

### ***Plants***

**Coachella Valley Milkvetch** This Coachella Valley endemic species grows in dunes and sand flats, along the disturbed margins of sandy washes, and in sandy soils along roadsides in areas formerly occupied by undisturbed sand dunes. Within the sand dunes and sand fields, this milkvetch tends to occur in the coarser sands at the margins of dunes and not in the most active blow sand area (Coachella Valley Associations of Governments, 2004). It is an annual/perennial herb that blooms from February to May with an elevation range of 198-2160 feet (60-655 meters). It is known from less than 20 locations in the Coachella Valley. At one time, it occupied sand habitat in what is now Palm Springs and Palm Desert. Its habitat was greatly reduced by urbanization. Part of the remaining population is protected in the Coachella Valley Preserve System. The primary threat to the Coachella Valley milkvetch is habitat destruction due to continuing urban development, including the direct effects of habitat conversion and OHV use.

**Orocopia Sage** This evergreen flowering shrub is endemic to eastern slopes of the Coachella Valley in the Orocopia Mountains, Mecca Hills, and Chocolate Mountains. This species is associated with desert dry wash woodland and Sonoran creosote bush scrub and grows in gravelly or rocky soils on alluvial fans. In desert washes and canyons, it may occur on alluvial terraces and sandy or rocky benches elevated above the flood plain with an elevation range of 132-2723 feet (40-825 meters). It blooms in March and April.

Orocopia sage is patchy in its distribution; but where it occurs, it is usually one of the dominant members of the vegetation. During droughts, this plant may remain dormant, without blooming and forming only sparse new shoots.

Much of its habitat is protected within the Mecca Hills, Orocopia Mountains, and Chuckwalla Mountains Wilderness Areas. However, some threat may exist from unauthorized OHV use. However, because most Orocopia sage stands are on rocky slopes or alluvial fans, much of the population is relatively isolated from vehicle traffic (Coachella Valley Associations of Governments, 2004).

### ***Insects***

**Coachella Valley Giant Sand Treader Cricket** This endemic insect occurs only in the active sand hummocks and dunes in the Coachella Valley. Its preferred habitat is in windblown sand dominated by creosote bush, burrobrush, honey mesquite, Mormon tea, desert willow, and sandpaper bush. It appears to avoid stabilized sand areas. The giant sand treader cricket is mostly nocturnal, coming to the surface to forage on detritus blown over the dunes or to look for mates. During the day, it digs burrows from 16.5-66 feet (5-20 meters) deep and seeks cover deep in the sand. The adult and juvenile instars disappear during the

warm months of the year, perhaps spending the summer in the egg stage. Activity of small juvenile instars begins in the late fall through early winter. By mid to late spring, the adults have disappeared.

Development, loss of active windblown sand ecosystems and disruption of sand sources and corridors, and OHV use have greatly reduced habitat of the giant sand treader cricket.

### **Reptiles**

**Flat-Tailed Horned Lizard** This species ranges in the deserts of Imperial, Riverside, and San Diego Counties, south to Baja, California, and Sonora, Mexico; and in the extreme southwestern portion of Arizona. It is associated with sand flats and the edges of sand dunes but rarely occurs on larger dunes. It also inhabits concreted silt and gravel substrates. Its optimum habitat consists of hard packed sand or desert pavement overlain with fine blow sand. It is most commonly associated with Creosote-white bursage desert scrub. Its diet consists almost exclusively of harvester ants. The flat-tailed horned lizard is often active during the day feeding, digging burrows, and escaping predators. It uses burrows to escape the hotter periods and also for winter hibernation from mid-November to mid-February.

In the Coachella Valley, the flat-tailed horned lizard occurs at elevations below approximately 800 feet. A known key population near Reclamation lands occurs at the east end of the Indio Hills on the north side of the Coachella Canal (Coachella Valley Associations of Governments, 2004; Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). A potential habitat corridor exists currently between the east end of the Indio Hills and the Coachella Valley Preserve, which serves as an important refuge for the lizard and several other special status species.

Threats to habitat include agricultural and urban development, utility corridors, canal construction, and OHV use. An estimated 84 percent of historic habitat has been lost to urban and agricultural development (Coachella Valley Associations of Governments, 2004).

The Service proposed the flat-tailed horned lizard for listing as a threatened species in 1993 but withdrew its proposed listing in 2003, based in part on protections offered in the Flat-tailed Horned Lizard Rangewide Management Strategy, of which Reclamation is a member of the coordinating committee (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). However, August 30, 2005, a Federal court ordered the Service to propose the flat-tailed horned lizard as threatened, requiring Federal agencies to treat the species as if it were listed under ESA.

The purpose of the management strategy is to provide a framework for conserving sufficient habitat to maintain several viable populations of the horned lizard

throughout its range. As part of this effort, five management areas (MA) were designated as core areas for maintaining self-sustaining populations. In addition, the management strategy designed actions in the Coachella Valley that included managing habitat areas that are capable of maintaining self-sustaining populations of the species by working with agencies and organizations in finalizing the CVMSHCP/NCCP. Outside the designated MAs, the management strategy requires cost-effective mitigation and compensation for impacts on flat-tailed horned lizards. Mitigation and compensation guidelines are discussed in the management strategy (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003).

**Coachella Valley Fringe-Toed Lizard** This endemic species occurs only on active sand dunes and their stabilized margins in the northern Coachella Valley. Most of these lizards exist inside three protected areas of the Coachella Valley Preserve System: Thousand Palms, Willow Hole, and Whitewater River. These preserves represent an estimated 2 percent of the species original range (LaRoe et al., 1995). A few scattered pockets of windblown sand along the northern fringe of the Coachella Valley also support low densities of this lizard.

High winds funneling through the San Geronio Pass on the northwestern end of the Coachella Valley create the areas of blow sand occupied by the species. Originally, about 200 square miles of the Coachella Valley floor and an additional 70 square miles of peripheral areas were covered with loose, windblown sand. Development has fragmented and eliminated habitat; remaining habitat is limited to north of Interstate 10 in the study area. Fortunately, human development has not severely affected the sand source and its path to the preserves (LaRoe, et al., 1995). However, sand depletion during droughts may create periods of degradation to the lizard's habitat (Griffiths, 2002).

The Coachella Valley fringe-toed lizard's adaptations to living in loose sand include the ability to "swim" through the sand (i.e., running across the sand surface at high speed, diving into the sand, then moving short distances below the sand surface). Small, rounded scales make the lizard's skin very smooth and reduce the friction of its body against the sand, which facilitates living in the sand. Its fringed toes increase its mobility in sand.

Threats to Coachella Valley fringe-toed lizard habitat include direct loss or degradation of habitat and the processes that sustain blow sand deposits. Habitat is lost when human development replaces suitable with unsuitable habitat. Habitat is degraded by OHV abuse, illegal dumping, and invasive plants. Processes that drive the aeolian sand system are disrupted if floodwaters are blocked or redirected from the sorting area—if barriers are created that block the movement of wind and its sand load between the sorting area and the habitat. Other impacts are from roads, feral pets, and collecting for pets. These activities

increase mortality of fringe-toed lizards, especially around the perimeter of a habitat patch or close to human development and recreation areas (Coachella Valley Associations of Governments, 2004).

### ***Birds***

**Burrowing Owl** This species is distributed in open country throughout the Central and Western United States, central Canada, Mexico, and the drier regions of Central and South America. Within the Coachella Valley, small numbers of burrowing owls are scattered in open desert areas, edges of agricultural fields, fallow fields, and along irrigation dikes and levees. The burrowing owl is associated with ground squirrel burrows and areas away from intense human activities. It often uses the same burrow for several years for nesting and cover. Besides abandoned mammal burrows, this owl also commonly uses old pipes, culverts, or other debris that simulates a hole in the ground.

In some years, there may be an influx of burrowing owls wintered in the Coachella Valley. However, most observations are from the spring and summer, indicating the presence of a breeding population.

The burrowing owl is most active during the early morning and evening hours. It preys on large insects, small rodents, small birds, reptiles, amphibians, fish, scorpions, and other small prey. It uses fence posts or utility wires for hunting perches.

The key threat to the burrowing owl is loss of habitat on the edges of agricultural and in rural areas. The owl is heavily preyed on by domestic cats and dogs or is killed by vehicles on rural highways while foraging at night. Along canal systems, the burrowing owl can be disturbed or displaced by maintenance activities along dikes and levees and by poisoning from pesticide use or rodent poisoning campaigns. Burrows can be destroyed or nesting territories disrupted from OHV use and illegal trash dumping (Coachella Valley Associations of Governments, 2004).

**Southwestern Willow Flycatcher** This neotropical migrant songbird breeds exclusively in riparian habitats with dense vegetation near surface water. Preferred nesting vegetation is Sonoran cottonwood-willow and saltcedar. Its summer range includes much of the desert southwest in southern California, primarily in Kern, San Diego, San Bernardino, and Riverside Counties. Its breeding range also includes southern Nevada, Arizona, New Mexico, Utah, western Texas, and possibly southwestern Colorado. It is reported as a breeding bird in Mexico, extreme northern Baja California, and Sonora. It winters in Mexico and Central America.

The only confirmed breeding record in the Coachella Valley is in Mission Creek (Coachella Valley Associations of Governments, 2004). Suitable breeding habitat is suspected in several riparian areas with adequate vegetation structure and surface water. Reclamation parcels contain two small riparian areas that are probably too small to be suitable for breeding. However, the migrating Southwestern willow flycatcher and other migrating songbirds could use these two areas in the spring and fall en route to and from breeding areas. In addition, migrating birds may use mesquite hummock and desert dry wash woodland for resting and foraging.

**Least Bell's Vireo, Yellow Warbler, Yellow Breasted Chat, and Summer Tanager** These neotropical migrant songbirds breed in riparian habitat along streams in the canyons surrounding the Coachella Valley. It is possible that the Reclamation parcels that support two small riparian areas could be suitable for breeding by one or a few individuals of these species or other riparian obligate birds. These two areas are probably used by these species during migration in the spring and fall en route to and from breeding areas. In addition, migrating birds may use mesquite hummock and desert dry wash woodland for resting and foraging.

**Gray Vireo** This neotropical migrant songbird breeds at mid-elevations in the mountains surrounding the Coachella Valley in pinyon-juniper and chaparral vegetation at higher elevations than Reclamation parcels. Migrating vireos probably use cottonwood-willow oasis, mesquite hummock, and desert dry wash woodland for resting and foraging.

**Crissal Thrasher** This medium-size, ground-dwelling songbird occurs in the Coachella Valley in cottonwood-willow riparian areas, saltcedar, desert saltbush scrub, and mesquite hummock areas. It is often associated with sandier soils and often occurs in the desert-agricultural interface. Its range includes the desert southwest from southeastern California to western Texas. This species was once a fairly common permanent resident in mesquite and densely vegetated wash woodlands in the Imperial and Coachella Valleys and along the entire length of the Colorado River Valley in California (Grinnell and Miller, 1944). Today, the Imperial and Coachella Valley populations have been reduced dramatically by removal of mesquite and conversion of desert to agricultural fields. Small, localized populations are scattered elsewhere in the Sonoran and Mojave Deserts.

**Le Conte's Thrasher** Le Conte's thrasher is an uncommon songbird of the deserts of the American southwest and northwestern Mexico. It occurs in the western and southern San Joaquin Valley, upper Kern River Basin, Owens Valley, Mojave Desert, and Colorado Desert (Grinnell and Miller, 1944). Densities even in optimum habitat are five pairs or less per square mile (Sheppard, 1970), an extremely low density for any songbird.

Its typical habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills supporting saltbush, cholla cactus, and other well scattered shrubs. The ground cover in its preferred habitat is sand with sparse cover, sometimes consisting of patches of grasses and annuals forming low ground cover. It seems to avoid habitat dominated by creosote bush. It also occupies dry desert wash woodlands traversing more level terrain with associated larger saltbush and other desert shrubs. It also uses the vegetated margins of large, rolling sand dunes. Le Conte's thrasher builds its nests in dense and thorny shrubs and cholla cactus.

Agriculture and urban development have eliminated much undisturbed habitat throughout much of its range.

### ***Mammals***

**Southern Yellow Bat** This species occurs in extreme southeastern California, southwest to Texas, and in the northwestern portion of Mexico, including Baja California. Because it roosts primarily in palm trees, its range appears to be expanding due to the use of palm trees for landscaping. The yellow bat probably occurs throughout the Coachella Valley in fan palm oases and in residential areas with untrimmed, introduced palm trees (Coachella Valley Associations of Governments, 2004). There is no population estimate for the Coachella Valley. During Reclamation surveys in September 2004, yellow bats were detected in Reclamation parcel T (biological inventory parcel 9) near Toro Canyon. They were also detected in relative abundance in the control area at the Coachella Valley Preserve.

To maintain this population in the Coachella Valley, it is necessary to protect the fan palm groves and maintain dead palm fronds on landscaped trees. Cutting and pruning in the spring before the young bats can fly could impact reproduction.

**Palm Springs Round-Tailed Ground Squirrel** This subspecies of the round-tailed ground squirrel occurs in the Coachella Valley associated with sandy substrates. During Reclamation's biological inventory, this species was observed in sand habitat in parcel I and near parcel G (biological inventory parcels 26, 27, and 37).

The Palm Springs ground squirrel is typically associated with sand fields and dune formations, although it does not require active blow sand areas (Coachella Valley Associations of Governments, 2004). It often occurs where sand accumulates at the base of large shrubs that provide burrow sites and adequate cover. It apparently is common in mesquite hummock and active sand field habitat at the east end of the Indio Hills. It also may be found in localized sandy areas in creosote bush scrub, desert saltbush, or desert wash woodlands that supports herbaceous growth.

The Palm Springs ground squirrel occurs in small colonies widely scattered in suitable sandy habitats. It most often excavates burrows at the base of a large shrub. In winter, it remains in its underground burrow for much of the time.

Habitat of the Palm Springs ground squirrel in the Coachella Valley has been lost as result of urban and agricultural development, including the loss of mesquite hummocks due to lowered water tables, OHV use, and invasive plants. While the Palm Springs ground squirrel does not require active blow sand areas, maintaining its habitat will depend on protecting ecosystem processes associated with sand dunes. (**Photograph 5.5** shows mesquite hummocks and stabilized sand fields/dunes.)



**Photograph 5.5 – Mesquite hummocks and stabilized sand fields/dunes on east side of Coachella Valley are potential habitat for several special status species.**

**Palm Springs Pocket Mouse** This is one of seven subspecies of *Perognathus longimembris*, the “silky pocket mice” that occur in southern California. This subspecies occurs in the Coachella Valley from the San Gorgonio Pass area south. Its habitat consists of gently sloping topography, sparse to moderate vegetative cover, and loosely packed or sandy soils.

According to the survey results of Dodd (1999), the highest densities of this pocket mouse occur at the western end of the study area, with lower densities farther east (Coachella Valley Associations of Governments, 2004).

The pocket mouse is nocturnal, solitary, and generally exhibits strong intraspecific aggression (Dodd, 1999). It spends the day in a complex burrow system. Apparently, its reproductive productivity depends on availability of annual vegetation and is probably greatly affected by drought (Coachella Valley Associations of Governments, 2004).

**Peninsular Bighorn Sheep** This sheep occurs at elevations below about 4,620 feet in the Peninsular Range, which includes the lower slopes of the Santa Rosa Mountains on the west side of the Coachella Valley. The population has apparently decreased from hundreds of thousands to less than 400 due to habitat loss and fragmentation, disease, and predation (Coachella Valley Associations of Governments, 2004). The population in the Coachella Valley is restricted to a narrow band of habitat that includes canyon bottoms, alluvial fans, and steep slopes. Residential developments, golf courses, and other developments in or near their habitat have created several factors leading to displacement and mortality, including plantings of plants that are toxic to Peninsular bighorn sheep. Reclamation parcels 1, 2, 4, 5, 6, 7, 8, and 9 (N, R-U) are adjacent to, or within the boundaries of, the Santa Rosa Management Area, managed specifically for this species. These parcels serve as a buffer between Peninsular bighorn sheep habitat and the current and future developments. (See **photograph 5.6.**)



**Photograph 5.6 – Reclamation lands (parcel Q) bordering Lake Cahuilla Park serve as a disturbance buffer between recreation and residential development and Pennisular bighorn sheep habitat on the adjacent slopes of the Santa Rosa Mountains.**



## **Environmental Consequences**

Reclamation would conduct ESA compliance and consultation with the Service before implementing any proposed land uses and developments. If necessary, field surveys would be conducted to determine habitat suitability presence/absence of special status species, and a biological assessment focusing on federally listed species would be prepared. The level of detail in the following discussion of impacts is programmatic and general.

Potential borrow pit/stockpile sites would be retained within parcels B-R on the east side of the Coachella Valley adjacent to the Coachella Canal. When these sites are used, excavation of borrow material would result in net loss of habitat; displacement; and mortality of special status species associated with creosote bush shrub, desert saltbush scrub and/or dry desert wash woodland habitats. These species include Orocopica sage, flat-tailed horned lizard, burrowing owl, Crissal thrasher, LeConte's thrasher, and Palm Springs ground squirrel. Before any new excavation activities, Reclamation would conduct surveys and implement mitigation and compensation for the flat-tailed horned lizard, as specified in the Flat-tailed Horned Lizard Rangeland Management Strategy, (Flat-tailed Horned Lizard Interagency Coordinating Committee, 2003). The action alternatives would include early initiation of compliance for those sites that may require borrow activities in short-notice emergency situations.

Open space recreation would be provided in portions of parcels A, B, C, D, E, F, K, R, S, and T, which could result in relatively minor disturbances to special status species (compared to developed recreation facilities and trails). However, the degree and extent of disturbance could increase with the anticipated population growth and demand for recreation.

All action alternatives would include the initiation of a comprehensive weed control program and rehabilitation of infested habitat. This would greatly benefit suitable habitat for special status species, especially in degraded sand habitats.

### ***Alternative A***

Under the No Action Alternative, Reclamation lands would be managed and considered for development on a case-by-case basis, as under current conditions. Although environmental and ESA compliance would be conducted for each development action, this alternative could result in sporadic land use planning with an incremental loss and continued degradation of habitat for special status species. Because of lower levels of coordinated long-term planning and possible delays or deficiencies in protection of suitable habitat, such habitats more likely would degrade into lower value as a result of increasing recreational use and development in light of increasing population growth and development pressure.

Unregulated OHV use and illegal dumping would continue and probably increase. Without an overall strategy for protecting intact and higher value habitat blocks, fragmentation, degradation, and mortality would increase.

This alternative would not include a comprehensive weed control program. The invasion and spread of noxious weeds would continue to affect potential habitat for special status species, especially sand habitat.

The current level of agency coordination would continue. There would be fewer opportunities to cooperatively develop and implement habitat and wildlife inventory and management projects with other agencies.

### ***Alternative B***

The comprehensive land use strategy proposed for this alternative would emphasize protection and restoration of habitat for special status species. Developments that would adversely affect habitat would be discouraged. Future land use authorizations would be limited to those that could benefit special status species. Land uses that may affect special status species would be phased out, if feasible. Greater agency coordination with CDFG would occur through development of an inventory, monitoring, and protection plan for habitat for special status species.

Fewer adverse effects resulting from recreational OHV use would occur than under the No Action Alternative because OHV use would be eliminated, except for emergency situations. Areas with degraded habitat and reduced vegetation cover caused by unauthorized OHV use would be closed and rehabilitated. The proposed interpretive program would attempt to educate the recreational public about the unique plants and wildlife and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

### ***Alternative C***

The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development. Although protection would be given to special habitats where feasible, adverse effects would occur to vegetation and wildlife habitat in those locations where developments and access roads occur. Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special habitats, as outlined in “Environmental Commitments.”

Because OHV use would be restricted to designated areas, habitat would be better than under the No Action Alternative. Interpretive signs designed to educate the public on ways to avoid direct impacts would be posted. However, some areas could experience habitat degradation from continued or increased OHV use in

designated areas. Mortality to wildlife could occur in OHV areas, especially to those species that rely on freezing and blending into the environment rather than fleeing oncoming vehicles.

Changing recreation from open space to developed sites in portions of some parcels could affect sand habitat of the federally listed Coachella Valley milkvetch and Coachella Valley fringe-toed lizard. Other special status species associated with sand in this area could be the Coachella Valley giant sand-treader cricket, Coachella Valley Jerusalem cricket, flat-tailed horned lizard, crissal thrasher, Palm Springs round-tailed ground squirrel, and Palm Springs pocket mouse

Developed recreation sites in parcels A, B, C, D, E, F, S, and T could affect special status species associated with creosote bush shrub, desert saltbush scrub, and/or dry desert wash woodland habitats. These species include Orocopica sage, flat-tailed horned lizard, burrowing owl, Crissal thrasher, LeConte's thrasher, and Palm Springs ground squirrel.

Developed recreation sites in parcels O and P could direct or indirectly affect Peninsular bighorn sheep. Currently, habitat in these parcels on the west side of the Coachella Valley are either seasonally occupied by Peninsular bighorn sheep or serve as undeveloped buffer habitat in between occupied habitat to the west and encroaching developed habitat to the east.

Reclamation would conduct NEPA and ESA compliance for all developments, and mitigation would offset any impacts to special status species, as outlined in "Environmental Commitments."

### ***Alternative D***

The comprehensive land use strategy proposed for this alternative would be similar to Alternative A, along with limited development of recreation opportunities and facilities. In addition, protection and restoration of habitats for special status species would be a priority, while developments and land use authorizations that adversely affect habitat would be discouraged. Greater agency coordination with CDFG and the Service would occur by developing a habitat inventory, monitoring, and protection plan that would emphasize special status species.

Recreation developments could include construction of a limited number of multi-use trails using criteria to avoid impacts to special status species. If passive types of recreation in parcels E, K, R, and portions of S and T are encouraged, minor disturbances could increase. However, OHV restrictions, if enforced by such partners, would decrease the potential for more significant impacts

Fewer adverse effects resulting from recreational OHV would occur than under Alternative A, because OHV use would be eliminated, except for emergency

situations. Areas with degraded habitat and reduced vegetation cover from OHV primitive roads would be closed and rehabilitated, which would benefit several special status species, especially those associated with sand habitat. Interpretive programs implemented by qualified partners would attempt to educate the recreational public about special status species and ways to avoid direct impacts by OHVs, illegal dumping, and other activities.

As under all other alternatives, borrow pits could be established in parcels with potential to impact special status species, especially if they are in or adjacent to sand habitat. However, this alternative would provide a higher level of stabilization techniques to ensure that offsite impacts are avoided. In addition, unused or abandoned sites would be reclaimed and restored to natural habitat conditions.

### **Mitigation**

No intensive surveys have been conducted for the special status species listed in table 5.5. However, during the reconnaissance-level inventory in April 2004, Reclamation biologists identified habitat within RMP lands that has potential to be suitable habitat for several species. The following lists general mitigation measures that would apply to projects that affect vegetation, wildlife, and special status species. In addition, management actions that protect and restore habitat are summarized.

- Prior to all proposed projects, site-specific NEPA and ESA compliance would be conducted. If potential habitat is identified in the affected environment, surveys would be conducted to ascertain presence/absence of special status species and to determine habitat quality, and detailed protective measures would be developed and implemented. At that time, assessment of the quality and quantity of the affected vegetation and general wildlife community would be determined.
- To the extent possible, surface-disturbing projects would be located outside of high-valued habitat and occupied habitat of special status species and be timed to avoid mortality. Prior to construction, a protection plan would be developed specific to the vegetation, wildlife, and special status species within or adjacent to the project area.
- Project work areas in and near habitat for special status species would be clearly marked to avoid impacts, and a biological monitor would work with construction personnel to ensure that all protective measures are implemented.

- Project proponents would develop a habitat restoration plan that includes collecting and replacing topsoil, preparing seedbeds, seeding with native plant species, weed control, erosion control, and regularly monitoring the effectiveness of such measures.
- Existing roads and previously disturbed areas would be used for travel and equipment storage to the maximum extent possible.
- If adverse effects remain after the project proponent has taken all reasonable onsite mitigation measures, compensation would be made for residual effects.
- In addition to measures listed above, any recreational site development would require measures to inform the public of the value of special status species and habitat as well as restrictions against collecting, harassing, and harming. Trail development would avoid direct impacts to occupied habitat.

Following are general natural resource management mitigation:

- High value vegetation communities and general wildlife habitat would be protected with such measures as signs, interpretation, fencing, OHV restrictions, road closures, and enforcement of dumping.
- A restoration plan would be developed that includes measures to control invasive plants, establish stands of native plants, repair OHV damage, clean up illegal dump sites, and conduct monitoring to determine restoration success.
- Measures would be developed to protect Peninsular bighorn sheep:
  - Identify key habitat and disturbance buffers
  - Restrict all developments in key habitats and allow only passive recreation use in adjacent buffer habitat
  - Implement seasonal closures and fencing if necessary and install interpretive signs
  - Formulate stipulations (poisonous plant restrictions) for land exchanges and recreational developments near key habitat
- Develop an invasive plant management plan that includes inventory, determination of control feasibility, integrated control of target species in selected areas, facilitation of research of experimental control methods, and long-term monitoring.

- Implement measures to protect and restore riparian oasis, which could include fencing, clean up of dump sites, surface water improvements (quantity and quality), cottonwood/willow plantings, and salt cedar control.
- Implement measures to protect and restore mesquite hummocks which could include fencing, cleanup of dump sites, surface mesquite plantings, and control of noxious weeds.
- In cooperation with the Service and other involved entities and when implementing the management actions identified in chapter 6 of the RMP/EA, different study area parcels will be evaluated for their value as corridors and linkages for sensitive species.

### **Residual Impacts**

If adverse effects remain after the project proponent has taken all reasonable onsite mitigation measures, compensation would be made for residual effects.

## **Recreation**

### **Affected Environment**

Tourism has long been the most important industry in the Coachella Valley. Currently, an estimated 100,000 people work either in local hotels, restaurants, entertainment venues, or visitor attractions, while approximately 3.5 million people visit the Coachella Valley each year. However, the influence of tourism on the Coachella Valley's economy has been offset in recent years by the continuing development and expansion of other segments of the economy, along with the increase of permanent residents. Once considered primarily a tourism and retirement area, the Coachella Valley underwent tremendous change during the late 1980s, a trend that continues today. For example, in 1985, the median age in the valley was 64; however, with more families moving to the area, the median age dropped to 31.5 years in 2004 (The Desert Real Estate Report Web site <<http://desertrealestate.com/desert>>).

### ***Demographics and Trends***

This section presents a review of the demographics and trends that are likely to influence the demand for outdoor recreation in the Coachella Valley to facilitate a better understanding of the recreational resources found within region. The following discussion on demographics and trends affecting recreation is taken from the California Outdoor Recreation Plan 2002 (California State Parks, 2006).

One of the greatest challenges facing recreation service providers is the greatly increasing population. Fueled by births and immigration, California's population grew from a little less than 30 million to almost 34 million during the 1990s—an increase of almost 14 percent. This population growth is expected to continue, with the population projected to increase to 45 million by 2020. While most of California's population growth has occurred in its major metropolitan areas, such as Los Angeles, San Diego, and the San Francisco Bay area, Riverside County and the Inland Empire is the second fastest growing region in the State, behind the Sierra foothills. California now has 58 cities with populations exceeding 100,000 and 15 cities with populations exceeding 200,000. In general, cities are getting larger, squeezing out the open spaces for parks and recreation and disconnecting the State's biological resources. California is now the second most urbanized State in the Nation, with 217 persons per square mile compared to the U.S. average of 79. It is projected that by the year 2020, California will have 291 persons per square mile.

Another demographic shift over the last few years relates to the quickly escalating ethnic and cultural diversity. Currently, there is no ethnic majority in the State, because the largest racial group (white) is less than 50 percent of the population. According to the U.S. Census 2000 data, Hispanic and Asian/Pacific Islander populations accounted for 61 percent and 27 percent, respectively, of California's growth in the last decade. Census data also showed that Hispanic population growth was driven mostly by natural increase (births) while Asian/Pacific Islander population increased mostly from immigration. Projections show that from 2000 to 2020, California's population of European descent will have grown only 4 percent while the Hispanic populations will have grown 58 percent, and the Asian/Pacific Islander population will have grown 55 percent. The African-American population is projected to grow 20 percent, and the American Indian population, 29 percent. Projections also show that by 2030, California's population mix will shift even further, when Hispanics will be the largest demographic group, comprising 43 percent of the State's population.

Age characteristics of California's population are also important to consider when looking at the recreational resources within the Coachella Valley. Currently, nearly one-third of the State's population is between 35 and 55 years of age. In 20 years, this group of "Baby Boomers" will be active seniors 55 to 75 years old, or twice the size of the current population aged 55 to 75. With life expectancy and good health increasing, researchers predict that seniors in the future will be more active and will stay active as senior citizens for a longer period of life than previous generations.

At the other end of the spectrum are the 27 percent of Californians who are under 18 years of age. According to the California Department of Finance, while the Nation's birth rates were flat during the 1980's, the birth rates in California rose sharply.

As California's population increases, the number of people at the lower end of the income scale is increasing at a disproportionately higher rate. Interestingly, research shows that people with lower incomes rely more heavily on public recreational facilities while people with higher incomes tend to enjoy nature more, value saving time, are willing to pay more to avoid waiting in line, and enjoy interpretation. While little is known about the recreation needs of people with very low incomes, it is thought that access to recreational activities is an important issue because of lack of discretionary income, time, and transportation options for outdoor recreation. Much of their leisure revolves around television and activities close to home. Common barriers to participating in outdoor recreational activities include lack of finances, lack of transportation, lack of free time, and lack of information about recreational activities.

The use of existing recreation facilities in the Coachella Valley is heavy and continues to increase. As the stress of jobs, traffic, and urban noise increases, so does the need to escape. Traditionally, people use area parks and open space to seek refuge from the annoyances of urban life. In the wake of recent world events, tourism was expected to decrease in California but, in reality, the opposite has occurred as more Californians are choosing to vacation closer to home, traveling more within the State, and traveling more by car.

Outdoor recreation is important to Californians. In the study "Public Opinions and Attitudes on Outdoor Recreation in California in 1997," 98 percent of the respondents indicated that just being in the outdoors is an important part of enjoying their favorite activities. More than 80 percent of the respondents indicated that outdoor recreation was "important" or "very important" to their quality of life. The number of Californians who felt outdoor recreation was "very important" to their quality of life jumped from 44 percent in 1987 to 62 percent in 1997, when the last opinion poll was conducted (California State Parks, 1998).

Statewide, Californians spent approximately 2.2 billion days participating in outdoor recreation activities during 1997. Traditional recreation remains popular; and as more Californians take advantage of State, local, and Federal parks, the demand for recreational facilities will increase.

According to the Public Opinions and Attitudes Survey 1997, Californians spend the most time participating in activities that are less expensive, require less equipment, and need fewer technical skills (California State Parks, 1998). Californians' top 15 activities (by participation) were:

- Walking (recreation)
- Visiting museums, historic sites
- Use of open grass or turf areas
- Driving for pleasure
- Beach activities
- Visiting zoos and arboretums



- Picnicking in developed sites
- Trail hiking
- Swimming in lakes, rivers, or oceans
- Attending outdoor cultural events
- General nature and wildlife study
- Attending outdoor sports/events
- Camping in developed sites
- Swimming in outdoor pools
- Bicycling (on paved surfaces)

Nature study, including wildlife viewing, is particularly worthy of further consideration because it is one of the most popular activities that continues to increase in popularity according to the Public Opinions and Attitudes Surveys conducted in 1997, 1987, and 1992. In fact, this was one of the few activities that showed a trend in increasing popularity and public preference. Bird watching is perhaps the most important aspect of nature study. Nature study/wildlife viewing is a trend with important potential because it is a preferred activity by two very large future demographic groups—Hispanics and seniors.

Survey results also showed that more than 90 percent of Californians visited “nature-oriented parks and recreation areas” and “natural and undeveloped areas” at least once or twice per year but visited “highly developed parks and recreation areas” the most frequently. Twenty percent of the surveyed population visited these highly developed areas at least once per week. It is also interesting to note that about one-fourth of all Californians never visited any “private outdoor recreation areas and facilities” and more than half only visited a few times per year.

Public opinion surveys have also shown that there continues to be a high interest among Californians in a broad range of adventure activities such as mountain biking, scuba diving, kite surfing, and wilderness backpacking. Included in this group of activities are those that are perceived to be high risk, including rock climbing, bungee jumping, and hang gliding. Research suggests that this demand is from a variety of age groups including the Baby Boom generation, which continues to hike, mountain bike, kayak, and engage in other physically active, resource-based recreation.

Another emerging trend relating to the demand for recreation activities within the Coachella Valley is the rapid growth in the use of off-highway vehicles. According to the Public Opinions and Attitudes Survey on Outdoor Recreation, 1997, the use of off-road motorcycles, all-terrain vehicles, and dune buggies increased 30 percent between 1992 and 1997. The number of registered off highway vehicles in California increased 108 percent between 1980 and 2001, while the number of street licensed four-wheel drive vehicles increased 74 percent between 1994 and 2001.

Not all recreation activities are increasing in popularity. Hunting and fishing, for example, continue to decline. According to the U.S. Fish and Wildlife Service, interest in hunting and fishing among young people has been in decline since the early 1990s. Between 1991 and 2001, angler participation rates among those aged 18 to 24 dropped from 20 percent to 13 percent. Hunting has similarly declined, with participation in the 18 to 24 age group dropping from 9 to 6 percent in the last 10 years. Baby Boomers often grew up participating with their families in these activities, but their children grew up with computers and video games. The Service also found that Blacks and Hispanics are far less likely to hunt and fish than the general population.

Surveys conducted in California have also addressed latent or unmet demand for recreational activities and facilities. The following 13 activities are perceived as having a high latent demand in the State of California:

- Recreational walking
- Camping in developed sites
- Trail hiking
- Attending outdoor cultural events
- Visiting museums, historic sites
- Swimming in lakes, rivers, or oceans
- General nature, wildlife study
- Visiting zoos and arboretums
- Camping in primitive areas
- Beach activities
- Use of open grass or turf areas
- Freshwater fishing
- Picnicking in developed sites

### ***Recreation Within the Region***

**Lake Cahuilla Recreation Area** Lake Cahuilla is the terminal reservoir of the Coachella Canal. Lake Cahuilla was constructed in 1969 to serve as storage for a reserve supply of irrigation water needed chiefly in emergency periods when water is used to offset weather conditions. Located between Avenue 56 and Avenue 58, west of Jefferson Street against the foothills of the Santa Rosa Mountains on the west side of the Coachella Valley, the lake is three-quarters of a mile long and half that wide at its widest point. The lake is between 11 and 12 feet deep and contains approximately 1,500 acre-feet of water. At the time of its construction, Lake Cahuilla was the largest soil cement-lined reservoir in the world. Currently, the Riverside County Parks Department has an agreement with Reclamation and CVWD for development of the lake and surrounding grounds for general recreational use by the public on a fee basis.

There are 71 full-service campsites at Lake Cahuilla consisting of parking spurs, picnic tables, use areas, fire rings, and barbecue grills. Most sites within the main

campground have utilities, although 10 sites do not. A full-service restroom offers pay showers for guests. A dump station is also available for disposal of recreational vehicle grey water. There is also a primitive campground with 34 sites that offers space for group camping or campsites for campers not wanting electric and individual site water. Each site has a fire ring and picnic table. Nine water spigots serve the primitive camping area. (See **photographs 5.7 and 5.8.**)

A swimming pool is near the park entrance. Bicycles and small water craft are also available for rent through an onsite concessionaire. Boat launching is possible from numerous areas along the shoreline. Boating use of Lake Cahuilla is restricted to non-motorized use only. On the north side of the lake, several shelters have been dispersed to offer shade for anglers. The park also offers equestrian facilities consisting of corrals and water spigots for those wanting to ride on trails leading out of the park.

Fishing is particularly noteworthy at the park. Anglers are charged a modest daily fee, with the majority of the fee going towards restocking the lake with catchable size fish. Species stocked include bass, trout, and catfish. Frequently, respectable-sized fish are stocked attracting anglers looking for larger-sized fish.

Lake Cahuilla Park is open year-round; however, from May through October, the park is closed Tuesday, Wednesday, and Thursday. Day use is allowed from sunrise to sunset, while the main gate at the campground is locked at 10 p.m. and reopened at 6 a.m.

**Coachella Valley Parks and Recreation District** Overall, CVRPD is the largest recreation service provider in the Coachella Valley. Formed in 1950, CVRPD was developed to provide recreational facilities in the Coachella Valley area. CVRPD contains approximately 1,800 square miles.

Currently, CVRPD has a lease agreement with Reclamation (No. 1-07-34-L1222) to develop three new parks:

*Desert Regional Park:* This new 280-acre regional park under development will be the future home of the Coachella Valley Mounted Rangers. The new park will be located on Jackson north of Interstate 10.

*Coral Mountain Regional Park:* This new 620-acre regional park will eventually feature nature, hiking, biking, and equestrian trails; picnic areas; and a nature center. The park will be located on Avenue 58, adjacent to Lake Cahuilla. Initial planning was scheduled to have begun in January 2005.

*Canal Regional Park:* This new 260-acre park will feature a radio-controlled model airplane airport. The model airplane airport is presently in operation; however, most other aspects of the park have yet to be developed. The park is located at Avenue 54 and Filmore Street. (See **photograph 5.9.**)



Photograph 5.7 – Entrance to Lake Cahuilla Recreation Area.



Photograph 5.8 – Lake Cahuilla campground receives heavy recreational vehicle use.



**Photograph 5.9 – Model air park is managed by CVRPD.**

The lease with Reclamation authorizes CVRPD to develop, administer, operate, and maintain the three regional parks while ensuring that land use and administration of the recreation areas will conform to applicable Federal laws, orders, regulations, and policies. Additionally, under the dictates of the lease, CVRPD is to coordinate with CVWD and Reclamation any administration, operation, maintenance, and development activities that have the potential to affect CVWD or the Federal Government.

**Cities of Palm Desert, La Quinta, Coachella, Indio, Indian Wells** Most cities within or adjacent to the study area maintain some aspect of a parks and recreation program. All city parks and recreation programs are not identical but do share certain features and so are discussed together. Generally, each city strives to plan and provide for a diverse and integrated parks and recreation system, which creates active and passive recreational amenities for residents that are responsive to the needs and standards of the city.

Generally, cities within the planning area classify their parks using the National Recreation and Parks Association's acreage standards. Table 5.9 presents the standards in effect for most of the Coachella Valley.

**Table 5.9 – Standards for recreational areas**

Type of park area	Acres per 1,000 population	Ideal site size	Radius of area served
Mini park	0.25	0.5 – 1 acre	0.25 mile
Neighborhood park	1.0	5 – 10 acres	0.25 – 0.5 mile
Community park	5.0	30 – 50 acres	0.5 – 3 miles

Following are descriptions of the types of parks in the Coachella Valley:

*Mini-Parks:* Mini-parks or pocket parks are the smallest park classification and are generally used to address limited or isolated recreational needs. They are generally developed in association with new housing developments and are sometimes referred as “tot lots” or “sitting parks.” Recreation planners generally consider mini-parks as specialized facilities that serve a concentrated or limited population, or a specific group such as very young children or senior citizens. Generally mini-parks are located inside a neighborhood, within or in close proximity to apartment complexes, townhouse developments, senior housing, or other developments that require recreational space.

*Neighborhood Parks:* Neighborhood parks are, for most cities within the study area, the basic unit of the park system. Neighborhood parks are intended to meet the active and passive recreation needs of nearby residents and serve as a social focus of the neighborhood. This type of park is typically planned to be geographically centered within the neighborhood and with walking and bicycle access through linkages to trails and bicycle paths. Neighborhood park facilities typically include such features as picnic areas, playground equipment, hard court areas, multi-purpose play fields for informal games, bicycle racks, and vehicular parking. Neighborhood parks may also contain special landscaping and public art.

*Community Parks:* Community parks provide active and passive recreation opportunities on a larger scale than neighborhood parks. Community parks typically include fields for organized baseball, softball, soccer, and football, and often tennis complexes and large swimming pools. A community recreation building may be provided for indoor sports as well as for educational and cultural activities. Passive recreational activities may include picnic areas, unique landscaping, formal gardens, and open space areas.

*Regional Parks:* Regional parks refer to recreational areas and facilities that are used on a valley-wide basis. They may have the same size specifications and provide basically the same amenities as a community park but generally offer more diverse facilities and recreational opportunities. For that reason, they attract users from surrounding areas and cities. In addition, regional parks generally sponsor planned events or activities that appeal to a wide

range of people. Regional parks may also include natural resource areas that provide passive recreational opportunities in a more natural environment. The qualities that differentiate regional parks from natural resource areas are open space and conservation areas where “use” is incidental to their conservation and protection.

Most cities within the study area also maintain a trail system. Generally, there are two types of trails applicable to the cities trail systems—urban trails and open space trails. Urban trails serve as alternative transportation routes through communities linking residential neighborhoods with central areas. Open space trails function as an access to natural and scenic resource areas and are generally used for hiking, horseback riding, and mountain biking. Together urban and open space trails create a multi-use trail system that accommodates all types of users and provides access to a variety of areas.

## **Environmental Consequences**

### ***Alternative A***

Under Alternative A, Reclamation would continue to manage recreation and public activities within the study area according to its ability and authority. If Reclamation receives additional authority to impose and enforce additional rules and regulations or policies, Reclamation would do so, as necessary and appropriate. No new recreation development planning would occur, and no new recreation facilities would be expected to be constructed within the study area. Future demand for use of open space for recreation within the study area would not be met.

Existing management practices would allow dispersed and uncontrolled recreation use to continue. Only minimum basic visitor health and safety services would be provided. As a result, increased damage to the desert environment from undefined and controlled OHV use and increased trash and dumping would occur, especially as the region’s population continues to increase and more people seek recreational activities within the study area. Additionally, for those seeking solitude and nature study, the quality of the recreational experience most likely would decline due to increasing encroachment and undefined public access to the study area to pursue various unmanaged activities.

Also under the No Action Alternative, opportunities to interpret the desert environment to further the appreciation and protection of those resources would go unrealized. Multi-use trails would not be developed, meaning that demand for that type of use would go unmet.

### ***Alternative B***

Under Alternative B, public demand for open spaces and natural areas for outdoor recreation activities would not be met because the public would be restricted to

existing public roads. Under this alternative, recreation facilities such as day use areas, trails, and OHV areas would not be constructed, and the demand for these facilities would not be accommodated. Additionally, because OHV use would be eliminated, except for emergency situations, OHV users would be displaced to other areas, placing pressure on these areas. Recreational access within the study area would be limited, so nature study enthusiasts and bird watchers also could be displaced.

Implementation of this alternative would also mean that the need and demand for community recreation areas (e.g., soccer fields, ball fields) and open space for relaxation and exercise would also go unmet. As the populations of the cities and communities within the study area grow, there will be a corresponding demand and need for areas to accommodate these important social needs.

One advantage of this alternative over Alternative A is that environmental interpretation would be used to communicate positive environmental stewardship messages to promote appreciation and ethical use of the desert natural and cultural resources.

### ***Alternative C***

Implementation of this alternative would enhance the public's access to recreation activities and supporting facilities. The comprehensive land use strategy proposed for this alternative would emphasize recreation, community, and commercial development.

Under this alternative, a comprehensive OHV plan would be developed; and officially designated OHV use areas would be established. Public motorized access would be limited to OHV use areas and/or designated roads and trails.

Urban recreation opportunities, such as golfing, tennis, baseball, and biking, also would be accommodated within the study area. Implementation of this alternative would best meet the needs of the cities and communities within the study area by making available lands for open spaces and recreation facilities for their increasing populations.

Also, under this alternative, non-motorized, multi-use trails would be constructed throughout the Coachella Canal Area using strict development criteria to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or Project features. Portions of trails would be paved or hardened, and other portions would be designed to accommodate a variety of uses, such as hiking, biking, and horseback riding.

By maximizing recreation facility development and providing increased recreational opportunities, carrying capacity limits may reach the point that user conflicts increase. The quality of the recreation experience may, therefore, be



diminished for some users. As visitor use increases, visitor health and safety may be compromised by overcrowding, competition for available space, and overuse and abuse of existing facilities and resources.

Some users who desire a more unconfined and uncontrolled recreation experience may be displaced to other areas outside the study area, but the loss of those users would be offset by greater numbers of visitors attracted to increased opportunities and facilities.

As OHV use increases within the study area, the risk for adverse impacts to cultural and natural resources also increases.

By providing signs, sanitary facilities, security, and improved access, the health and safety of visitors would be protected. By defining use through the development of facilities and designated use areas, user conflicts should decrease.

Under this alternative, a comprehensive interpretive plan would be developed. Therefore, interpretation and educational information would be more readily available, making for a more enjoyable recreation experience.

#### ***Alternative D***

Alternative D provides for limited development of recreation facilities and opportunities (i.e., fewer facilities and opportunities than under Alternatives A or B but more than under Alternative B). Alternative D also includes management actions to protect/conservate natural resources within the study area.

Eliminating OHV use, except for emergency situations, would displace users to other areas, placing pressure on those areas.

A limited number of non-motorized, multi-use trails would be developed using strict development criteria to ensure that trails and trail users do not adversely affect natural resources, wildlife, critical habitat, or Project features.

The recreation experience for people seeking solitude and immersion in natural settings would be better than under Alternative C, but not as positive as under Alternative B. Conversely, under this alternative, the emerging need and demand for urban recreation opportunities would go somewhat unmet on Reclamation managed lands.

Carrying capacity limitations would be easier to manage and maintain under Alternative D than under Alternative C, and fewer conflicts would occur between differing user groups competing for available space. However, because of the limited development of recreation facilities, public demand for these facilities may not be met; and conflicts may develop among users competing for use of the same limited space.

Opportunities to interpret natural and cultural resources within the study area to promote greater appreciation, ethical use, and understanding of the desert habitat would be the same as under Alternative B.

### **Mitigation**

Under Alternatives C and D, recreation facility development will complement the surrounding landscape as much as practical and follow strict design and construction criteria, guidelines, and standards. Carrying capacity limits and user demand will be properly determined before major facility developments occur.

Regulatory and informational signage will be posted throughout the area, informing the public of the rules and regulations governing the use of the federally owned lands within the study area.

### **Residual Impacts**

No residual impacts have been identified.

## **Regional Economy**

### **Affected Environment**

The study area is located in the central portion of Riverside County, California, just northwest of Salton Sea. As shown by census data from 1990 and 2000, the county has experienced considerable economic growth in the past decade, and its economy is diverse and growing. Major urban areas within the study area include Indio, Coachella, La Quinta, and Mecca. The study area also supports a large amount of irrigated agriculture, which is served by the Coachella Canal of the All-American Canal system.

The study area is in the southern portion of the Coachella Valley in Riverside County. A description of the Coachella Valley economy comes from Appendix N of the *Santa Rosa and San Jacinto Mountains National Monument Proposed Management Plan and Final Environmental Impact Statement* (BLM, 2003a):

“Agriculture was the Coachella Valley’s dominant industry during the first half of the twentieth century. The region’s main staple, the date palm, was introduced at the turn of the century. . .and the industry soon expanded to include the cultivation of grapes, citrus, other fruit, and vegetable crops.

As early as the 1920’s, however, hotels, restaurants, country clubs, and casinos began to emerge in the upper Coachella Valley,

especially in the Palm Springs and Cathedral City areas. By the 1930's, the character of the region had been transformed toward a budding resort tourist industry, with marketing and construction of weekend homes throughout the valley. The resort industry is expected to grow in the future.”

Another area of economic development is the transportation sector in the Coachella Valley. See “Transportation” for a detailed discussion.

### ***Total Personal Income and Earnings***

Table 5.10 presents total personal income and earnings by industrial sector for Riverside County for 1990 and 2000. The data were derived from several sources: Bureau of Economic Analysis, U.S. Census Bureau, and California Department of Finance (CDF). One limitation of this analysis is that many sources provide data only at the county level, and the economic activity in different portions of Riverside County can vary greatly. Some information based on census data was obtained for the major urban areas within the study area. The economic environment for Riverside County is presented for approximately a 10-year period. Economic data for the major urban and agricultural areas is based on the latest information available.

Total income increased approximately 66 percent from 1990 to 2000, or an average annual increase of about 5 percent. Total earnings increased by about 85 percent, or an annual average increase of about 6 percent. Table 5.6 also presents earnings by industrial sector. In 1990, services (16.7 percent), Federal and military government (3.5 percent), State and local government (17 percent), and construction sector (12.6) percent had the largest shares of total earnings for Riverside County. In 2000, the largest sectors for earnings were services (26 percent), government (20 percent), and retail trade (12.3 percent).

### ***Per Capita Income and Employment***

Employment in the Coachella Valley increased from 70,664 jobs in 1991 to 111,919 jobs in 2001, a 58-percent increase over the decade or an average annual increase of about 5 percent. The major employment sectors in the Coachella Valley for 2002 were retail trade and services (21 percent of total employment), hotel and amusement (15 percent), and agriculture (11 percent).

Census data for per capita income and employment were available for Indio, La Quinta, Coachella, and Mecca for 1990 and 2000. Table 5.11 presents these data.

La Quinta has the highest median household and per capita income, followed by Indio, Coachella, and Mecca. Tourism and recreational resorts in the La Quinta area may be the cause for these higher income levels. For the Coachella and Mecca areas, the lower income levels may be due to low income in the

**Table 5.10 – Total personal income and earnings, Riverside County, 1990, 2000 (\$ millions)**

	<b>1990</b>	<b>2000</b>
Total personal income	\$22,320.0	\$37,015.0
Earnings by industrial sector		
Farm	\$354.3	\$253.4
Agriculture, service, forestry, fishing, other	\$285.0	\$409.1
Mining	\$29.5	\$35.3
Construction	\$1,406.0	\$2,477.3
Manufacturing	\$1,193.4	\$2,474.3
Transportation, utilities, and communication	\$639.2	\$1,011.6
Wholesale trade	\$424.3	\$917.3
Retail trade	\$1,337.0	\$2,521.6
Finance, insurance, and real estate	\$423.3	\$1,094.0
Services	\$2,757.6	\$5,255.5
Government: Federal and military	\$391.7	\$509.6
Government: State and local	\$1,911.1	\$3,617.9
Total earnings	\$11,152.40	\$20,576.90

agricultural sector. The change in income from 1990 to 2000 follows a similar pattern: La Quinta had the largest increase (38 percent) in median household and per capita income, followed by Indio (33 percent), Coachella (23 percent), and Mecca (5 percent).

The city of Indio had the greatest number of jobs of the four communities, followed by La Quinta, Coachella, and Mecca. Mecca had the greatest increase in employment from 1990 to 2000 (170 percent), mostly in agriculture, followed by La Quinta (93 percent), Coachella (23 percent), and Indio (18 percent).

Employment by industrial sector can aid in explaining the possible reasons for the change in total employment over time. For Indio, the sectors with the greatest employment were services (52 percent), retail trade (12.1 percent), and construction (12 percent). Between 1990 and 2000, employment in agriculture declined by about 8 percent and employment in retail trade declined by 6.5 percent, while employment in construction and services increased (2 percent and 15 percent).

**Table 5.11 – Employment and income 1990 and 2000 for Indio, La Quinta, Coachella, and Mecca**

	Indio		La Quinta		Coachella		Mecca	
	1990	2000	1990	2000	1990	2000	1990	2000
Income								
Median household income	\$25,976	\$34,624	\$39,572	\$54,552	\$23,218	\$28,590	\$21,829	\$22,973
Per capita income	\$9,224	\$13,525	\$19,678	\$27,284	\$5,760	\$7,416	\$5,271	\$6,389
Employment (16 years and over)								
Total	15,086	17,801	5,368	10,347	6,022	7,412	741	2,000
By industry								
Agriculture <sup>1</sup>	2,175	1,001	223	106	1,856	1,429	454	1,046
Construction	1,506	2,115	691	889	393	690	52	185
Manufacturing	554	715	398	543	337	295	19	27
Wholesale trade	469	401	173	207	239	422	24	90
Retail trade	2,804	2,156	841	1,165	795	784	31	150
Transportation, communication, and utilities	750	940	269	501	296	199	5	30
Finance, insurance, and real estate	516	704	531	1,018	163	115	1	12
Services <sup>2</sup>	5,635	9,186	2,105	5,361	1,834	3,343	154	460
Public administration	677	583	137	557	109	135	1	0
Total	15,086	17,801	5,368	10,347	6,022	7,412	741	2,000

<sup>1</sup> Agriculture employment consists of agriculture, forestry, fishing and hunting, and mining.

<sup>2</sup> Services employment is an aggregation of various service-related sectors in the area.

For La Quinta, the sectors with the greatest employment in 2000 were services (52 percent), retail trade (11.3 percent), and finance, insurance and real estate (10 percent). Between 1990 and 2000, employment in agriculture declined by about 3 percent; employment in retail trade declined by about 5 percent; and employment in construction declined by 4 percent, while employment in services and public administration increased by 13 percent and 5 percent, respectively.

For Coachella, the sectors with the greatest employment in 2000 were services (45 percent), agriculture (19 percent), and retail trade (11 percent). Between 1990 and 2000, employment in agriculture declined by about 12 percent; employment in retail trade declined by about 2 percent; and employment in transportation and

finance, insurance, and real estate declined by 2 percent, while employment in services and public administration increased by 15 percent and 3 percent, respectively.

For Mecca, the sectors with the greatest employment in 2000 were agriculture (52 percent), services (23 percent), and construction (9 percent). Employment in industry increased substantially between 1990 and 2000.

***Irrigated Agriculture***

Irrigated agriculture has a large presence in the Coachella Valley and in the study area. The Boulder Canyon Project Act of December 21, 1928, authorized construction of the All-American Canal system to deliver irrigation water to Imperial and Coachella Valleys and a distribution system in Coachella Valley. The distribution system was transferred to CVWD in July 1954. The facilities, operated and maintained by CVWD, include 74 miles of the Coachella Canal. The distribution system is capable of serving 78,530 irrigable acres.

In 1994, there were a total of 58,192 irrigated acres in CVWD with a gross crop value of \$324.4 million. In 2003, there were a total of 68,834 irrigated acres (includes double cropping) with a gross crop value of \$550.7 million. Table 5.12 displays the crop acreage and value by major crop.

**Table 5.12 – 2003 crop production, Riverside County**

Major crops	Acres	Crop value (\$)
Fruit	30,934	226,741,828
Vegetables	23,735	186,507,969
Forage	3,520	1,812,687
Nursery and nuts	1,141	24,488,377
Other crops	9,504	111,186,549
Total	68,834	550,737,410

Source: Agricultural Commissioner's Office, 2003.

***Summary***

On the basis of the income and employment data presented, the base or primary sectors in the study area appear to be recreation/tourism, which is related to the service and trade sectors and agriculture. Because of the availability of irrigation water supplies and the opportunity for multiple crops in the agricultural season, agriculture and related agricultural services is a contributor to the area's economy. The economic trend indicates further growth in recreation/tourism sectors and greater potential growth in the transportation sector because of the location of major highways and railroad lines through the study area. Current data indicates

the important contribution of agriculture to the regional economy, but the trends also indicate that this contribution will decline in the future.

## **Environmental Consequences**

### ***Alternative A***

Under the No Action Alternative, effects on the local or regional economy would be the same as under current conditions.

### ***Alternative B***

In general, there would be little to no effect on the local or regional economy under Alternative B. Economic activity could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors; (2) Peninsular bighorn sheep habitat and disturbance buffers; and (3) cottonwood-willow oases. Economic activity also could be associated with the (1) establishment of carrying capacities to determine the appropriate location, type, and number of public use facilities and to minimize natural resource degradation and (2) elimination of OHV use except for emergency situations. However, these activities would not have a significant effect on the regional economy.

### ***Alternative C***

In general, there would be little to no effect on the local or regional economy under Alternative C. Economic activity could be associated with efforts to maximize recreation, community, and commercial development to meet public expectations and demand, including development on open space lands and near Lake Cahuilla; development of trails; and recreation development on lands within the study area. Economic activity also could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors; (2) Peninsular bighorn sheep habitat and disturbance buffers; and (3) cottonwood-willow oases. However, these activities would not have a significant effect on the regional economy.

### ***Alternative D***

In general, there would be little to no effect on the local or regional economy under Alternative D. Economic activity could be associated with allowing limited development, expanding a limited number of recreation opportunities, and allowing limited development of trails. Other activity could be associated with avoiding or minimizing developments and land uses that could affect (1) desert washes and potential corridors, (2) Peninsular bighorn sheep habitat and disturbance buffers, and (3) cottonwood-willow oases. Also, economic activity could be associated with the establishment of carrying capacities to determine the

appropriate location, type, and number of public use facilities and to minimize natural resource degradation. However, these activities would not have a significant effect on the regional economy.

### **Mitigation**

No mitigation has been identified.

### **Residual Impacts**

No residual impacts have been identified.

## **Transportation**

### **Affected Environment**

The regional transportation network within the Coachella Valley has long been influenced by the area's unique geography. The Coachella Valley, which extends northwest-southeast, is surrounded by mountains, which constrains transportation development; as a result, the Coachella Valley has a relatively limited number of transportation routes.

The first transportation routes through the Coachella Valley were established by local Indian tribes. Among the earliest established routes was the Cocomaricopa Trail, later renamed the Bradshaw Trail. This trail became one of the most important desert trails in southern California during the 1860s and 1870s. Then, as now, the route the trail followed was largely influenced by the Coachella Valley topography, mostly following the toe of slopes rising from the Coachella Valley floor to the surrounding mountains. In this manner, the trail took advantage of terrain features that served to shelter travelers from strong winds and blowing sand and dust. The placement of the Bradshaw Trail eventually led to the development of permanent settlements, strategically located where buildings and residents could be shielded from the harsh desert environment. Today, the Bradshaw Trail has been replaced by California State Highway 111, which connects most of the historic and present-day communities within the study area.

Communities, goods, and services within the study area are interconnected by several State and interstate highways. The most prominent and heavily traveled of these are Interstate 10, State Highway 86, and State Highway 111. Cities and municipalities also maintain circulation systems consisting of a web of arterial roadways built on a north-south/east-west grid pattern. Interestingly, in many locations, the region's north-south/east-west pattern of land use development and resulting road grid conflict with the region's northwest-southeast dominating topography, creating challenges for transportation planners and developers.



Many of the parcels comprising Reclamation owned and/or controlled lands within the study area are accessed from adjacent roadways, mainly consisting of local arterial and collector roads used to access residential and light industrial areas. However, a limited number of Reclamation lands are crossed by major arterials, highways, and/or railroad corridors that provide for the continuous transport of persons and goods. These transportation facilities, for the most part, have easements that allow them to cross Reclamation land. Descriptions of the primary transportation corridors that pass through the study area follow.

*Interstate 10:* Interstate 10 is the primary highway connecting the Coachella Valley with Los Angeles, Riverside, and the San Bernardino metropolitan areas to the west and the Phoenix metropolitan area to the east. Interstate 10 is a critical component of the regional road network and provides intra-regional and inter-city access within the Coachella Valley. The interstate highway consists of a divided freeway accessed from diamond-shaped interchanges spaced a minimum of 1 mile apart.

Interstate 10 bisects the Coachella Valley and lies along the geographic center and northwest-southeast axis of the Coachella Valley. The highway passes through the Coachella Valley's central drainage area and lies parallel to the prevailing winds originating from San Geronio Pass. With the exception of the Thousand Palms community, lands adjacent to Interstate 10 remain largely undeveloped because of high winds and blowing sand and the potential for flooding.

Within the study area, Interstate 10 crosses the Coachella Canal in two locations: (1) about 4 miles due east of Indio or 2.5 miles northeast of Coachella and (2) about 2.75 miles northwest of Indio.

*California State Highway 111:* California State Highway 111 serves primarily to connect the Coachella Valley communities with communities of the Imperial Valley which lie to the southeast. The western terminus of the highway is at Interstate 10 in San Geronio Pass. The highway extends southeast through the study area and on to the Imperial Valley. In addition to linking communities in the Coachella Valley, Highway 111 is an important commercial route.

Recent improvements have been made to California State Highway 111. The Riverside County Transportation Commission has partnered with local cities, the County of Riverside, and the Coachella Valley Association of Governments to leverage funding and to complete planned improvements to the highway corridor between Ramon Road in Palm Springs to Indio Boulevard in Indio. Improvements made to the highway corridor include street widening, intersection improvements, and coordination of signals. Improvements made to Highway 111 have also resulted in additional work on intersecting streets. Future projects are currently being planned for intersection improvements and street widening in the cities of Palm Desert, La Quinta, Indio, and Cathedral City. California State Highway 111 crosses the Coachella Canal in one location, just east of Indio.

*California State Highway 86:* California State Highway 86 mostly parallels California State Highway 111 for portions of its route through the Coachella Valley. Additionally, the route parallels Interstate 10 in several areas. Serving to connect communities within the Coachella Valley, State Highway 86 also provides connection to El Centro to the south. State Highway 86 is often referred to as the “NAFTA (North American Free Trade Agreement) Highway” because it also serves to connect the eastern portion of the Coachella Valley to Interstate 10 and the Mexican border. The highway facilitates the passage of goods and services as well as provides for tourism traffic to points south. Just northwest of Indio, California State Highway 86 joins Interstate 10 westward.

For years, the highway had a deadly reputation due to its numerous accidents. However, recent widening of the roadway from two lanes to a four-lane expressway has helped with safety. Funding for the improvement of the route was obtained from the State of California, Federal Government, and the voter-approved Measure A sales tax program. The improved expressway runs between Dillon Road and Avenue 82 south of Indio and Coachella in unincorporated county areas. Construction of the improved expressway was broken into three separate project segments and began in the northern end of the highway in 1993. Construction was subsequently completed in the southern part of the project in the community of Mecca in 2003. California State Highway 86 crosses the Coachella Canal in one location: less than one-half mile from where Highway 86 joins Interstate 10 west of Indio.

*Rail Service:* Freight and passenger rail service share tracks owned by the Union Pacific Railroad that were built in the second half of the 19<sup>th</sup> century. The railroad was originally part of the transcontinental railroad, which connected the Pacific Coast with Yuma, Arizona. The rail tracks enter the Coachella Valley from the west through San Gorgonio Pass and proceed east, parallel to Interstate 10. In the city of Indio, the railway turns southeast and continues along the east side of the Salton Sea.

The Coachella Valley is served by both passenger and freight rail service. Currently, the only passenger service is a thrice-weekly, long-distance train operated by Amtrak between Los Angeles and Florida. The train is known as the “Sunset Limited” and operates through the Coachella Valley in the very early hours of the morning in both directions. The Sunset Limited primarily serves the leisure and tourism market.

Freight train use of the railway is projected to increase at a faster rate than passenger service, which may result in negative impacts such as poor on-time performance without increased track capacity. An additional impact to area residents and commuters of increased freight service will be longer delays at railroad crossings while waiting for longer and slower trains to cross.

The railroad tracks cross Reclamation controlled land within the study area in one location, near the same location as Interstate 10 and California State Highway 86, and cross the Coachella Canal approximately 2.75 miles northwest of Indio.

To comply with the State of California law, all city and county general plans must contain a circulation element that designates future road improvements and extensions, addresses non-motorized transportation alternatives, and identifies funding options. The circulation element must also identify transportation routes, terminals, and facilities. Within the planning area, the circulation system, as addressed within the County of Riverside General Plan, is intended to accommodate a pattern of concentrated growth, providing both a regional and local linkage system between communities. The circulation system is also intended to be multi-modal, meaning that it provides numerous alternatives to the automobile, such as transit, pedestrian systems, and bicycle facilities, so that Riverside County residents and visitors can access the region by a number of transportation options. Furthermore, as stated in the Riverside County Vision and Land Use Element, the county is moving away from a growth pattern of random sprawl toward a pattern of concentrated growth and increased job creation. Linking areas of concentrated growth uses an integrated system of transportation that includes vehicular, pedestrian, transit, equestrian, bicycle, and air mobility options. Within Riverside County and the Coachella Canal planning area, the transportation system is designed to fit into the existing and evolving land use patterns, including open space and undeveloped land areas.

In addition to its General Plan, Riverside County supports several transportation plans and programs to manage current traffic demands as well as to prepare for future transportation needs. One such program is the Congestion Management Program (CMP) which is updated every 2 years in accordance with State of California Proposition 111. The CMP was established in the State of California to more directly link land use, transportation, and air quality, and to prompt reasonable growth management programs that would more effectively use new and existing transportation funds, alleviate traffic congestion and related impacts, and improve air quality. Copies of the Congestion Management Plan can be obtained from the Riverside County Transportation Commission.

A Regional Transportation Plan (RTP) has also been prepared by the Southern California Association of Governments, in coordination with Federal, State, and other regional, sub-regional, and local agencies in the Coachella Valley. The RTP is a multi-modal, long-range planning document that includes programs and policies for congestion management, transit, bicycles and pedestrians, roadways, freight, and project funding. The RTP is prepared every 3 years and reflects a 20-year projection of need. The RTP's primary use is as a regional long-range plan for federally funded transportation projects. The potential effect of the current RTP on the Coachella Canal are long-range plans for highway improvements for State Highway 86 to be conducted in the vicinity of Dillon Road to Interstate 10.

## **Environmental Consequences**

### ***Alternative A***

Under Alternative A, easements or rights-of-way for transportation corridors would continue to be issued on a case-by-case basis without the benefit of a comprehensive land use and transportation strategy. This approach could lead to conflicting land uses and/or allow social, physical, environmental, or facility carrying capacities to be exceeded. Conducting site-specific NEPA analysis would ensure protection for natural and cultural resources. Additionally, requests for new transportation routes within the study area would follow existing land use authorization requirements and regulations.

### ***Alternative B***

Construction of primary roads would be the same as under Alternative A, except that a land use strategy (including transportation) would be developed and new requests for primary roads would be evaluated and approved within the context of the strategy. Authorizations for new transportation routes would be limited to those that benefit natural and cultural resources. Public demand and need for access would be minimally met.

### ***Alternative C***

Primary road construction and major improvements to existing roads would be allowed within the study area to provide needed access to recreation, community, and commercial developments. Secondary roads would be constructed to provide access to recreation facilities or play areas. As a result, more land area may be adversely affected under Alternative C than Alternative A, B, or D. Public demand and need for access would be fully met.

### ***Alternative D***

Effects on transportation under Alternative D would be about the same as under Alternative B.

## **Mitigation**

Under all alternatives, easements, rights-of-way, or other instruments to authorize transportation routes will contain specific stipulations to protect existing resources, decrease potential conflicts with adjacent landowners, and prevent land use conflicts within the study area.

## **Residual Impacts**

No residual impacts have been identified.