater increased from less than 4 mg/L in the 1930s, to more than 45 mg/L in wells adjacent to the Whitewater River in the 1970s. According to the California Department of Water Resources, these increases are most likely related to the application of fertilizers on agricultural lands and golf courses, and effluent from septic tanks and wastewater treatment plants.

Other agencies have also acknowledged that septic tanks have the potential to adversely impact groundwater supplies. The greatest impacts to water quality are expected to occur where septic systems serve relatively large populations in high densities, and where these systems are old or poorly maintained. Community sewer systems provide excellent protection for groundwater supplies, as they provide for the swift removal, disposal and treatment of wastewater.

## **WATER QUALITY LEGISLATION**

To assure adequate planning, implementation and enforcement of water quality control efforts, a variety of state and federal legislation has been enacted, including the federal Clean Water Act and the National Environmental Policy Act (NEPA), and California statutes and administrative laws such as the California Water Code, California Environmental Quality Act (CEQA), California Code of Regulations, and other legislation including the Health and Safety Code, Fish and Game Code, and Public Resources Code.

## **CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

The California Regional Water Quality Control Board (CRWQCB) is responsible for implementing state and federal laws pertaining to water quality, including enforcing penalties for noncompliance in the control of water quality. In the Coachella Valley, the CRWQCB primarily deals with agricultural drainage, impacts of geothermal power, and concerns about the Salton Sea, Tahquitz Creek and other sources of surface water. It also monitors leaking fuel storage tanks, illegal discharges of human or animal waste, and the inappropriate disposal of hazardous and toxic materials.

## **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

The City of Cathedral City participates in the National Pollutant Discharge Elimination System (NPDES), which implements the federal Clean Water Act. The NPDES mandates the development and implementation of plans and programs for storm water management that effectively prohibit non-storm water discharge into storm drains, and require controls to reduce the discharge of pollutants from storm water systems into waters of the United States. NPDES plans are exempt from the CEQA analysis process. The Clean Water Act also requires that all point sources discharging pollutants directly into waters of the United States obtain an NPDES permit, which specifies limits on what can be discharged, monitoring and reporting requirements, and other provisions that assure discharge does not adversely impact water quality or human health.

## **WATER CONSERVATION**

Water conservation is essential as both a short-term and long-term resource management strategy. One of the best opportunities for municipal water conservation is the use of water-efficient landscaping treatments, including drought-tolerant plant materials and irrigation systems that minimize runoff and evaporation while maximizing watering of plant roots. Fortunately, City residents have shown an appreciation for the native desert environment and the opportunities it provides to reduce the use of water-dependent turf.

The City has incorporated water-conserving landscape and irrigation principles into its Development Design Guidelines. The guidelines require that new landscape plans be designed to incorporate native and locally compatible planting materials, and that large expanses of lawn and grass be avoided. The document refers developers and related parties to the landscaping and irrigation guidelines published by CVWD, and recommends that developers contact CVWD and/or DWA staff for further consultation. The City has also adopted a Street Tree Policy, which identifies a wide range of trees appropriate for the desert environment and requires that trees be irrigated with low-flow, automatically timed irrigation systems designed for water conservation. In accordance with state law, the City also requires the installation of low-flush toilets and low-flow faucets and showerheads in new construction.

To further reduce the impacts of development on groundwater supplies, CVWD and DWA have also adopted a wide range of water conservation programs, including water audits that identify wasteful water usage and provide recommendations for greater efficiency. The agencies provide

public educational programs, workshops and publication, which explain the environmental and economic benefits of water conservation. To demonstrate the appropriate usage of native plants and the most water-efficient irrigation techniques available, CVWD maintains two xeriscape demonstration gardens. Finally, as stated above, the use of reclaimed water for landscaping irrigation also helps to conserve the area's water resource.

## **FUTURE DIRECTIONS**

The wise use and conservation of water resources will continue to be a central theme of community development planning in southern California. Cathedral City plays an important role in the long-term protection of this valuable resource. The city and local water agencies have developed programs intended to increase the use of efficient landscape and irrigation design, water efficient appliances and fixtures, and recycled water. Effective storm water management programs and the protection of local mountain watersheds will also assure preservation of a viable source of groundwater. The City must continue to work closely with neighboring communities and local water purveyors to assure a healthful, long-term supply of water.

## **GOALS, POLICIES AND PROGRAMS**

### **Goal**

A sustainable, long-term supply of clean and healthful domestic water available for existing residents and future growth.

### **Policy 1**

The City shall require the use of water-conserving appliances and fixtures in all new development, as mandated by State law.

### **Program 1.A**

Require the installation and application of water-conserving technologies, in conformance with Section 17921.3 of the Health and Safety Code, Title 20, California Administrative Code Section 1601(b), and other applicable sections of Title 24 of the Public Code.

**Responsible Agency:** Public Works Department, Planning Department

**Schedule:** Continuous

### **Program 1.B**

Provide information to developers, contractors, property owners and other appropriate parties on the usage and benefits of water conserving bathroom fixtures.

**Responsible Agency:** Planning Department, Building Department

**Schedule:** Continuous

### **Policy 2**

Continue to encourage the use of low water consuming, drought-tolerant landscape plantings as a means of reducing water demand.

**Program 2.A**

The City shall develop and implement a water conserving landscape ordinance, which requires the use of natural and drought-resistant planting materials and efficient irrigation systems in new development.

**Responsible Agency:** Planning Department

**Schedule:** 2003 - 2004

**Program 2.B**

Coordinate with the Coachella Valley Water District and Desert Water Agency to expand and strengthen educational materials and programs that inform residents of the methods and benefits of water-saving techniques available.

**Responsible Agency:** Planning Department, Building Department, CVWD, DWA

**Schedule:** Continuous

**Policy 3**

Encourage the expanded use of tertiary treated wastewater as a means of reducing impacts of development on groundwater resources.

**Program 3.A**

Coordinate with CVWD and DWA regarding the continued use and future expansion of recycled and reclaimed wastewater to serve new and existing development projects.

**Responsible Agency:** Planning Department, Public Works Department, CVWD, DWA

**Schedule:** Continuous

**Policy 4**

The City shall require the connection of all new development to the community sewer system.

**Policy 5**

The City shall require existing development currently connected to septic tanks to connect to the sewer system when it becomes available.

**Program 5.A**

Coordinate with CVWD and DWA regarding the feasibility and financing of extending sewer facilities to the unsewered areas of the City.

**Responsible Agency:** City Manager's Office, Public Works, CVWD, DWA, CRWQCB

**Schedule:** Continuous

**Policy 6**

The City shall coordinate with other appropriate agencies to minimize the potential for groundwater contamination within and in the vicinity of the city.

**Program 6.A**

Coordinate with the Coachella Valley Water District, Desert Water Agency, California Regional Water Quality Control Board and other appropriate agencies to share information on potential groundwater contaminating sources, and develop and maintain a system of record and information sharing with these agencies.

**Responsible Agency:** City Manager's Office, Planning Department, CVWD, DWA, CRWQCB

**Schedule:** Continuous

**Program 6.B**

Evaluate all proposed land use and development plans for their potential to create groundwater contamination hazards from point and non-point sources, and confer with other appropriate agencies to assure adequate review.

**Responsible Agency:** Planning Department, CVWD, DWA, CRWQCB

**Schedule:** Continuous

**Policy 7**

Establish and enforce guidelines for the development and maintenance of project-specific, on-site storm water retention/detention facilities in a manner consistent with local and regional drainage plans and community design standards.

# ***AIR QUALITY ELEMENT***

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## **PURPOSE**

It is the intent of the Air Quality Element to provide background information on the physical and regulatory environment affecting air quality in the City and the region. The element also identifies goals, policies and programs that are meant to balance the City's actions regarding land use, circulation and other civic issues with their potential effects on air quality. This element and local and regional air quality planning efforts are intended to address ambient air quality standards set forth by the federal Environmental Protection Agency (EPA) and the California Air Resources Board (CARB).

## **BACKGROUND**

The Air Quality Element is directly related to the Land Use Element in its association with land use types and intensities. This Element is also related to the number, length, and timing of traffic trips, which are discussed in greater detail in the Circulation Element, as well as the amount of open space planned for preservation in the Open Space and Conservation Element. The Economic Development Element, which addresses the protection of natural resources important to the local economy, is also related to issues of air quality.

Air quality is a major concern in southern California, largely because of the potentially significant health effects and property damage caused by air pollutants. Concerns over air pollution have led to state and federal legislation mandating regional plans to improve air quality. In 1988, the State Legislature enacted Assembly Bill 2595, which became known as the California Clean Air Act (CCAA). The purpose of this action was to protect the future health and welfare of the people of the State of California and protection of the State's environment and economy, regardless of federal government actions or policy directions. The California Air Resources Board has been entrusted as an overseer of the CCAA and advises and evaluates the efforts made by regional air pollution control agencies and districts regarding compliance with the requirements of the California Clean Air Act.

The federal Clean Air Act (CAA) is intended to ensure that all Americans have the same basic health and environmental protections with regard to air quality. The Act was last amended in 1990 and is enforced by the U.S. Environmental Protection Agency (EPA). The CAA establishes minimum air pollution standards that must be met, but allows states to enact and enforce stronger standards; the US EPA delegates much of the responsibility for carrying out the CAA to state air pollution agencies. State Implementation Plans (SIPs) are developed for areas out of compliance with federal standards, and are designed to meet ambient air quality standards and deadlines specified in the federal Clean Air Act and emission reduction targets of the California Clean Air Act. Required emission reductions and attainment deadlines are based on the severity of the region's air pollution.

The City of Cathedral City is located within the Salton Sea Air Basin (SSAB), a geographic region whose air quality and pollution control actions are regulated and monitored by the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for the development of the regional Air Quality Management Plan, a multi-tier effort to regulate pollutant emissions from a variety of sources.

Cathedral City is also involved in regional management of air quality through various actions taken by the Coachella Valley Association of Governments (CVAG) and the Southern California Association of Governments (SCAG). The City has adopted its own Fugitive Dust Emissions Ordinance to further local control of excessive fugitive dust and other particulate emissions, especially those associated with urban development.

### **Criteria Pollutants**

Criteria pollutants are those air pollutants for which federal and state air quality standards exist and include ozone, nitrogen dioxide, sulfur dioxide, carbon monoxide, suspended particulate matter (PM<sub>10</sub>) and lead. Each of these pollutants is briefly described below.

Ozone (O<sub>3</sub>) is formed when byproducts of the internal combustion engine react in the presence of ultraviolet sunlight. Ozone is a pungent, colorless, toxic gas commonly referred to as smog. Motor vehicles are the major source of ozone precursors, and conditions in the Coachella Valley are occasionally well suited for the formation of photochemical smog. Excessive exposure to ozone can result in diminished breathing capacity, increased sensitivity to infections, and inflammation of the lung tissue.

Nitrogen dioxide (NO<sub>2</sub>) is a reddish-brown gas that results from a combination of nitric oxide and oxygen. The primary sources of nitrogen dioxide in the Coachella Valley are the incomplete combustion of motor vehicle engines, power plants, and other industrial operations. Short-term exposure to nitrogen dioxide can result in airway constriction in healthy individuals and diminished lung capacity in individuals with asthma or chronic obstructive pulmonary disease.

Sulfur dioxide is a colorless, extremely irritating gas that results from the combustion of high-sulfur content fuels, such as coal and oil. Sources of sulfur dioxide include fuel combustion of motor vehicles, chemical plants and sulfur recovery plants. Short-term exposure to sulfur dioxide can result in airway constriction and severe breathing difficulties in asthmatics, as well as lung tissue damage and fluid accumulation in the lungs.

Carbon monoxide (CO) is a colorless, odorless, toxic gas largely caused by the incomplete combustion of fossil fuels in motor vehicles. In high concentrations, carbon monoxide can contribute to the development of heart disease, anemia and impaired psychological behavior.

Suspended Particulate Matter consists of fine suspended particles, such as soil and mineral dust, soot and smoke, and aerosols, many of which are byproducts of fuel combustion, tire wear and natural wind erosion. PM<sub>10</sub> refers to finely divided solids or liquids that are ten microns (millionths of a meter) or smaller in diameter. PM<sub>10</sub> is produced by direct particle erosion and

fragmentation, but can also be produced by sand deposited on road surfaces and ground into finer particles by motor vehicles. Fine particulate matter poses a significant threat to public health. Elevated PM<sub>10</sub> levels are associated with an increase in respiratory infections and occurrences of asthma attacks. PM<sub>10</sub> is currently (2001) the most serious air pollutant in the City and the Coachella Valley region.

Lead (Pb) occurs in the atmosphere as particulate matter resulting from leaded gasoline and the manufacturing of batteries, paint, ink and ammunition. The elimination of leaded gasoline in recent years has reduced the hazards associated with airborne lead. However, excessive exposure to lead can lead to anemia, kidney disease, gastrointestinal dysfunction, and neuromuscular and neurological disorders.

### Ambient Air Quality Standards

Both the federal and California governments have established air quality standards for the criteria pollutants described above. The standards are designed to protect that segment of the population that is most susceptible to respiratory distress or infection, including asthmatics, the elderly, children, and those who are weak from disease or illness. In general, state standards are more restrictive than federal standards, particularly with the regard to PM<sub>10</sub> and sulfur dioxide. A comparison of state and federal ambient air quality standards is provided in the following table.

**Table IV-7  
State and Federal Ambient Air Quality Standards**

Pollutant	State Standards		Federal Standards	
	Average Time	Concentration	Average Time	Concentration
Ozone	1 hour	0.09 ppm	1 hour	0.12 ppm
Carbon Monoxide	1 hour	20.0 ppm	1 hour	35.0 ppm
	8 hours	9.0 ppm	8 hours	9.0 ppm
Nitrogen Dioxide	1 hour	0.25 ppm	AAM	0.053 ppm
Sulfur Dioxide	1 hour	0.25 ppm	AAM	0.03 ppm
	24 hours	0.04 ppm	24 hours	0.14 ppm
Suspended				
Particulate	24 hours	50 µg/m <sup>3</sup>	24 hours	150µg/m <sup>3</sup>
Matter (PM <sub>10</sub> )	AGM	30µg/m <sup>3</sup>	AAM	50µg/m <sup>3</sup>

Notes: ppm = parts per million ; µg/ m<sup>3</sup> = micrograms per cubic meter of air

AAM = Annual Arithmetic Mean ; AGM = Annual Geometric Mean

Source: "1997 Air Quality Management Plan," South Coast Air Quality Management District

To determine whether existing ambient air quality complies with the standards shown above, the South Coast Air Quality Management District operates and maintains regional air quality monitoring stations throughout its jurisdiction. The City of Cathedral City is located within Source Receptor Area (SRA) 30, which includes monitoring stations at the Palm Springs International Airport and in the City of Indio. These stations monitor contaminant levels and meteorological conditions on a daily basis.

## **Sensitive Receptors**

Sensitive receptors are those persons or land uses that may be subject to respiratory stress and/or significant adverse impact as a result of exposure to air contaminants. The California Air Resources Board has indicated that the following segments of the population should be considered sensitive receptors: children under 14, seniors over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive land uses include hospitals, nursing and retirement homes, schools, playgrounds, parks, athletic facilities, and residential and transient lodging facilities.

## **Regional Climate and Meteorology**

The air quality of a particular locale is a function of the amount of pollutants emitted and dispersed and the climatic, meteorologic, and geophysical conditions that reduce or enhance the formation of pollutants. The Coachella Valley is a low-lying desert basin characterized by low annual rainfall and low humidity. The valley is surrounded on the north, west and south by mountain ranges that physically isolate the region from coastal influences. Temperatures can exceed 120°F in summer months.

The valley is occasionally susceptible to air inversions, in which a layer of stagnant air is trapped near the ground where it is further loaded with pollutants. This process, when combined with chemical aerosols and other pollutants emitted by automobiles, furnaces and other sources, can result in substantial haziness. Heat and bright sunshine can further act on this mix of pollutants to create photochemical smog.

Wind direction and speed are also important climatological components that affect air quality in the Coachella Valley. The valley is subject to strong and sustained winds. Each year, winter rains cause erosion of the adjacent mountains, and water runoff produces and sorts substantial deposits of gravel and sand throughout the major drainage areas in the valley. These materials can become suspended in the air during strong wind events.

As the desert floor heats up in the spring months, it draws cooler coastal air masses from the narrow San Geronio Pass to the southeast, generating strong winds that cross the most erosive areas of the valley.

Most of the land within Cathedral City's incorporated boundaries is located within the "Active Blowsand Hazard Zone" designated by CVAG in the 1990 "State Implementation Plan for PM<sub>10</sub> in the Coachella Valley." This zone identifies land that, based on location or soil characteristics, is subject to soil wind erosion, or to potential sand accumulation and/or abrasion.

These winds transport and deposit large quantities of sand and dust on buildings, fabrics and automobiles, thereby reducing visibility and damaging property. Extensive wind-borne soil can dirty streets, pit windshields and obliterate landscaping. Dust on vegetation can interfere with plant respiration and stunt plant growth. The adverse health effects in humans can be severe, and include reduced lung capacity and functioning.

## **Regional Pollutants of Concern**

Analysis of the ambient air quality data collected at the Palm Springs and Indio monitoring stations indicates that ozone and PM<sub>10</sub> are the most prevalent air pollutants in the Coachella Valley.

### **Ozone**

The Coachella Valley has a history of exceeding state and federal ozone standards, and is currently designated as a “severe-17” ozone non-attainment area under the federal Clean Air Act. This designation means that the area must comply with federal ozone air quality standards by November 15, 2007, which is 17 years from the date the Clean Air Act was enacted.

Although some of the Coachella Valley’s ozone is generated by motor vehicles and other local sources, the valley’s poor ozone quality is largely due to the transport of both ozone and its precursor emissions from the upwind South Coast Air Basin to the west. An analysis of ozone trends since 1976, from SCAQMD’s 1994 “Air Quality Management Plan for the Coachella-San Jacinto Planning Area,” indicates a parallel downward trend in the number of days exceeding the federal 1-hour ozone standard for both the South Coast Air Basin and the Coachella-San Jacinto Planning Area. This downward trend has occurred despite the fact that population growth in the Coachella-San Jacinto Planning Area was about 3% greater per year than that of the South Coast Air Basin. Although it is difficult to quantify the total amount of ozone pollutant that is contributed from other regions, improved air quality in the Coachella Valley is partly dependent upon reduced ozone emissions in the South Coast Air Basin.

### **PM<sub>10</sub> Emissions**

The Coachella Valley also has a history of elevated PM<sub>10</sub> emissions, which are the result of both man-made activities (including vehicle use and construction activity) and natural occurrences, such as windstorms. In 1990, the SCAQMD adopted the “State Implementation Plan for PM<sub>10</sub> in the Coachella Valley,” (90-CVSIP) which identified “reasonably available control measures” for PM<sub>10</sub>, and established a future attainment date for areas previously unable to meet federal PM<sub>10</sub> standards.

In 1993, the EPA reclassified the Coachella Valley from a “moderate” to a “serious” non-attainment area for PM<sub>10</sub>. In response, CVAG and its member cities have worked closely to implement the measures set forth in the 90-CVSIP, including the adoption of city-based dust control ordinances, street sweeping programs, and the use of chemical stabilizers, wind/sand fencing, site watering techniques and landscape treatments designed to reduce local fugitive dust emissions.

The City of Cathedral City adopted its own Fugitive Dust Emissions Ordinance, which sets forth requirements for the control of dust during construction and demolition activities, as well as on certain land uses, such as unpaved roads and parking lots. In addition, the City secured grant funding to purchase alternative fuel vehicles and establish of a compressed natural gas (CNG) fueling station to service its vehicle fleet.

Although the Coachella Valley achieved federal PM<sub>10</sub> standards in 1996, “attainment status” requires that the region achieve these standards for three consecutive years. In 1999, federal PM<sub>10</sub> standards were exceeded once again. The region continues to be designated a “serious” non-attainment area for PM<sub>10</sub>, with construction activity representing the most significant source of fugitive dust emissions.

In an effort to remedy this situation, the SCAQMD recently developed “Guidelines for Dust Control Plan Review in the Coachella Valley,” which is intended to supplement local dust control ordinances. Should the region continue to fall short of federal PM<sub>10</sub> standards, the U.S. EPA could impose more stringent regulations or sanctions on local jurisdictions.

## **FUTURE DIRECTIONS**

It is the responsibility of the South Coast Air Quality Management District (SCAQMD) and the City, with the cooperation and coordination of Coachella Valley Association of Governments (CVAG), to monitor pollutant levels to regulate and control air pollutant emissions. The City has actively and effectively taken steps to control and improve air quality in the community. With continuing conditions that facilitate the generation of fugitive dust and other pollutants, clearly more needs to be done to effectively control and improve local air quality.

Issues of air quality are also addressed in California Government Code Section 65302(b), which requires that existing transportation-related air quality impacts and trends also are addressed. The General Plan EIR quantifies potential air pollutant emissions associated with the buildout of the community, including emissions associated with community traffic. Additionally, the California Clean Air Act (Assembly Bill 2595) requires the development of air quality policies and programs to protect and preserve the environment and general public from the harmful effects of air pollutants.

## **GOALS, POLICIES AND PROGRAMS**

### **Goal**

Preservation and enhancement of local and regional air quality to assure the long-term protection of the community’s health and welfare.

### **Policy 1**

The City shall be proactive in regulating local pollutant emitters and shall cooperate with Coachella Valley Association of Governments and the South Coast Air Quality Management District to assure compliance with air quality standards.

### **Policy 2**

The City shall fully implement dust control ordinances, and coordinate and cooperate with local, regional and federal efforts to monitor, manage and reduce the levels of major pollutants affecting the City and region, with particular emphasis on PM<sub>10</sub> emissions.

**Program 2.A**

On an on-going basis, the City shall continue to cooperate and participate in efforts to monitor and control PM<sub>10</sub> emissions from construction and other sources, and all other air pollutants of regional concern. The City shall coordinate with CVAG and the SCAQMD to provide all reporting data for SCAQMD annual report.

**Responsible Agency:** Building and Public Works Departments, Planning Department, CVAG, SCAQMD

**Schedule:** Continuous and On-going

**Program 2.B**

The City shall maintain records of historic and current regional and local air quality trends and make them available to the public. Access to data may be made available via an Internet link, printed material or by other means.

**Responsible Agency:** Public Works Department, Planning Department, CVAG, SCAQMD

**Schedule:** 2003, On-going

**Policy 3**

City land use planning efforts shall assure that sensitive receptors are separated from polluting point sources, to the greatest extent practical.

**Program 3.A**

The General Plan Land Use Map and Element shall be developed and maintained to locate air pollution point sources, such as manufacturing operations and highways, at an appropriate distance from sensitive receptors, including hospitals, schools, hotels/motels and residential neighborhoods.

**Responsible Agency:** Planning Department, CVAG, SCAQMD

**Schedule:** 2003, On-going

**Program 3.B**

Buffer zones, between sensitive receptors and potential air pollutant emitters, shall be incorporated into new and proposed residential developments and other developments, to the greatest extent feasible.

**Responsible Agency:** Planning Department

**Schedule:** On-going

**Policy 4**

Development proposals brought before the City shall be reviewed for their potential to adversely impact local and regional air quality and shall be required to mitigate any significant impacts.

**Program 4.A**

The City shall conduct an Initial Study, and where appropriate, require a detailed air quality analysis for all proposals that have the potential to adversely affect local or regional air quality.

**Responsible Agency:** Planning Department

**Schedule:** On-going

**Program 4.B**

Projects that may generate significant levels of air pollution shall be required conduct detailed impact analyses and incorporate mitigation measures into their designs using the most advanced technological methods feasible. All proposed mitigation measures shall be reviewed and approved by the City prior to the issuance of grading or demolition permits.

**Responsible Agency:** Planning Department

**Schedule:** On-going

**Program 4.C**

The City shall continue to enforce a Fugitive Dust Emissions Ordinance in an effort to reduce and control local PM<sub>10</sub> emissions. All dust control mitigation plans prepared by contractors, developers, and other responsible parties shall be reviewed and approved by the City prior to the issuance of grading or demolition permits.

**Responsible Agency:** Building and Public Works Departments, Planning Department

**Schedule:** On-going

**Program 4.D**

Provide consistent and effective code enforcement of construction and grading activities and off-road vehicle use to assure that the impacts of blowing sand and fugitive dust emissions are minimized.

**Responsible Agency:** Code Enforcement Department; Police Department

**Schedule:** On-going

**Policy 5**

The City shall encourage and promote the use of clean alternative energy sources for transportation, heating and cooling.

**Program 5.A**

Where cost-effective, vehicles that use alternative fuel sources, such as compressed natural gas and electricity, shall be purchased and maintained for use in the City's vehicle fleet.

**Responsible Agency:** City Manager's Office

**Schedule:** On-going

**Program 5.B**

Site plans shall incorporate energy-efficient design elements, including appropriate site orientation, possibility for incorporation of active and/or passive solar design, and the use of shade and windbreak trees, to reduce fuel consumption for heating and cooling.

**Responsible Agency:** Planning Department, Public Works Department

**Schedule:** On-going

**Policy 6**

The City shall encourage and support the development of facilities and projects that facilitate and enhance the use of alternative modes of transportation, including pedestrian-oriented retail and activity centers, dedicated bicycle paths and lanes, and community-wide multi-use trails.

**Program 6.A**

The General Plan Circulation Element shall encourage the incorporation of appropriate alternatives to motor vehicles in the transportation network, and shall be periodically reviewed and updated to assure the future expanded use of such components.

**Responsible Agency:** Planning Department, Public Works Department

**Schedule:** On-going

**Program 6.B**

The City shall pursue land use patterns and mechanisms, including Multi-Use Corridor Districts and a balance of employment and housing opportunities that encourage pedestrian and other non-motorized transportation and minimize vehicle miles traveled.

**Responsible Agency:** Economic Development Department, Redevelopment Agency, Planning Department

**Schedule:** On-going

**Policy 7**

The City shall promote the expanded availability of mass transit services, coordinating with Sunline Transit Authority to link residential, commercial and resort business and employment centers with the City's residential neighborhoods and nearby communities.

**Program 7.A**

Coordinate with CVAG, SCAG, Sunline Transit Agency and other public and private service providers to improve, expand and optimize cost-effective regional mass transportation services.

**Responsible Agency:** Planning Department, Public Works Department, Sunline Transit Authority

**Schedule:** 2003, On-going

**Program 7.B**

Promote and support the development of ridesharing, carpooling, flexible work scheduling, telecommuting and Park and Ride programs among public and private employers to decrease existing and future traffic levels in the Coachella Valley.

**Responsible Agency:** Planning Department, Public Works Department, Sunline Transit Authority, Major Employers

**Schedule:** On-going

**Program 7.C**

The City shall consider adopting a Transportation Demand Management (TDM) Ordinance that applies to new or change-of-use non-residential developments employing 100 or more persons, and which requires the project proponent to demonstrate how the development will reduce the number of project-generated vehicle trips.

**Responsible Agency:** Planning Department, Public Works Department

**Schedule:** On-going

**Policy 8**

The City shall continue to implement effective street sweeping and post-windstorm cleanup programs to reduce the cumulative impacts of blowsand and nuisance dust resulting from construction activities, natural windstorms and other sources.

**Policy 9**

The City shall promote public educational programs that describe the causes of air pollution, encourage the use of alternative energy sources and recommend methods for reducing the impacts of blowsand.

**Program 9.A**

Prepare and distribute to developers, contractors, consultants and other related parties an air quality management manual that defines effective and appropriate methods of controlling and reducing development-related impacts, particularly PM<sub>10</sub> emissions.

**Responsible Agency:** Building Department, Public Works Department

**Schedule:** 2003-04

# ***OPEN SPACE AND CONSERVATION ELEMENT***

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## **PURPOSE**

The purpose of the Open Space and Conservation Element is to provide guidance for the management and preservation of open space lands and natural resources, including water resources, wildlife habitat and scenic resources. Conservation of natural resources and the provision and preservation of open space lands are important and necessary to maintaining a balanced and healthy community. As urban growth continues in the City, thoughtful planning and resource management becomes increasingly important in helping to conserve natural resources and open space lands. One of the major objectives of the General Plan is to preserve and enhance the community, and to ensure that long-term growth within the City does not adversely affect environmental resources. The policies and programs set forth in this Element will help assure the preservation and long-term viability of valuable natural resources, and prevent the premature and unnecessary conversion of open space land to urban uses. The Open Space and Conservation Element represents the City's commitment to environmental quality as a key component to land use planning.

In function and content, the Open Space Element and Conservation Element, as defined by state law, often overlap. The requirements of state law result in conservation elements which are oriented toward the management of natural resources to prevent waste, destruction or neglect. The Open Space Element, in contrast, emphasizes open space as a land use and requires that preservation and management of natural resources be considered in land use planning and decision-making. This combined Open Space and Conservation Element describes conservation practices and open space lands, thereby meeting the requirements of both elements under law.

## **BACKGROUND**

The Open Space and Conservation Element is almost exclusively dedicated to the conservation of natural resources and open space lands. The comprehensive issues addressed in this Element are directly related to many other General Plan Elements, including the Land Use, Circulation, Parks and Recreation, Biological Resources, Cultural Resources, Water Resources and the Geotechnical Element.

Open space land is generally defined as any parcel or area of land or water, which is essentially unimproved and devoted to an open space use. Open space areas are mainly lands designated for the preservation of natural resources, including plant and animal species, for passive recreational uses and for the production of resources (Government Code 65560(b)).

Government Code Section 65566, also known as the Open Space Lands Act, requires that local governments prepare open space plans before adopting required open space related ordinances. The Act helps assure consistency between the open space plan and zoning regulations.

Government Code Section 65561 states that the preservation of open space land is necessary, not only for the maintenance of the economy of the state, but also for the assurance of the continued availability of land for the production of resources, the enjoyment of scenic beauty, and for recreation and use of natural resources.

Government Code Section 65302(d) requires that General Plans include elements which address resource conservation issues. It also sets forth other topics that may be addressed, including reclamation, protection of watersheds, and resource degradation.

### **Resource Conservation**

Demands on resources increase relative to increases in population. For this reason it becomes necessary for a community to periodically reassess its uses of these resources, particularly those that are finite and nonrenewable, or those that are critical to life support such as air and water. Furthermore, communities should be proactive in their attempt to be efficient and ecologically aware of the region and its limitations. Although the traditional need for resource conservation concerned itself with natural resources, it is also important for a community to assess the man-made cultural and historic resources it wishes to preserve for future residents. The following discussions offer a brief overview of Cathedral City's and the Coachella Valley's natural and cultural resources.

#### **Scenic Resources**

The aesthetic quality of a place is generally described by the combination of the natural and built environments. The Coachella Valley is surrounded by the San Jacinto, San Bernardino, Little San Bernardino, and Santa Rosa Mountains, which provide a dramatic backdrop to the area and contribute to the Valley's unique desert character. The predominant built environment within the Valley consists of resort developments that utilize oasis-like landscaping. Together, these scenic attributes blend to create an exceptional and rare place that is aesthetically pleasing and contributes to everyone's quality of life.

#### **Biological Resources**

The Coachella Valley's unique desert climate and topographical features create an environment that supports a wide variety of wildlife species, habitats and communities. The Sonoran Desert Creosote Community generally dominates the valley floor, and most of the planning area. This community consists of shifting windblown sand, sand fields and dunes with sparse vegetation and a number of uniquely adapted and special-status wildlife species. Other plant communities and wildlife habitats include Desert Fan Palm Oases, which are found in canyons and places with naturally occurring water, alluvial plain habitats, and desert dry wash habitats. The surrounding hillside habitat is an area of transition where the arid valley floor gives way to desert mountains with dense shrubbery and trees.

Within these areas the Coachella Valley hosts a variety of sensitive plant and animal species, some of which have been listed as threatened or endangered by federal and state governments. Most notable of these are the Peninsular bighorn sheep, Coachella Valley fringe-toed lizard, desert slender salamander, desert tortoise, California ditaxis and Coachella Valley milk vetch. The area also supports more common species, such as the chuckwalla, zebra-tailed lizard, Golden eagle, Peregrine falcon, Western burrowing owl, coyote and Palm Springs ground squirrel (also see the Biological Resources Element).

### **Historical Resources**

The Coachella Valley contains abundant archaeological evidence, which documents the existence of prehistoric and historic human populations. Cultural resources found within the region include Native American settlements, as well as trails and other sites established prior to the arrival of European Americans. Historic structures and other sites used during early European settlement also exist throughout the Valley.

The Desert Cahuilla are the most prominent native culture to evolve in the Coachella Valley. Archaeologists believe that the Cahuilla traveled to the Coachella Valley from the north as early as 2,000 to 3,000 years ago. Several Native American villages are known to have developed in the Coachella Valley around the year 1200, and historic sites from this era include milling sites, quarries for making tools, and religious and artistic sites. The Cahuilla established a number of villages in the region, most of which were near the mountains and canyons and around ancient Lake Cahuilla. Today, the Cahuilla continue to inhabit portions of the Coachella valley (also see the Cultural Resources Element).

### **Water Resources**

The majority of water resources in the region come from naturally occurring groundwater reserves. The Valley is underlain by a system of groundwater basins that are separated in distinct subbasins and subareas within subbasins. The Whitewater River subbasin serves as the primary groundwater repository for Cathedral City. The subbasin encompasses a major portion of the valley floor, covering approximately 400 square miles. It is divided into four subareas: Palm Springs, Thermal, Thousand Palms and Oasis. The Palm Springs subarea of the Whitewater River subbasin serves the planning area. The Palm Springs subarea is naturally recharged by infiltration of runoff from the San Jacinto and Santa Rosa Mountains, the Whitewater River and subsurface inflows from the San Gorgonio Pass subbasin. The groundwater storage capacity of the subbasin is estimated at 4,600,000 acre-feet. The quality of water extracted from the regional water basins is generally good to excellent. However, groundwater levels in the region have declined steadily due to increasing urbanization in recent decades. As an essential resource, water needs to be conserved and used efficiently (also see the Water Resources Element).

### **Energy Resources**

Energy resources are integral in residential, commercial and industrial land uses, and especially in transportation. Currently, the majority of energy is derived from nonrenewable or environmentally damaging sources. In addition, most energy is not produced on a local or even regional scale and therefore can be expensive, inefficient and unreliable.

Energy conservation has become a major theme to energy usage in California. The basic concepts of energy conservation are using energy resources more efficiently through improved technology; the effective use of building design standards; reducing unnecessary use and dependence on nonrenewable sources; and conserving related resources. Development of renewable and alternative energy sources should also be a key component to energy conservation. Not only are renewable resources environmentally benign, they can be produced on a local scale, and are therefore more dependable and efficient. Solar power and wind power are two significant renewable energy resources that are increasingly being utilized in the Coachella Valley. The development of these renewable energy resources in conjunction with energy conservation measures will help to continue to meet the energy demands of the Valley (also see Energy and Mineral Resources Element).

### **Open Space Lands**

Open space lands perform a number of vital functions in an urban environment. Incorporation of open space within a land use plan offers relief and contrast to high-density development, thereby establishing an attractive setting for urban activities and contributing to a community's quality of life. Open space can be utilized to establish edges or boundaries to a community or neighborhood, serve as a buffer between incompatible land uses, or provide opportunities for recreational activities. Protection of sufficient open space land promotes environmental quality by safeguarding valuable resources and maintaining the integrity of natural systems. Furthermore, access to open space areas, and preserving scenic landscapes, critical habitat, ecologically valuable land and recreational areas are critical components of livable communities and healthy economies. By and large, open space and land conservation benefit communities environmentally as well as economically.

In general, the State recognizes four broad categories of open space land including: open space for the preservation of natural resources, open space for resource management, open space for recreation, and open space for public health and safety. The following discussion defines each of these open space categories. While not all of these designations are relevant to the City and its sphere of influence, they are applicable on a regional level.

#### **Open Space for the Preservation of Natural Resources**

Open space for the preservation of natural resources refers to areas required for the protection of scenic resources, plant and animal species and crucial habitat, as well as areas required for ecologic reserves and scientific study. Habitat conservation in the Coachella Valley has become increasingly important due to the amount of federally listed species in the region. There are many areas within the Coachella Valley that are dedicated to the preservation and protection of plant and wildlife species, most of which are included in the Coachella Valley Multiple Species Habitat Conservation Plan area. The following includes brief descriptions of open space areas for the preservation of natural resources within or proximate to Cathedral City.

##### *Willow Hole-Edom Hill Preserve ACEC*

The Willow Hole-Edom Hill Preserve/ Area of Critical Concern (ACEC) is located on 2,469 acres at the west end of the Indio Hills. It consists of two separate areas: Willow Hole and Edom Hill, which are 2 to 3 miles apart. Approximately 2,163 acres are owned by the Bureau of Land

Management (BLM), 90 acres by the Coachella Valley Mountains Conservancy, and 216 acres by private parties. The preserve is classified as Class "L", Limited in the California Desert Conservation Area (CDCA). Class L means that limited use is allowed, to protect sensitive, natural, scenic, ecological and cultural resources. Important biological resources found on the preserve include mesquite hummocks, a fan palm oasis, and habitat for the Coachella Valley milk vetch, Little San Bernardino Mountains gilia, Palm Springs ground squirrel, Palm Springs pocket mouse, burrowing owl, crissal thrasher, and the Coachella Valley giant sand treader cricket. The preserve is also home to migratory birds, such as the least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat and the yellow warbler. Management objectives and prescriptions include habitat protection through land acquisition and control of recreational uses.

#### *Coachella Valley Thousand Palms Preserve*

The Thousand Palms Preserve is situated in the western Coachella Valley in, and immediately south of the central portion of the Indio Hills. It consists of 13,030 acres of BLM, United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), California Department of Parks and Recreation, and Center for Natural Lands Management lands. The preserve is managed to protect and enhance the habitat of the Coachella Valley fringe-toed lizard. In 1980, the federal government listed the Coachella Valley fringe-toed lizard as threatened, due to the loss of crucial habitat. In April 1984, the Nature Conservancy purchased 1,920 acres of crucial habitat to ensure the protection of the lizard and other plants and animals that share its unique ecosystem. The preserve provides managed access to the site's palm oases and other areas of interest through a system of trails ranging from 1 to 6 miles.

#### *Santa Rosa and San Jacinto Mountains*

The Santa Rosa and San Jacinto Mountains contain many valuable biological and scenic resources. For that reason, many areas within these mountains have been protected and are managed under a variety of public land agencies.

The U.S. Forest Service manages lands within these mountains, designating them as Wilderness areas. The San Jacinto Wilderness is split into two units in the mountains south of the Coachella Valley on approximately 32,850 acres. The northern unit is made up largely of the San Jacinto Peak, while the southern unit incorporates lands along the ridgeline of the San Jacinto Mountains and includes the headwaters of Andreas, Murray and other desert canyons.

The Santa Rosa Wilderness lies in the Santa Rosa Mountains south of the Coachella Valley, and is situated on approximately 20,160 acres. Biological resources within these lands include diverse natural communities from Sonoran mixed woody and succulent scrub, to peninsular juniper woodland and scrub, to Jeffrey pine forest, and habitat for the peninsular bighorn sheep and gray vireo. These areas are covered under the San Bernardino National Forest Land and Resource Management Plan. According to this plan, wilderness is managed to provide for both recreational opportunities and resource and habitat preservation. However, management within the Santa Rosa Wilderness is also coordinated with CDFG and BLM for the protection of the peninsular bighorn sheep.

The Santa Rosa Mountains have also been designated as a National Scenic Area, which is managed by the BLM. It encompasses all BLM land in the Santa Rosa and San Jacinto Mountains. These areas outside the wilderness areas are classified as Class "L" (limited use to protect sensitive, natural, scenic, ecological and cultural values) in the BLM's California Desert Conservation Area (CDCA) plan. Currently (2001), there has been no management plan adopted for the Santa Rosa Mountains National Scenic Area.

In 2000, the Santa Rosa and San Jacinto Mountains were designated a National Monument. Management for these lands is included in the Santa Rosa Mountains Wildlife Habitat Management Plan. The Plan is implemented by the BLM and the CDFG in an effort to manage bighorn sheep and other sensitive species.

### **Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP)**

The Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP) has recently been prepared by the Coachella Valley Association of Governments (CVAG), and approved by the County and all but one of the cities in the Coachella Valley, and includes principles, policies and regional proposals to conserve biological diversity on a regional scale. The Coachella Valley MSHCP provides a seamless network of adequate habitat for the protection and safekeeping of long-term viable populations of the species that are currently listed as threatened or endangered. Cathedral City is one of the MSHCP participants.

### **Open Space for Resource Management**

Open space for the management of natural resources refers to those lands that contain resources which are utilized and developed, such as agricultural lands, areas containing major mineral deposits, areas of economic importance for the production of food or energy, and areas required for recharging groundwater or for water storage. In the planning area and surrounding areas, this open space designation represents the utility corridor along the northern portion of the planning area, areas within the Indio Hills that are suitable for the generation of wind energy, as well as significant drainage areas that help to replenish the groundwater reservoir.

### **Open Space for Recreation**

Open space for outdoor recreation includes areas of outstanding scenic, historic and cultural value, areas that are suitable for park and recreational purposes, and areas that can serve as links between major recreation and open space reservations, including utility easements and trails and scenic highways corridors.

Golf courses represent an important source of recreation in the Coachella Valley, and are also central to the region's economy. Public and private golf courses comprise a substantial portion of open space lands in the City and surrounding areas. Parklands are another important source of open space for recreation. The City is home to five parks including, Century Park, Patriot Park, Second Street Park, Agua Caliente Park and Panorama Park (Also see the Parks and Recreation Element).

In addition to the active recreational opportunities that the City's parks provide, there are also numerous trails and facilities throughout the Valley that support passive recreation on a regional scale, such as Joshua Tree National Park, the Living Desert, and the numerous mountain trails through the San Jacinto and Santa Rosa Mountains.

### **Open Space for Public Health and Safety**

Open space for public health and safety refers to those lands that require special management or regulation because of hazardous or special conditions, such as earthquake fault zones, floodplains, unstable soil areas, and high fire areas. Although these lands remain open due to hazardous conditions, they have potential for other open space uses. Flood control facilities may be usable for wildlife habitat and for recreational purposes. Land located along fault lines can remain in its natural condition as a wildlife corridor. In the planning area and immediate vicinity, this category of Open Space is associated with the flood control facilities for the Whitewater River and other drainages, areas within the Indio Hills that are in close proximity to the fault line, and the now-closed Edom Hill landfill. While these areas are unsuitable for development, they do provide viable open space lands.

### **Open Space Land Use Categories**

The General Plan provides for approximately 2,901.06 acres of open space lands, or 18% of the total planning area. The City maintains four Open Space land use categories, they are: Open Space-Private, Open Space-Public, Open Space-Watercourse and Open Space-Other. The types of designated open space land uses and the acreages of each are shown in the table below.



**Edom Hill landfill**

**Table IV-8  
General Plan  
Designated Open Space Lands**

<b>Land Use</b>	<b>Designated Acres</b>
Open Space-Private (OS-PV)	80
Open Space-Public (OS-P)	2,136
Open Space-Watercourse (OS-W)	739
Open Space-Other (OS-O)	494
<b>Total</b>	<b>3,449</b>

Private open space generally refers to the private golf courses located within the City, which constitutes about 27% of open space land. Public open space makes up approximately 61.9% of open space land and refers to the City's public parks and undeveloped public lands in the northeastern portion of the City. Open Space-Watercourse makes up a large portion of open space within the City, representing 21% of open space land. This designation refers to the Whitewater River and the east, west and north portions of the Cathedral Canyon channel. Lastly, Open Space-Other represents the utility corridor for high voltage transmission lines within North City, and amounts to approximately 14.3% of the open space within the City. Some open space uses overlap each other. As an example, the golf course for the Cimarron Golf Resort is located within the OS-W designated Whitewater River channel.

### **Land Acquisition**

One way to ensure the development or preservation of natural resources is through the designation of open space. Open space regulation provides means and methods of obtaining open space lands, and allowing land to be preserved for the good of the community. In California, many conservation programs and legislative enactments have been put into effect, including the Conservation Easement Act, Open Space Easement Act of 1974 and the Scenic Deed Act.

### **Programs and Legislative Enactments**

To facilitate the continued preservation of open space in California, a number of conservation programs and legislative measures have been enacted. The following discussion presents a brief description of legislation associated with open space and natural resources conservation.

#### *The Conservation Easement Act*

The Conservation Easement Act (Civil Code Sections 815-816) was established to encourage the dedication of open space lands for ongoing conservation. A conservation easement is a voluntary agreement that allows a landowner to limit the type or amount of development on their property, while retaining private ownership of the land.

The easement is binding to successive owners of the land. The purpose of a conservation easement is to retain land predominantly in its natural, scenic, historical, agricultural, forested, or open space condition. By granting conservation easements, a landowner can assure that the property will be protected forever, regardless of who owns the land in the future.

### *Open Space Easement Act*

The Open Space Easement Act of 1974 (Government Code Sections 51070-51097) provides another mechanism for preserving open space land. This gives local governments the authority to accept easements granted to them or non-profit organizations for the purpose of conserving open space and agricultural lands.

### *The Scenic Easement Deed Act*

The Scenic Easement Deed Act (Government Code Sections 6950-6954) authorizes local governments to purchase fee or scenic easements, but there is no special mechanism for obtaining them. Land uses are regulated by the Act, and local governments are authorized to adopt an ordinance, which establishes open space covenants with property owners.

### **Public Land Trusts**

A public land conservation trust is another mechanism devoted to protecting open space, agricultural lands, wildlife habitats and natural resource lands. Land trusts achieve their objectives primarily through acquiring and managing interests in land.

Land conservation trusts can help to preserve open space and resource lands in a variety of ways. Trusts funds can be used to acquire fee simple interest in real estate to then manage or lease back holdings, or to purchase conservation easements that protect sensitive land from development.

Since they are less restrained by formalities and regulations, private land trusts are usually able to respond more quickly than governmental entities to purchasing opportunities. They also have more experience to help public agencies with the technicalities of acquisition. A public land trust helps to preserve environmentally sensitive open space and conservation lands, pursue State and Federal financing with grants and loans, and other assistance methods for the preservation of open space. Several land trusts exist in the Coachella Valley, including the Cathedral City Mountains Conservancy, the Coachella Valley Mountains Conservancy, The Nature Conservancy, The Living Desert, The Wildlands Conservancy, The Center for Natural Lands Management, and the Friends of the Desert Mountains.

### **Methods of Funding Open Space**

Viable funding mechanisms are essential to financing the acquisition and management of open space lands. These mechanisms may include State obligation bonds, grants and tax increment financing. In addition to these funding mechanisms, the Legislature has helped organizations create grant and loan programs that can aid open space financing. These are available on a competitive basis for specific projects, and include:

- Land and Water Conservation Fund/Department of Parks and Recreation
- Habitat Conservation Program/Department of Parks and Recreation
- Simms Trail Bill/ Department of Parks and Recreation
- Public Access Program/ Department of Fish and Game
- Wildlife Conservation Board Program/Department of Fish and Game
- Urban Forestry Program/California Department of Forestry

## **FUTURE DIRECTIONS**

The City of Cathedral City and its surrounding area are located within a unique desert environment that contains many valuable natural resources and open space lands. The City, as a priority, should continually pursue the safeguarding and protection of these resources in planning and decision-making. While growth will continue to occur in the region, the implementation of the General Plan, Zoning Ordinance, MSHCP, and other regulatory mechanisms will help to promote conservation and ensure that development will not interfere with or interrupt open space and conservation lands in the future.

Regional support and participation in the Multiple Species Habitat Conservation Plan is essential to secure a regional system of conservation lands for long-term preservation.

The City can also have an important role to play in encouraging and supporting the preservation efforts of non-profit and other conservation groups, and assist in acquiring additional open space lands. Assistance may also be provided in finding federal and state grants for purchase of conservation easement and/or fee simple ownership interest.

## **GOAL, POLICIES AND PROGRAMS**

### **Goal**

Preservation, conservation and management of open space, which provides for the protection of threatened species and environmental resources, enhanced scenic qualities and protection against environmental hazards.

### **Policy 1**

Identify and assess lands in the City and its sphere-of-influence that are suitable for preservation as public or private, passive or active open space.

### **Program 1.A**

With the assistance of CVAG, develop and routinely update a map and other information about various open space land and facilities in the City.

**Responsible Agencies:** Planning Department, Parks and Recreation Department, CVAG

**Schedule:** 2002-2003

### **Program 1.B**

Where appropriate, environmental hazard zones, including earthquake fault lines, floodways and floodplains, and steep or unstable slopes, shall be designated as open space on the land use map.

**Responsible Agencies:** Planning Department

**Schedule:** 2002-2003

### **Policy 2**

Hillsides with slopes in excess of 10% grade shall be permanently preserved as undeveloped open space.

**Program 2.A**

The City shall seek recreational usage and/or ownership of desirable hillside lands currently owned by public agencies or private entities by negotiating public access provisions or establishing a transfer of development rights (TDR) program.

**Responsible Agency:** City Manager's Office; City Council

**Schedule:** Ongoing

**Program 2.B**

All but essential hillside modification on slopes steeper than 10% grade shall be prohibited.

**Responsible Agency:** City Engineer; Public Works Department

**Schedule:** Ongoing

**Policy 3**

Development on hillsides with slopes less than 10% grade shall be subject to special hillside development standards.

**Program 3.A**

Maintain and enforce a Hillside Preservation Regulations, which establish appropriate design standards that preserve the natural scenic value of hillsides.

**Responsible Agencies:** Planning Department

**Schedule:** 2002-2003

**Program 3.B**

Expand the existing Hillside Protection Ordinance to include hillsides in the Indio Hills as well as those in the Santa Rosa Mountains.

**Responsible Agencies:** Planning Department

**Schedule:** 2002-2003

**Policy 4**

The City shall provide for a comprehensive, interconnected recreational trails system.

**Program 4.A**

Coordinate with the Coachella Valley Water District and the Riverside County Flood Control District, and the utility purveyors to maximize use of flood control watercourses and utility easements for inclusion in multi-use trails system.

**Responsible Agencies:** Parks and Recreation Department

**Schedule:** 2002-2003, ongoing

**Policy 5**

The City shall preserve all substantial watercourses and washes necessary for regional community flood control and drainage for open space or multi-purpose recreational purposes.

**Program 5.A**

Confer and coordinate with the Coachella Valley Water District and other appropriate agencies to provide for the revegetation of flood control channels and ditches in order to retain as natural an appearance as possible without compromising functionality.

**Responsible Agencies:** Planning Department; City Engineer  
**Schedule:** Ongoing

**Policy 6**

The City shall retain significant areas of natural desert, watercourse and hillside habitat, including migration corridors and wildlife preserves, in order to maintain and enhance the preservation of sensitive biological resources.

**Program 6.A**

Support and cooperate with local and regional habitat conservation efforts, including the Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP).

**Responsible Agencies:** Planning Department, City Council  
**Schedule:** Continuous

**Program 6.B**

Investigate the costs of additional land acquisition, maintenance and other administrative functions, and encourage the transfer of public open space and conservation properties to existing land trusts for local property management, where feasible.

**Responsible Agencies:** Parks and Recreation Department; City Manager's Office; Planning Department  
**Schedule:** 2002-2003; Ongoing

**Program 6.C**

Cooperate with other agencies in order to assure the adequate maintenance of open space lands, including blowsand control, vegetation management, the removal of debris and trash, and restricted access where necessary.

**Responsible Agencies:** Code Enforcement  
**Schedule:** Ongoing

**Policy 7**

Where feasible, the City shall preserve permanent open space edges or greenbelts, which define the physical limits of the City and provide physical separation between adjoining neighborhoods.

**Program 7.A**

The Land Use Map and Zoning Ordinance shall regulate development at the boundaries of the planning area to assure the preservation of a well-defined, functional or visual edge.

**Responsible Agencies:** Planning Department  
**Schedule:** 2002-2003

**Policy 8**

Where possible, new development shall integrate existing pipeline, utility corridors and other easements into a functional open space network.

**Program 8.A**

Develop Specific Plans or special studies concurrent with initial development plans and tentative subdivision maps to plan continuous open space networks.

**Responsible Agencies:** Project proponents; Planning Department

**Schedule:** As development proposals occur

**Policy 9**

Native landscaping materials and oasis-like design features shall be incorporated into parks, golf course and other appropriate open space lands to retain and preserve the natural desert environment.

**Program 9.A**

The development and design review process shall assess the adequacy of proposed design features and landscaping materials.

**Responsible Agencies:** Planning Department; Architectural Review Committee; Planning Commission, City Council

**Schedule:** Ongoing

**Policy 10**

The City shall, to the greatest extent possible, regulate development in the vicinity of significant mineral resources located in the City and its sphere-of-influence.

**Policy 11**

Support and cooperate with the hillside and habitat conservation management programs of the Coachella Valley Mountain Conservancy.

# ***ENERGY AND MINERAL RESOURCES ELEMENT***

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## **PURPOSE**

The purpose of the Energy and Mineral Resources Element is to establish policies that direct the City's development, use and management of mineral and energy resources. Energy and mineral resources are essential components to the community, as they enable development and growth, enhance the quality of life and influence the local economy. However, traditional generation and use of these resources also raise a number of concerns. Many of the energy and mineral resources that are currently being utilized are in limited supply. Energy shortages and increasing utility rates have become a serious problem in California. This element is intended to be responsive to the community's dependence on these resources, and to identify opportunities for more local control.

This element includes discussions of conventional and renewable energy resources, quantifies energy use, and addresses mineral resources. The policies and programs in this Element should be considered tools to help the City find effective solutions to energy resource issues, while not negatively affecting its long term growth.

## **BACKGROUND**

The Energy and Mineral Resources Element applies to several other elements in the General Plan, including Land Use, Open Space and Conservation, Air Quality, and to a lesser degree Housing, Community Design and Economic Development. A number of state and federal regulations pertain to energy and mineral resource issues. California Code Section 65560(b) directs cities to preserve energy and mineral resources. Government Code Section 65302(d) mandates the inclusion of resource conservation in General Plans, and includes issues to be addressed in this Element, such as reclamation, resource degradation and preservation for long-term use.

Some of the state regulations affecting mineral and energy resources include Title 24 building standards to reduce unnecessary energy use in new or substantially remodeled construction, and the State Solar Rights Act and Solar Shade Control Act, which facilitate the use of solar energy.

## **Energy Resources**

Energy resources play a vital role in many land uses, and are particularly critical to transportation. Currently, the majority of energy is derived from limited and non-renewable resources. These resources are restricted and not viable for long-term production, and their production and use are damaging the environment. Furthermore, existing energy resources are

not managed locally, and therefore are not always readily available or dependable. Environmental degradation, energy shortages, rising energy costs, diminished reserves and uncertainties about future availability of resources have made traditional non-renewable energy resources an important subject of public discussion in recent months in California. Alternate sources of energy, which had limited exposure in recent years, are once again in the spotlight for future growth.

The following table provides a breakdown of the energy resources utilized in California, the percentage of total energy use that each resource contributes and estimated reserves. The percentage of energy from renewable energy resources in California is largely due to wind and solar farms, which are continually gaining popularity throughout the state. Other renewable resources that are utilized in smaller amounts include geothermal and biomass.

**Table IV-9  
Energy Use in California**

<b>Fuel</b>	<b>% of Energy Use</b>	<b>Reserves</b>
Nuclear	14%	260 years
Coal	17%	220 years
Natural Gas	35%	60 years
Hydro Power	24%	
Renewable	10%	

While existing energy usage is heavily dependent on non-renewable sources, there are several renewable resources that offer sound alternatives to traditional energy systems. The following provides a brief description of conventional and alternative energy resources.

### **Conventional Energy Sources**

#### **Nuclear**

Nuclear power development began in the late 1950's to fill in the deficit caused by predicted shortages of oil and natural gas. Nuclear power is derived from splitting uranium or plutonium atoms. While nuclear power plants produce no air pollution, they can pose grave risks to human health and the environment when malfunctions occur. In California, several nuclear power plants provide electricity throughout the state.

#### **Coal**

Coal is fossilized plant material preserved by burial in sediments and altered by geological forces that compact and condense it into a carbon-rich fuel. Coal was a prominent source of energy between 1870 and 1950. While coal is still used, the public health and environmental costs of coal extraction and use are great. About 65% of the sulfur dioxide, 33% of the carbon dioxide, and 25% of the nitrogen oxide emissions in the U.S. are produced by coal burning plants.

### **Natural Gas**

Natural gas is the most rapidly growing energy source because it is convenient, cheap and clean burning. Although natural gas reserves will last for many decades, they are finite and as they become more scarce, the price will rise. Furthermore, natural gas is not as easy to transport in large quantities, and expansion of the pipeline system can have significant environmental impacts and be expensive.

### **Hydropower**

Dams provide electricity by guiding water down a chute and over a turbine at high speed. Although water is considered a renewable resource, large-scale hydropower is a conventional source of energy. While it does not produce air emissions, large dams do raise some serious environmental issues, such as flood control, water quality and depletion of valuable fish and wildlife habitat. Therefore, while large hydropower is clean, it can have negative environmental impacts as well. However small-scale hydropower (less than 30 MW) projects are considered an appropriate use of water, with minimal environmental impacts, since they are not dependent on dams, and therefore do not affect watersheds and alter fish and wildlife habitat.

## **Renewable Sources of Energy Production**

### **Geothermal**

The earth's internal temperature can provide a useful source of energy. High-pressure, high-temperature steam fields exist below the Earth's surface. Geothermal energy is generated by converting hot water or steam from deep beneath the Earth's surface into electricity. Until recently, the main use of this energy source was in baths built at hot springs. Geothermal plants emit very little air pollution and have minimal impacts on the environment.

### **Biomass**

Organic matter, called biomass, can be burned in an incinerator to produce energy. In newer facilities, the biomass is converted into a combustible gas, allowing for greater efficiency and cleaner performance. Biomass resources include agricultural, forestry and food processing byproducts as well as gases emitted by landfills.



**Capwind Substation**

### **Wind**

The wind turbine is a source of clean, renewable energy. Wind turbines use strong, steady wind to create electricity. Wind power emits no pollution and has very little impact on the land. While expensive facilities are needed to store the energy created by windmills for use at non-windy times, wind power is cheaper than any other new energy source.

## **Solar**

The sun's radiation is used directly to produce electricity in two ways: photovoltaic (PV) systems and solar thermal systems. PV systems change sunlight directly into electricity. Solar thermal systems use the sun's energy to heat a fluid that produces steam, which then turns a turbine and generator. The sun's radiation can also be used passively, through the use of certain building materials and designs, to improve heat gain in the winter and minimize it in the summer.

## **Electric Power**

### **History of Power Services**

Historically, electric utilities have been responsible for generating, transmitting and distributing electricity. Jurisdiction over the electric utility industry was divided between the Federal Energy Regulatory Commission (FERC), which regulated transmission and wholesale transactions in interstate commerce, and the states, which regulated local distribution and shareholder-owned utilities' retail sales. Traditionally, state public utility commissions (PUC's) have granted utilities exclusive franchise areas and required them to serve all customers in their areas at regulated rates that included generation, transmission and delivery, based on cost of service.

### **Deregulation**

In 1998, Assembly Bill 1890 (AB 1890) deregulated the electric industry. Deregulation resulted in a shift from a regulated to a market-driven system, allowing consumers to choose their electricity provider. Deregulation has led to the restructuring of the energy system, resulting in the creation of two new entities: the Independent System Operator (ISO) and the Power Exchange (PX), which are both independent of the utility companies.

The California ISO is a not-for-profit corporation that has control of the long-distance, high-voltage power lines that deliver electricity throughout California, and between neighboring states and Mexico. The first participants in the ISO were the state's three investor owned utilities (IOU's): Pacific Gas & Electric, San Diego Gas & Electric and Southern California Edison.

These utilities were mandated by AB 1890 to release control, but not ownership of their transmission lines to the ISO, enabling other energy generators to transmit energy to consumers. The mission of the California ISO is to ensure that the power grid is safe and reliable and that there is a competitive market for electricity in California.

The California Power Exchange (PX) provided a competitive marketplace where buyers and sellers of power complete traded through an electronic auction. An independent board managed the PX, with representatives of various constituencies involved in the electric power industry. It belonged to the people of California and was created to benefit the public. The PX was not a government agency, nor a utility, nor a generating facility.

The last year (2001) has demonstrated the effects of deregulation, and the ultimate outcome is still to be determined. In the near term, Cathedral City and the other Coachella Valley cities can influence the impacts which deregulation has on residents and businesses by offering conservation initiatives, developing and regulating local power generation, and by influencing energy policy on a regional and state level. The City must also continue to monitor the

development of private energy plants, including the Peaker plant recently built to the west of the City.

### **Southern California Edison**

Southern California Edison (SCE) is the electric service provider for the City of Cathedral City. High voltage transmission lines deliver power to substations where power is stepped down and distributed through lower voltage lines. Residences and businesses then receive power through a transformer, which reduces voltages to safe levels.

SCE offers rebates for the installation of energy efficient equipment, including air conditioning units, refrigerators and even light bulbs. For residential customers, the Automatic Power Shift program allows substantial savings from June through October, in exchange for allowing SCE to remotely cycle-off selected air conditioning units during peak periods of heavy use and potential power outages. A similar program, the Interruptible Customer Program, is available for commercial customers.

### **Natural Gas**

Natural gas is becoming a more widely used resource, which has lower environmental impacts than most electric generation facilities. It is transported throughout the country by high-pressure transmission lines, and is available to commercial, industrial and residential users throughout the City.

The costs of natural gas vary depending on the season and amount of use, but are currently still affordable throughout the year. Although gas supplies are still abundant, the rapidly increasing demand is expected to affect availability and cost in the future.

### **Southern California Gas Company**

Natural gas is provided to the General Plan planning area by the Southern California Gas Company (SCG). SCG's services include detailed technical assistance and incentive programs that address a wide range of use issues, land use planning, service extension and use-specific technical consulting/problem solving. In addition, SCG has developed a wide range of energy management, conservation and equipment retrofit programs for its customer base. These programs include core nonresidential customers equipment rebates of up to 20% of the cost of qualifying equipment. Assistance in facilities planning and analysis is also provided to maximize energy efficiency and cost-effective equipment purchases and operations. SCG's Air Quality Assistance Program provides users with information on current and upcoming energy regulations, and helps them implement these regulations as well. SCG also actively participates in the development of new technologies, primarily for industrial users.

### **Renewable Energy Resources in the Coachella Valley**

The City benefits from two abundant renewable resources: sunshine and periods of high winds. The San Geronio Wind Resource Area, which extends from the San Geronio Pass into the City's northwesterly boundary, provides an important resource for the electric generation system in this State. The number of sunny days, and the intensity of the sun in the Valley, make solar

energy generation an important resource as well. Both of these resources provide practical and cost-effective alternatives to conventional energy.

Renewable energy resources provide an endless supply energy, and can significantly reduce dependence on traditional energy sources. Local generation of renewable energy can also create an opportunity for economic development for both the City and the region.

### **Wind Energy**

The early wind energy projects in the Valley occurred in the mid-1980's, on U.S. Bureau of Land Management (BLM) and County of Riverside lands. The cities of Desert Hot Springs and Palm Springs now have jurisdiction over wind farms which they annexed in the 1990's, with the City of Cathedral City having jurisdiction over eight (8) wind turbines north of Interstate 10 in area annexed into the City in 2007.

The areas of the Valley particularly suitable to the generation of wind power were originally delineated in the *San Geronio Wind Resource Study*. Additional analysis has refined and expanded on the Study, resulting in a Valley-wide understanding of the location of the wind resource area that is economically viable.

The cost of wind-generated electricity is now equal to or lower than electricity generated by coal or natural gas. Its primary limitation is its lack of constancy – in order to make the resource more generally dependable, storage of the energy generated is required.

### **Solar Energy**

Photovoltaic systems have traditionally been very expensive, and therefore not often installed. Although in recent years, the costs have come down, photovoltaic power is still used only in limited applications. Photovoltaic systems are appropriate as stand-alone power systems and as integrated components of building design and construction, and are slowly becoming more widely used.

Residents in the Coachella Valley have for many years used solar thermal systems for domestic hot water production and to heat their swimming pools. Most cities in the Valley also consider passive solar design when reviewing development projects, and include them in their design guidelines. The intense solar insulation which facilitates both solar thermal and photovoltaic use puts Cathedral City in an ideal position for use of this resource by its residents and businesses alike.

### **Hydrogen Fuels**

As technologies change and develop, new and better fuels, including hydrogen fuels, which are dependent on renewable rather than non-renewable sources, will become more practical for everyday use. Hydrogen fuel cells convert energy into electricity with no harmful byproducts. Hydrogen fuel applications are developing at a rapid pace, and can be used as primary power sources when combined with other renewable energy sources such as solar or wind power.

## **Regional Research, Development and Implementation Programs**

Two entities have taken the lead in the research, development and implementation of new energy resource programs in the Valley: the SunLine Transit Agency and College of the Desert.

Several years ago, SunLine converted all its vehicles to compressed natural gas, including its buses, vans and service vehicles. Since the conversion, city vehicles, post office delivery trucks and taxicabs have also been converted to compressed natural gas. The conversion from diesel fuel to compressed natural gas represents an important reduction in air emissions generated by vehicles in the Valley.

In recent years, SunLine has also worked with the City of Palm Desert in developing hydrogen fuel cells to power vehicles. SunLine now operates a complete hydrogen fuel facility which produces, compresses, stores and dispenses hydrogen fuels for vehicles operated by Palm Desert for gardening and maintenance.

The College of the Desert operates the Energy Technology Training Center (ETTC) and the Advanced Transportation Technologies Initiative (ATTI). The ETTC has provided training in alternative fuels technology since 1993, and is a model for such programs now being developed for nine other community colleges in the State. The ATTI program trains and retrains workers to be able to convert, service and repair advanced alternative fuel vehicles now and into the future, through programs available at a network of community colleges throughout the state.

## **Mineral Resources**

Mineral resources are naturally occurring crystalline substances which are economically valuable, and include iron, sand and gravel and limestone. Mineral resources provide materials for a variety of uses, making them important to community development and commerce.

The importance and value of mineral resources, coupled with their limited availability, make careful planning a necessity. Moreover, the mining, processing and distribution of mineral resources have broad and varied implications on the environment. Surface mining can scar the landscape for hundreds of years if a mine is not adequately reclaimed. The Surface Mining and Reclamation Act was established to deal with these issues. Its objective is twofold: ensuring the conservation and wise use of mineral resources while concurrently addressing environmental protection from mining impacts.

### **Locally Important Mineral Resources**

Significant accumulations of sand and gravel, commonly referred to as ‘aggregate’ are found throughout the Valley, resulting from the transport of soils and rocks from the mountains surrounding the Valley to the Valley floor. Aggregate represents 80% to 100% of the contents of asphalt, concrete, road base, stucco and plaster. Aggregate products are now being recycled when roads are resurfaced and buildings demolished, so that new asphalt and concrete can be created without additional mining.

**Exhibit IV-10 Mineral Resources in the Planning Area**

Sand and gravel resources in the Valley were identified and mapped by the California Department of Conservation, Division of Mines and Geology in 1988, as required by the Surface Mining and Reclamation Act. The report identifies significant mineral deposits in the region, in an effort to protect them from incompatible land uses and conserve them for future development.

The report used three categories for identifying mineral resources:

MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.

MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists.

MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

As shown on the state mineral resources map, only Mineral Resource Zone 3 (MZR-3) is applicable to the City and its sphere-of-influence. MZR-3 generally refers to areas where development has limited the ability to determine the presence or amount of mineral resources.

## **FUTURE DIRECTIONS**

The use of energy and mineral resources is critical to our current lifestyles. The manner in which we have mined, farmed or otherwise collected these resources has caused environmental degradation, impacted wildlife habitat, affected our water and air quality, and been directly and indirectly associated with adverse public health effects. Whether applied to the generation of electricity or the mining of sand, the future of both mineral and energy resources is dependent on our wise and carefully considered use of traditional resources, and our aggressive pursuit of new and renewable options.

Steadily increasing economic and environmental costs associated with energy production and use are forcing communities and countries to develop new energy policies. The community approach to energy problem-solving can be a good alternative to the energy crisis in California. This "soft path" approach, with its emphasis on local control, renewable resources and community-scale technologies, is gaining favor in many communities.

## **GOAL, POLICIES AND PROGRAMS**

### **Goal**

The appropriate use of energy and mineral resources to assure that both limited and renewable resources are sustainable in the long-term.

**Policy 1**

Encourage conservation in the planning and construction of urban uses and in the regional transportation system.

**Program 1.A**

The City shall encourage Southern California Edison to develop energy conserving standards for all public office buildings and facilities that significantly reduce energy usage.

**Responsible Agency:** City Council, City Manager's office, Southern California Edison

**Schedule:** Immediate; Continuous

**Program 1.B**

The City shall provide developers with available data on energy efficient and conserving building design and technologies, including passive solar site design. This information should be collected from trade organizations, state agencies and others as it becomes available.

**Responsible Agency:** Building Department; Planning Department; Building Industry Association

**Schedule:** Continuous

**Program 1.C**

Encourage Southern California Edison and other providers to provide public education on energy conservation.

**Responsible Agency:** City Manager's Office

**Schedule:** Continuous

**Program 1.D**

The City shall participate in the energy management and conservation efforts of SunLine Transit and encourage the expanded use of compressed natural gas, buses with bike racks and other system improvements, which enhance overall energy conservation.

**Responsible Agency:** City Manager's office; Economic Development Department; City Council

**Schedule:** Continuous

**Policy 2**

The General Plan and other City documents, such as the 5 Year Capital Improvement Program, shall assure an efficient circulation system and land use pattern in the City which minimizes travel.

**Program 2.A**

Amendments to the land use map and Land Use Element shall consider the provision of convenient neighborhood shopping, medical and other professional services appropriately located to minimize travel and facilitate the use of alternative means of transportation.

**Responsible Agency:** Planning Department

**Schedule:** Continuous

**Policy 3**

Support the long-term strategies, as well as state and federal legislation and regulations, that assure affordable and reliable production and delivery of electrical power to the community.

**Program 3.A**

The City shall participate in regional efforts to provide affordable, dependable electric power to its residents and businesses, including CVAG efforts and regular consultation with SCE.

**Responsible Agency:** Planning Department, City Council; CVAG

**Schedule:** 2001-2002, Ongoing

**Program 3.B**

The City shall participate in regional efforts to influence state and federal legislative and regulatory agendas that address the current and future energy needs of the City's residents and businesses.

**Responsible Agency:** City Council; CVAG

**Schedule:** 2001-2002, Ongoing

**Policy 4**

Continue to proactively support and participate in efforts to develop and operate alternative systems which take advantage of local wind, solar and other renewable resources.

**Program 4.A**

Evaluate the use of co-generation and other energy management systems for new larger industrial and commercial businesses in the City as they arise.

**Responsible Agency:** Planning Department; Building Department

**Schedule:** Continuous

**Program 4.B**

Encourage and support the aesthetic expansion and enhancement of wind farms within the planning area, including Edom Hill, Flat Top Mountain, as appropriate, and other viable locations for generating community-scale electric power.

**Responsible Agency:** Planning Department; City Council

**Schedule:** 2002; Continuous

**Policy 5**

The City shall support alternative fuel sources and modes of transportation as a means of reducing transportation related energy demand.

**Program 5.A**

Facilitate the development of a community-wide and regional bike path system to provide residents and visitors an alternative mode of transportation.

**Responsible Agency:** Planning Department; City Council

**Schedule:** 2002; Ongoing

**Program 5.B**

The City shall make information on ridesharing and mass transit available to residents and businesses, at City Hall and elsewhere in public buildings.

**Responsible Agency:** Public Works

**Schedule:** Ongoing

**Policy 6**

Support the use of solar energy systems, including but not limited to solar thermal and photovoltaics in building design and construction.

**Program 6.A**

The City shall provide developers and builders with information on commercially available solar thermal and photovoltaic energy systems at City Hall, and shall consider a City-run program of discounted solar panels for home use.

**Responsible Agency:** Building Department

**Schedule:** 2002; Ongoing

**Policy 7**

Large scale, alternative energy generation facilities shall be sited in a manner which minimizes the effects of excessive noise, pollution, and other adverse impacts on surrounding land uses.

**Program 7.A**

Evaluate noise, safety, and visual impacts associated with energy production facilities, and require acoustical or other special studies as necessary to develop mitigation programs to reduce significant impacts.

**Responsible Agency:** Planning Department

**Schedule:** Ongoing

**Policy 8**

Support regional efforts to provide mineral resources which ensure an affordable supply for building materials and public works construction projects.

**Program 8.A**

The City shall cooperate with regional agencies such as CVAG in monitoring proposals for new sand and gravel projects, as well as the adequate reclamation of existing facilities.

**Responsible Agency:** Planning Department; City Manager's office; City Council

**Schedule:** Continuous

**Program 8.B**

The City shall require builders to recycle construction waste, including cement, asphalt and gypsum board, whenever possible.

**Responsible Agency:** Building Department; Economic Development Department

**Schedule:** Continuous