Revised August 2009

Off-Highway Motor Vehicle Recreation
CALIFORNIA STATE PARKS

Heber Dunes SVRA General Plan

Working Paper #2: Existing Conditions, Issues, and Opportunities Draft Park Unit, Vision, and Goals





EDAW | AECOM

HEBER DUNES SVRA GENERAL PLAN
REVISED WORKING PAPER #2

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1.0 WORKING PAPER OVERVIEW

The purpose of this working paper is to provide a synthesis of information that has been generated to date for preparation of the Heber Dunes State Vehicular Recreation Area (SVRA) General Plan. Specifically, this working paper includes the following:

- An initial draft Introduction chapter for the General Plan
- A synthesis of existing conditions, issues, and opportunities that will constitute the Existing Conditions chapter of the General Plan
- Draft Park Vision, Unit Classification, and Goals

The information presented in this working paper will serve as background for the visioning workshop and development of concept alternatives that will occur during the summer and fall of 2009. Photo 1 depicts a sign at the entrance to the SVRA.

Photo 1. Sign along the entryway at Heber Dunes

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2.0 GENERAL PLAN INTRODUCTION

2.1 INTRODUCTION TO HEBER DUNES SVRA

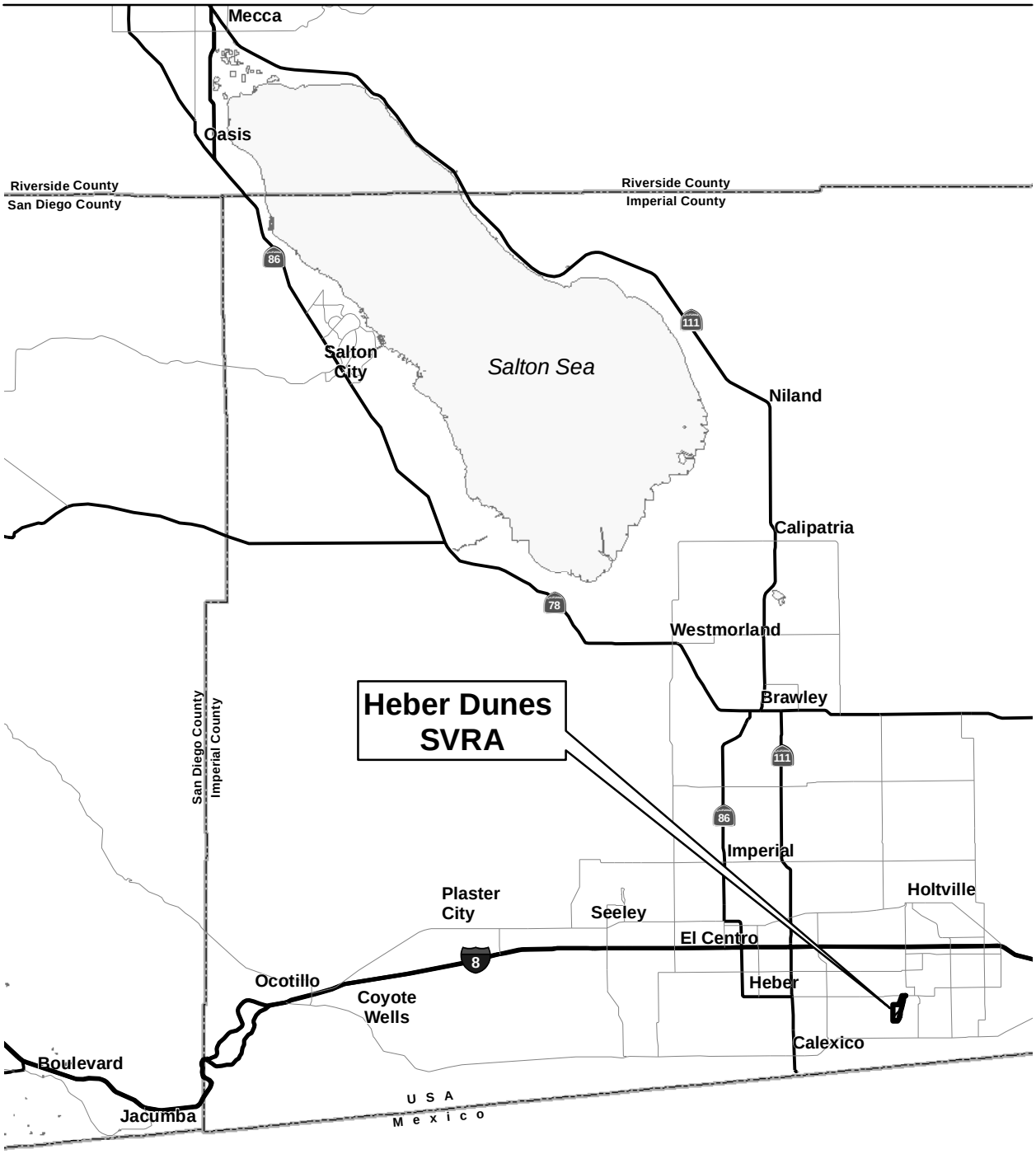
Heber Dunes SVRA is a small island of sand dunes in a large valley dominated by agriculture. For decades, Heber Dunes has been a popular recreation area for local residents to gather on the weekends to ride off-highway vehicles (OHVs), picnic, and visit with family and friends. Heber Dunes SVRA provides a unique recreational experience in that it provides a family-friendly atmosphere, the relatively low sand dunes are safe for novice OHV riders, and it is located within proximity to population centers. Photo 2 shows a dune area within the SVRA.

Photo 2. Dune Area within Heber Dunes SVRA

2.1.1 Local and Regional Context

Heber Dunes SVRA is a 343-acre OHV park operated by the Off-Highway Motor Vehicle Recreation Division (OHMVR Division) of the California Department of Parks and Recreation (DPR). The SVRA is located within unincorporated Imperial County in southern California. Heber Dunes is located between Interstate 8 (I-8) to the north and the Mexican border to the south within the irrigated cropland of the Imperial Valley. The area is easily accessible by regional transportation routes such as I-8 and State Route 7 (SR-7). Figure 1 depicts the regional location of Heber Dunes.

Imperial County is primarily a rural, agricultural region, with several population centers located near regional transportation routes. The county's economy is largely dependent on agriculture and unemployment and poverty rates are relatively high compared to other counties in California. Imperial County exhibits typical desert weather, such as low annual precipitation, very hot summers, mild winters, high evaporation rates, and



Source: California Department of Parks and Recreation 2007; ESRI 2003

50,000 25,000 0 50,000 Feet

Scale: 1 = 600,000; 1 inch = 50,000 feet

Figure 1
Regional Location Map

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure1_RegionalLocationMap_85x11.mxd, 06/09/09, PalavidoM

inversion layers. These climate characteristics contribute to poor air quality due to air stagnation and the buildup of pollutants.

The nearest population centers include the City of Mexicali approximately 2.5 miles to the south (across the international border with Mexico), the City of Calexico approximately 4.5 miles to the southwest, the City of Holtville approximately 5 miles to the north, the City of El Centro approximately 8.5 miles to the northeast, and the community of Heber approximately 7 miles to the west. Mexicali is the largest city in the vicinity of Heber Dunes; as of 2005, the population was estimated at over 850,000 people. (Section 3.2.5 provides additional information on population trends.) Calexico and El Centro can be characterized as mid-sized cities (38,733 and 43,316, respectively, as of 2008), whereas Holtville and Heber are small population centers (less than 10,000 people).

Figure 2 depicts the local context of Heber Dunes. The SVRA is surrounded by large parcels of land used for agriculture. Generally, agricultural land use extends for miles in all directions around the project site with scattered residential homes throughout the area. An intricate series of canals provides irrigation water for cropland.

Heber Dunes SVRA is roughly a 2-hour drive from the densely populated San Diego metropolitan area. The closest SVRAs are the Ocotillo Wells SVRA in San Diego County, approximately 65 miles northwest of Heber Dunes, and the Hungry Valley SVRA in northern Los Angeles County, approximately 280 miles northwest of Heber Dunes.

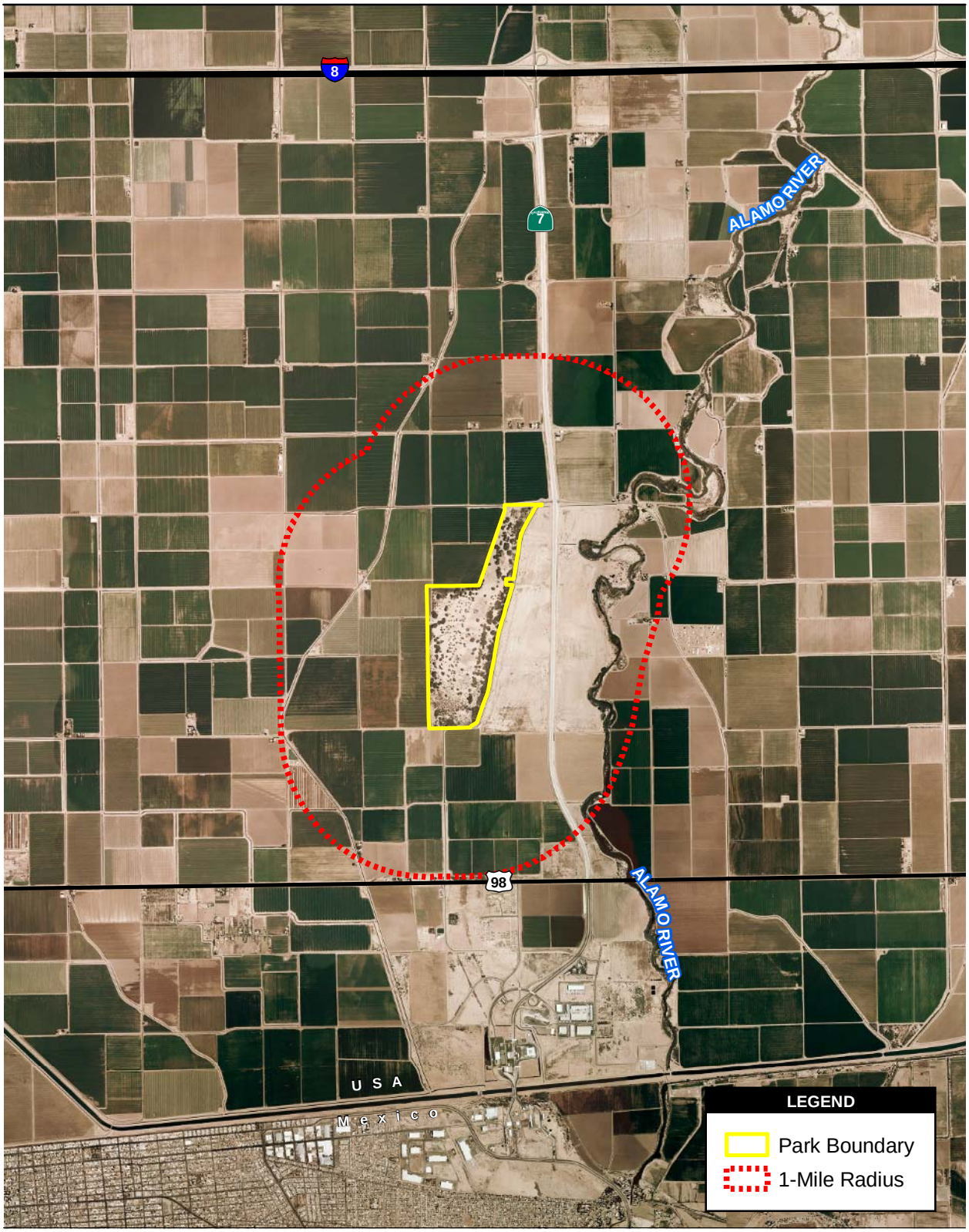
2.1.2 Site Characteristics

Heber Dunes SVRA is generally undeveloped and dominated by sand dunes. Desert vegetation is scattered throughout the site, mostly along the borders and consisting primarily of creosote brush and tamarisk trees. Elevations within the SVRA range from 25 feet to 50 feet above sea level. Sand dunes range in height from roughly 10 to 50 feet; they are considerably smaller than other dunes in the region. The South Alamo Canal runs along the eastern boundary of Heber Dunes.

With its natural characteristics and OHV riding opportunities, the SVRA provides areas of scenic quality and recreational opportunity for residents of Imperial County. The primary use of the Heber Dunes SVRA is OHV recreation. Heber Dunes SVRA is known for being a family-friendly, OHV recreation area, and experiences high use on weekend days. The SVRA is traversed with many paths and riding trails as well as open riding areas.

2.1.3 Purpose Acquired

Heber Dunes was operated as a park by the County of Imperial for over 30 years. In 2000, DPR accepted responsibility for park operations at Heber Dunes by lease agreement, in part, because the County lacked sufficient operational funding for the park. Heber Dunes was officially deeded to DPR in 2007. Figure 3 provides an aerial view of Heber Dunes.



Source: NAIP 2006

1 0.5 0 1 Mile

Scale: 1 = 63,360; 1 inch = 1 mile(s)

Figure 2
Local Context

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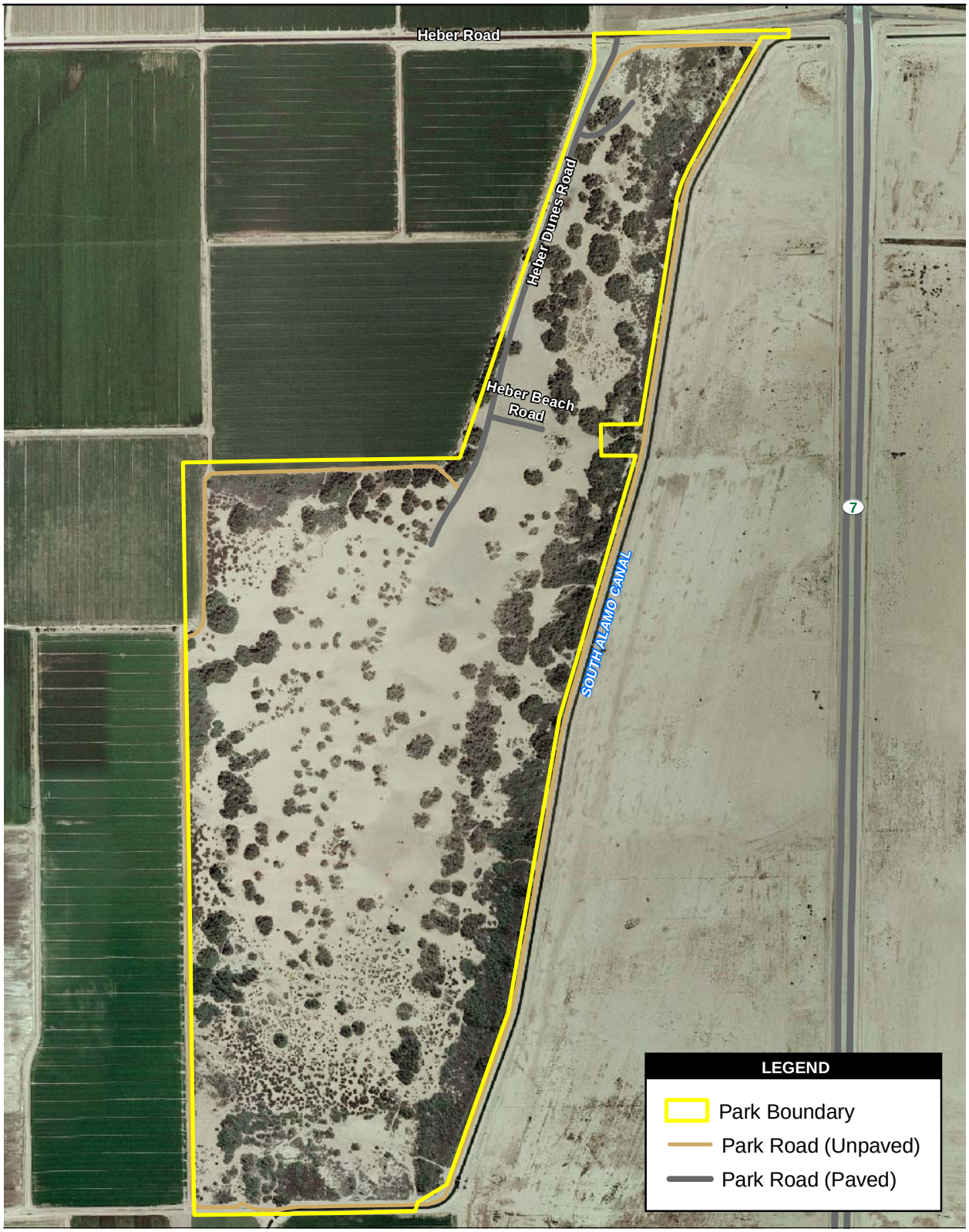

Source: Aerials Express 2006

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Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 3
Aerial View of Heber Dunes SVRA

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure3_AerialView_85x11.mxd, 06/15/09, PalavidoM

2.1.4 Sense of Place

Heber Dunes has been an important local recreation opportunity for Imperial County residents for decades. The SVRA is particularly popular as a gathering place for families. People are attracted to the SVRA because of its recreation opportunities and natural characteristics. In a region dominated by agriculture, Heber Dunes provides an opportunity to escape into a natural setting. Visitors ride OHVs, gather with family and friends, and enjoy the open area and natural characteristics.

2.2 PURPOSE OF THE GENERAL PLAN

General Plans are broad-based policy documents that establish long-range visions and goals and provide direction on future types of improvements, services, and programs. By legal mandate, all units operated by DPR must have a General Plan. General Plans are intended to be used for 20 years or more. Therefore, the General Plan establishes a decision-making framework that is consistent with the established vision but also flexible to allow for changing conditions over time.

3.0 EXISTING CONDITIONS, ISSUES, AND OPPORTUNITIES

This chapter describes the environmental setting and surrounding context at Heber Dunes SVRA. Local planning influences and the roles of various agencies are characterized, as are recreation opportunities at the SVRA, significant natural and cultural resources, existing land uses, and aesthetic resources. The information will provide the baseline data for the General Plan goals and guidelines and serve as the setting for environmental review.

3.1 REGIONAL LAND USE AND FACILITIES

3.1.1 Regional Planning Influences

Regional Plans

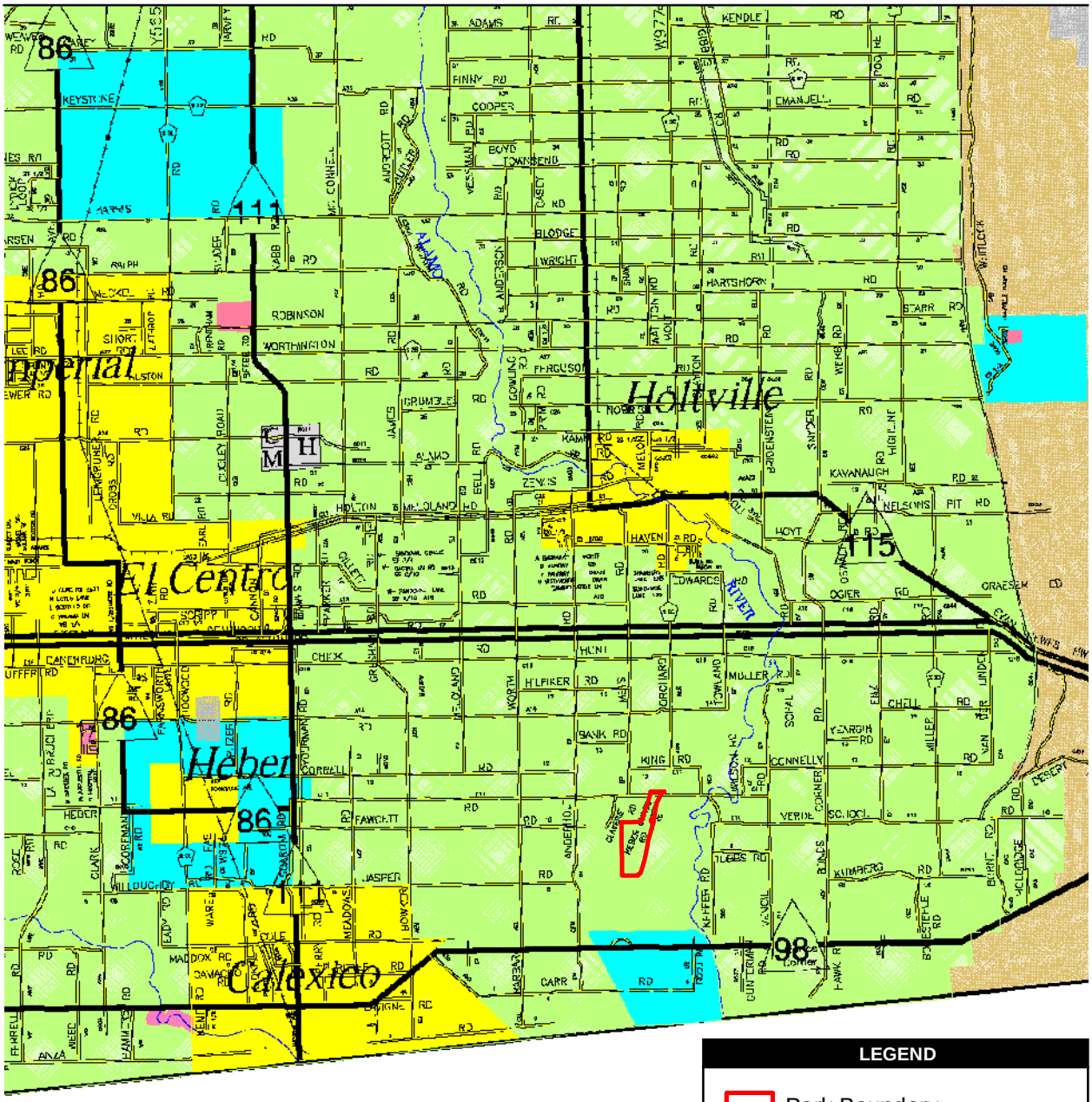
The following local and regional plans will have an influence on the management, operations, and visitor experiences at Heber Dunes SVRA:

- Imperial County General Plan
- Imperial County Zoning
- Gateway Specific Plan
- State Implementation Plan for Imperial County as implemented by the Imperial County Air Pollution Control District
- Southern California Association of Governments Regional Comprehensive Plan
- Southern California Association of Governments Regional Transportation Plan

Imperial County General Plan

The Imperial County General Plan presents a comprehensive guide for development within the county and provides mechanisms to achieve desired community goals and objectives through a coordinated implementation program. Land use decisions such as area plans, zonings, subdivisions, and public agency projects must be consistent with the General Plan. While the General Plan does not directly affect state-controlled properties, it does directly affect the surrounding land uses and thereby the context of the SVRA. For planning purposes, reviewing the County land use provisions provides guidance on the County's vision for use of the SVRA site within the surrounding community context. The General Plan includes elements that guide various facets of growth and development within the county. The elements most applicable to the SVRA planning process include Land Use, Parks and Recreation, and Conservation and Open Space.

The Land Use Element describes where different types of land uses may be established in the unincorporated areas of Imperial County (Imperial County 2008a). Figure 4 identifies Imperial County General Plan land use designations for the area around Heber Dunes SVRA. Heber Dunes, as well as most surrounding land, is designated Agriculture by the County of Imperial. The nearest land use designation other than Agriculture is the Gateway Specific Plan Area, which is located 1 mile to the south at State Route 98 (SR-98). The Gateway Specific Plan is addressed below.



Source: NAIP 2006

3 1.5 0 3 Miles

Scale: 1 = 190,080; 1 inch = 3 mile(s)

Figure 4
County of Imperial General Plan
Land Use Designations

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure4_LandUseDesignations_85x11.mxd, 06/15/09, PalavidoM

The Parks and Recreation Element establishes a framework for the stewardship and development of County parks and other recreational amenities that enhance the quality of life of County residents and visitors (County of Imperial 2008b). This element focuses on community- and neighborhood-type parks and does not provide policies or goals for the development of OHV recreation areas. County parks and recreation facilities are intended to serve as wide a range of interests as possible. Emphasis is placed upon family-oriented opportunities, as well as those that encourage visitor use. The Conservation and Open Space Element identifies goals and policies to ensure the managed use of environmental resources. The goals of this element also include protecting open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety. The goals and policies are also designed to prevent limiting the range of resources available to future generations.

Imperial County Zoning

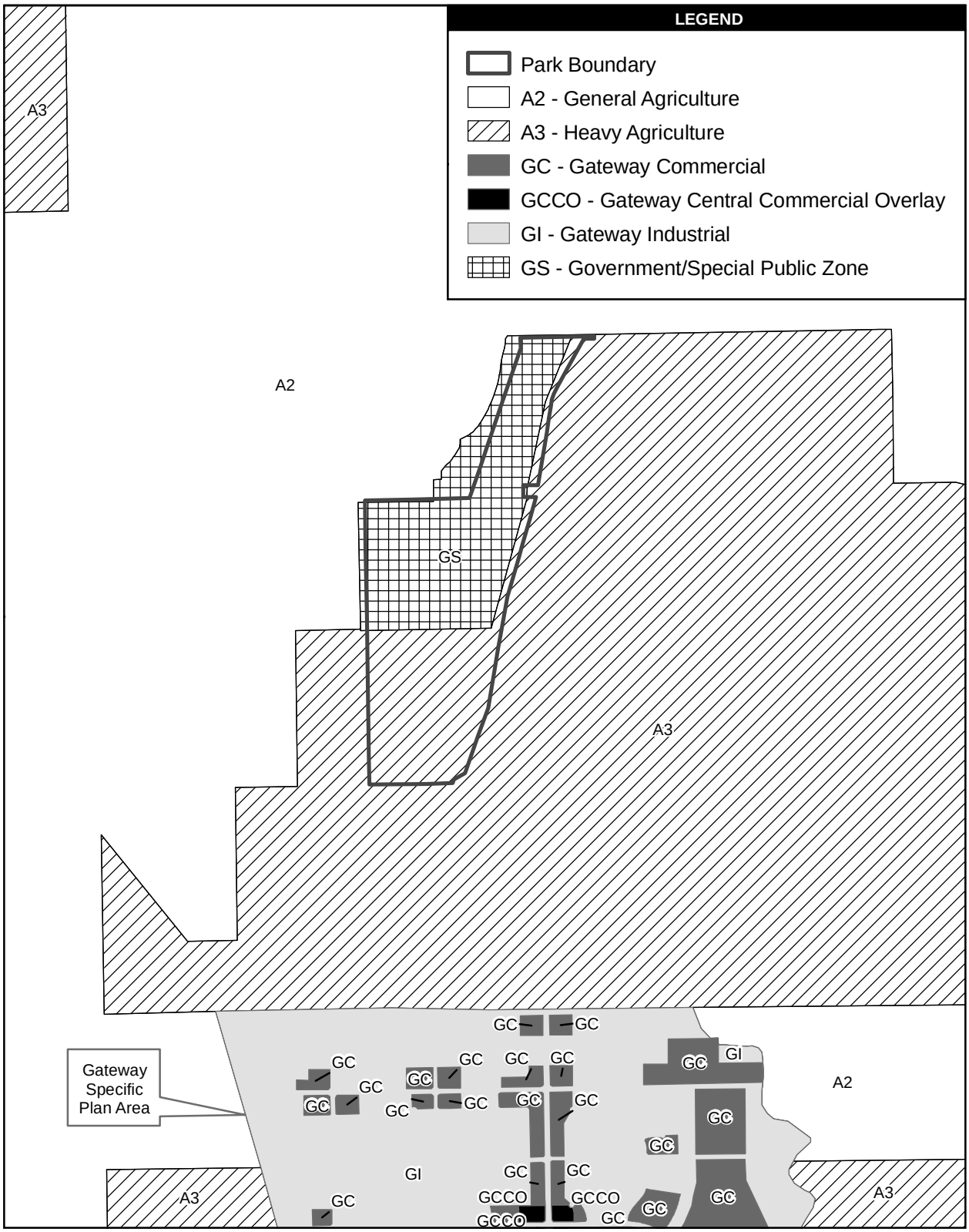
Figure 5 depicts the zoning designations for Heber Dunes and surrounding parcels. Heber Dunes SVRA is zoned as Government/Special Public Zone (G/S) by the County of Imperial. The purpose of the G/S zone is to designate areas that allow for the construction, development, and operation of governmental facilities and special public facilities. Primarily, this zone allows for all types of government-owned and/or government-operated facilities, including office or other uses. It also allows for special public uses. The list of permitted uses in the G/S zone does not specifically include recreation or OHV use.

The surrounding parcels are zoned for agricultural use as either General Agriculture (A2) or Heavy Agriculture (A3). The A2 zoning designation requires a lot size of 40 acres or greater with the intent to designate areas that are suitable and intended primarily for agricultural uses (limited) and agriculture-related compatible uses. The A3 zone also requires parcels of 40 acres or more with the purpose to promote the heaviest of agricultural uses in the most suitable land areas of the county. Uses in the A3 zoning designation are limited primarily to agriculture-related uses and agricultural activities that are compatible with agricultural uses. The County of Imperial General Plan presents a comprehensive guide for development within the County and provides mechanisms to achieve desired community goals and objectives through a coordinated implementation program.

Gateway Specific Plan

The Gateway of the Americas (Gateway) planning area comprises approximately 1,775 gross acres of land in Imperial County, adjacent to the international border with Mexico and about 6 miles east of the City of Calexico. The Gateway planning area is roughly bounded by the international border to the south, the Alamo River to the east, the Ash Canal to the west, and on the north by a line approximately 0.25 mile north of and parallel to SR-98. The northern boundary of the Gateway planning area is located approximately 0.75 mile south of Heber Dunes SVRA.

The Gateway planning area is proposed as a master-planned commercial and industrial complex designed to capitalize on the economic benefits of the adjacent international port-of-entry. The planned development consists of facilities for manufacturing, wholesaling, distribution, and assembly, plus related supporting transportation infrastructure and support services such as retail. Of the 1,775 gross acres within the planning area, 1,420.6 net acres are considered developable. The majority of the Gateway Specific Plan planning area



Source: Imperial County, CA

0.5 0.25 0 0.5 Miles

Scale: 1 = 31,680; 1 inch = 0.5 mile(s)

Figure 5
County of Imperial
Zoning Designations

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure5_ZoningDesignations_85x11.mxd, 06/15/09, PalavidoM

is zoned as Gateway Commercial and Gateway Industrial, with some Government/Special Public zoning in the southern portion of the planning area (see Figure 5).

While Heber Dunes SVRA is not included within the Gateway planning area, the intensive level of development proposed for the area may create development pressure on properties surrounding Heber Dunes.

State Implementation Plan for Imperial County

A State Implementation Plan (SIP) is an enforceable plan developed by the State of California to set forth how the state will comply with air quality standards according to the federal Clean Air Act. The SIP includes strategies and tactics to attain and maintain acceptable air quality. Imperial County Air Pollution Control District (APCD) prepares the Imperial County portion of the SIP. APCD may recommend or require dust control and/or suppression measures to minimize adverse effects on air quality resulting from OHV use at Heber Dunes. The General Plan process should identify potential strategies and methods to reduce adverse air quality impacts early in the planning process.

Southern California Association of Governments Regional Comprehensive Plan

The Southern California Association of Governments (SCAG) 2008 Regional Comprehensive Plan addresses issues of regional growth (SCAG 2008a). The Air Quality Chapter contains goals that are particularly applicable to the Heber Dunes General Plan. These goals include reducing emissions of criteria pollutants to attain federal and state air quality standards, reversing current trends in greenhouse gas emissions, and minimizing land uses that increase the risk of adverse air pollution-related health impacts from exposure to air contaminants, particulates (PM_{10}, $PM_{2.5}$, ultrafine), and carbon monoxide. While the 2008 Regional Comprehensive Plan does not provide specific strategies that could be implemented at Heber Dunes, it is important to be cognizant of the goals that SCAG has set for air quality and how OHV use at Heber Dunes relates to those goals.

Southern California Association of Governments Regional Transportation Plan

The SCAG 2008 Regional Transportation Plan (RTP) is a long-term transportation plan that addresses transportation issues in six southern California counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura (SCAG 2008b). The 2008 RTP presents the transportation vision for this region through the year 2035 and provides a long-term investment framework for addressing the region's transportation and related challenges. The Plan is the culmination of a multiyear effort focusing on maintaining and improving the transportation system through a balanced approach that considers system preservation, system operation and management, improved coordination between land use decisions and transportation investments, and strategic expansion of the system to accommodate future growth. The SVRA is within the SCAG region and will be affected by any plans related to the transit services or highway system; however, no new transit services or highway projects are proposed in the 2008 RTP that would directly affect circulation around the SVRA.

2007 Imperial County Transportation Plan Highway Element

The 2007 Imperial County Transportation Plan Highway Element includes near-term, mid-term, and long-term transportation priorities and projects on Imperial County's Highway Network that were developed through a comprehensive and cooperative planning approach between Imperial County Association of Governments, SCAG, Cities and County of Imperial, California Department of Transportation (Caltrans), and other public and private stakeholders. According to the 2007 Imperial County Transportation Plan Highway Element, future improvements for the near term (2007 to 2015), midterm (2015 to 2025), and long term (2025 and beyond) are anticipated in the project area. Near-term projects include the following:

- Widening SR-98 from State Route 111 (SR-111) to SR-7 from two to four lanes
- Widening SR-111 from two to four lanes
- Widening Jasper Road to become a six-lane expressway
- Constructing State Route 115 (SR-115) to connect with I-8

Mid- and long-term projects include improving the Bowker Road interchange with I-8, and the construction of a new interchange on SR-7 (northeast of Heber Dunes SVRA) to access a future planned private airport, respectively. These circulation projects could impact routes that are used to access Heber Dunes.

Regional Organizations

The following organizations have an interest in regional planning issues within Imperial County:

- County of Imperial
- Imperial County Farm Bureau
- Imperial County APCD

County of Imperial

The County of Imperial may have an interest in the long-term management and operation of Heber Dunes SVRA as it relates to the services and oversight they provide within the county, such as police, fire, transportation and circulation, land use planning, and development services.

Imperial County Farm Bureau

Imperial County Farm Bureau is a nongovernmental, nonprofit, voluntary membership organization whose purpose is to protect and promote agricultural interests in Imperial County as well as the state and nation, through public relations, education, and advocacy in order to support the economic advancement of agriculture balanced with appropriate management of natural resources. Farm Bureau strives to protect and improve the abilities of farmers and ranchers to provide a safe and reliable supply of food and fiber through responsible stewardship of our natural resources. Heber Dunes is surrounded by agriculture; thus, understanding agricultural interests in the region will be important in conjunction with development of the General Plan.

Imperial County Air Pollution Control District

APCD is the agency responsible for protecting the public health and welfare through the administration of federal and state air quality laws and policies. Included in APCD's tasks are monitoring air pollution, preparing the Imperial County portion of the SIP, and promulgating Rules and Regulations.

APCD shares responsibility with the California Air Resources Board for ensuring that all state and federal ambient air quality standards are achieved and maintained within the county. APCD is responsible for monitoring ambient air quality and has authority to regulate stationary sources and some area sources of emissions. APCD is responsible for developing the overall attainment strategy for Imperial County and, therefore, is responsible for planning activities involving the development of emission inventories, modeling of air pollution, and quantification and comparison of emission reduction strategies.

3.1.2 Regional Recreation Facilities

Imperial County has a varied terrain including rugged mountains, sand dunes, dry lake beds, badlands, mud hills, desert washes, broad alluvial fans, rocky peaks, volcanic areas, natural springs, water bodies, and broad areas of desert pavement, which result in a variety of recreational opportunities, such as hiking, boating, and OHV riding.

The varied terrains in Imperial County provide a wide variety of opportunities and challenges for OHV riders, from high speed runs to very slow and technically difficult steep climbs through rocky and rough terrain. Heber Dunes SVRA is one of many recreational areas in Imperial County. Two other designated OHV recreation areas are located within Imperial County: Imperial Sand Dunes and Ocotillo Wells SVRA. Imperial Sand Dunes is managed by the Bureau of Land Management and is located approximately 30 miles northeast of Heber Dunes. The recreation area consists of 227,000 acres and recreational opportunities include OHV riding, hiking, horseback riding, wildlife/scenery viewing, picnicking, nature study, environmental education, and camping. The three most popular areas are Mammoth Wash at the north end of the dunes, Glamis/Gecko just south of SR-78, and Buttercup Valley just south of I-8 near the Mexican border. Imperial Sand Dunes is characterized by very high sand dunes (some dunes are more than 300 feet tall), which provide a challenging OHV riding experience. Most visitors to Imperial Sand Dunes originate outside of Imperial County. Ocotillo Wells is an SVRA managed by OHMVR Division. Ocotillo Wells SVRA is located approximately 65 miles northwest of Heber Dunes. The SVRA totals 80,000 acres and recreational opportunities include OHV riding, camping, environmental education, wildlife/scenery viewing, geocaching, and picnicking.

Anza Borrego State Park also provides regional recreation opportunities. The park is located on the eastern side of San Diego County, with portions extending east into Imperial County and north into Riverside County. At 600,000 acres, Anza Borrego is the largest of the state parks within California. Recreational opportunities include hiking, camping, wildlife/scenery viewing, picnicking, bicycling, horseback riding, and interpretive activities and tours. Non-street-legal OHV riding is not allowed within Anza Borrego. However, vehicles with valid on-highway licenses (e.g., 4-wheel drive jeeps or trucks) can operate within the park on designated roads.

Several additional parks and recreation facilities are located within Imperial County. Currently, there are about 250 acres of public parkland within unincorporated areas of the county (excluding state and federal

parks and County parks that have been closed) (Imperial County 2008b). This figure is reduced to 160 acres if water bodies and undeveloped areas are also excluded. These recreation facilities range from small neighborhood parks to regional recreation facilities. Recreational opportunities provided by these parks include passive and active recreation, such as barbeque facilities, picnic areas, sports fields, and fishing and boating opportunities. OHV riding opportunities are not provided by any of these parks. All County parks are not discussed in detail in this Working Paper; however, County parks located in the vicinity of Heber Dunes SVRA include:

Heber

- 2 County Neighborhood Parks, which provide playgrounds and landscaped areas
- 1 County Community Park, which provides a baseball field

El Centro

- 1 County Regional Park (Pioneer's County Park), which primarily serves as a campus for Pioneers Museum and Cultural Center

No County parks exist in the Calexico and Holtville areas.

In addition to public parkland, some private recreation facilities (such as recreational vehicle parks) exist within the County, but they do not provide OHV riding opportunities.

In addition to existing regional recreation facilities, the nearby Cities of Calexico, El Centro, and Holtville have various parks. Specifically, the City of Calexico has 12 parks, the City of El Centro has 28 parks, and the City of Holtville has three parks. Most of these parks provide shaded areas, playgrounds, and sports fields.

While substantial recreation facilities exist in Imperial County (over 307,000 acres of State and federal parkland, 160 acres of County parkland, and a number of local parks), Heber Dunes SVRA provides a unique recreational experience in that it provides OHV recreation in a family-friendly atmosphere, the relatively low sand dunes are safe for novice OHV riders, and it is located within close proximity to population centers. These Heber Dunes characteristics were cited as important by visitors and stakeholders during public outreach activities. Additional information regarding these park characteristics is provided in Section 3.2.

3.1.3 Issues and Opportunities

Based on regional planning influences and recreational conditions at Heber Dunes SVRA, the following key issues and opportunities have been identified for consideration in the General Plan:

- Planned land use changes in the vicinity of Heber Dunes are generally compatible with the current uses at the SVRA
- The SVRA provides unique recreational opportunities for local communities
- Potential air quality effects are a regional concern

Planned for land use changes in the vicinity of Heber Dunes are generally compatible with the current uses at the SVRA – Heber Dunes is currently surrounded by agriculture and the designated land use to the west, north, and east is agriculture. However, the northern boundary of the 1,775-acre Gateway Specific Plan planning area (which is primarily zoned for commercial and industrial uses) is located approximately 0.75 mile south of Heber Dunes. In general, industrial and commercial uses are considered compatible with OHV activities because these uses are not particularly sensitive to sound and/or dust. Thus, the uses that would occur under existing Gateway Specific Plan zoning are expected to be compatible with current land uses at Heber Dunes.

However, it is important to note that future regional population growth may create development pressure on the agricultural parcels adjacent to the SVRA. For example, if housing were to be proposed on the properties adjacent to Heber Dunes, concerns about sound and dust emanating from the SVRA could be raised.

The SVRA provides unique recreational opportunities for local communities – While state and federal parkland with OHV riding opportunities are abundant within Imperial County, these parks do not provide the novice riding opportunities or proximity to urban centers that make Heber Dunes SVRA unique. For these reasons, Heber Dunes functions as a highly valued regional park and recreation resource for residents of Imperial County.

Potential air quality effects are a regional concern – Air quality is an issue of regional concern in Imperial County. Dust and engine emissions from OHV riding can contribute to poor air quality conditions. Working relationships have been established with regional agencies, such as APCD, through the initial steps of the public outreach process. Dust management needs to be considered in the General Plan. This topic is further explored in Section 3.3.1.

3.2 EXISTING SVRA LAND USE AND FACILITIES

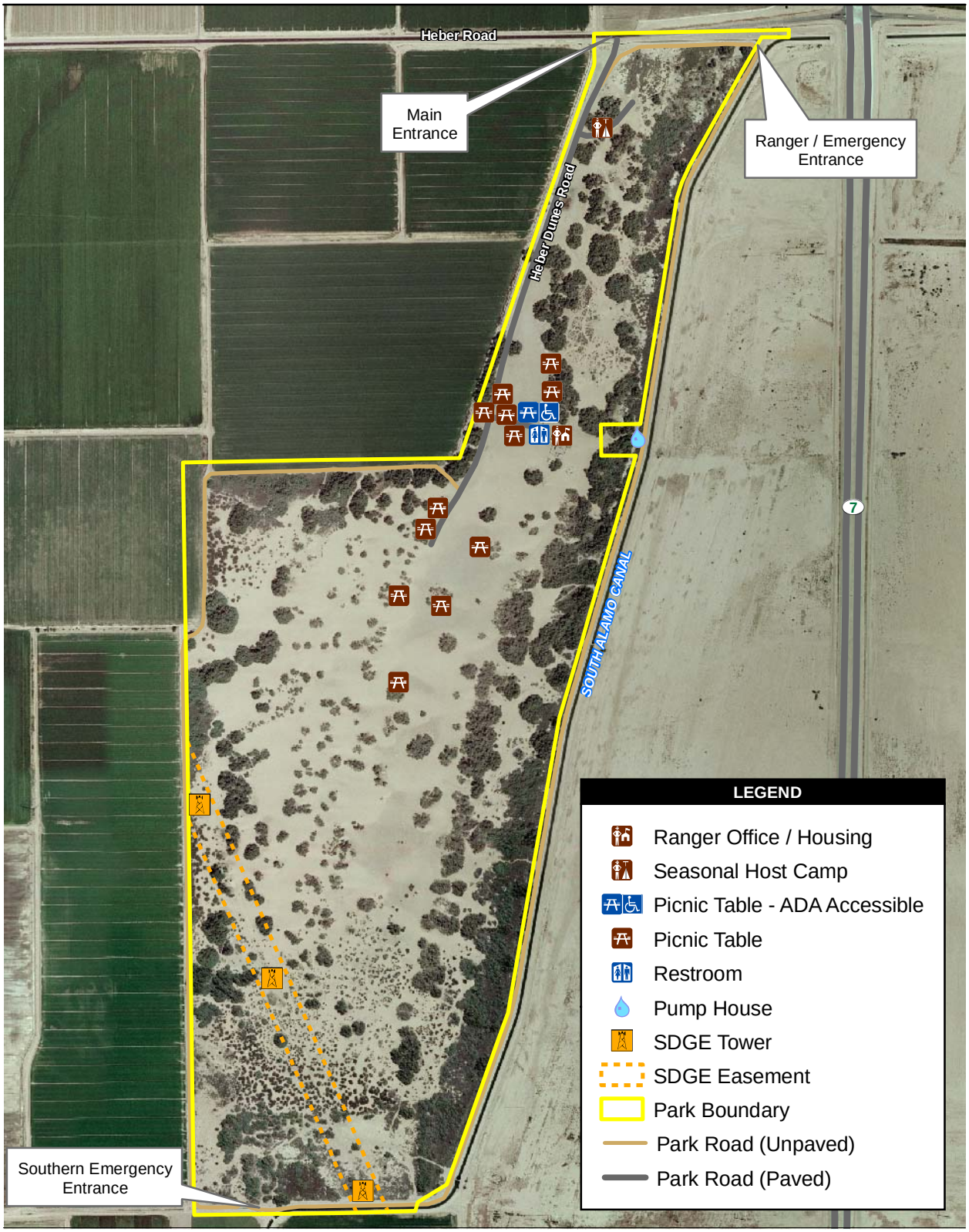
This section describes the existing land use and facilities in and surrounding Heber Dunes SVRA.

3.2.1 Land Use

On-site Land Uses

Heber Dunes SVRA is composed of 343 acres and is mainly undeveloped with limited infrastructure and improvements. The majority of the SVRA is composed of sand dunes and natural vegetation, with a network of established trails and a perimeter road (Figure 6). Desert vegetation is scattered throughout the site, mostly along the SVRA perimeter and consisting primarily of nonnative tamarisk trees and native creosote brush and saltbrush scrub.

Heber Dunes SVRA is known for being a family-friendly OHV recreation area and experiences high use on weekend days. The project site is traversed with many paths and riding trails and is open for day use only. Heber Dunes SVRA provides basic riding trails and dunes and does not have features that allow for the more extreme riding or trail climbing that exist in other recreational areas in the vicinity. An unpaved road maintained by SVRA staff follows the perimeter of the site.



Source: Aerials Express 2006

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Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 6
SVRA Facilities

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure6_ParkFacilities_85x11.mxd, 06/15/09, PalavidoM

The majority of facilities at Heber Dunes SVRA are clustered in a centralized location off of Heber Road in the north-central portion. Recently a new restroom/shower facility was constructed. The old restroom facility now serves as a storage area. This area also includes a permanent trailer for the resident SVRA ranger and a ranger office. Other uses in this central area include a storage yard for DPR materials and a maintenance shop for equipment and vehicles. Immediately south of these improvements are approximately 15 scattered picnic shelters with trash cans and fire pits. These facilities are located in a flat, clay pan area and tend to serve as congregating points for SVRA users and riders.

A SVRA host area is located near the northern boundary of the site off of Heber Dunes Road. The SVRA hosts live on-site in an RV during the fall, winter, and spring, which coincide with the period of highest visitor use. There are many SVRA signs posted near the site entrance and along the main trail alignments.

The Imperial Irrigation District (IID) provides irrigation water and electric power to farmers and residents in the Imperial Valley. IID has operational facilities and water conveyance structures throughout Imperial County. IID supplies water to Heber Dunes and has water conveyance structures in the vicinity of the SVRA. Specifically, the South Alamo Canal runs along the eastern border of Heber Dunes and the South Alamo Lateral 5-A runs along the northern edge of the SVRA. Further effort would be required to determine whether or not the canal and the lateral fall within the SVRA boundary.

San Diego Gas & Electric (SDG&E) is a regulated public utility that provides gas and electric service in San Diego and south Orange County. SDG&E transmits electricity through Imperial County. Three SDG&E transmission towers bisect the southwest corner of the SVRA and carry 500-kilovolt high-voltage aboveground electric lines across the site. This line was built in 1984 and has been designated a Western Electric Corridor. SDG&E has a 200-foot-wide easement that runs with the electric line through the SVRA (see Figure 6).

For the most part, SDG&E uses existing roads to access its facilities at Heber Dunes, with the exception of the southernmost tower where access gets obscured by shifting sands. SDG&E patrols the line by air and land, and washes the insulators on the towers as needed (typically once a year) using deionized water. SDG&E requires 24-hour access to these facilities in order to respond to unexpected emergency outages.

There are multiple rights-of-way and easements that cross the site boundaries related to power transmission and irrigation canal access. As mentioned above, SDG&E has a 200-foot-wide linear easement for the towers and power line running through the SVRA (Photo 3). The electrical tower in the southernmost part of the SVRA has become one of the more popular gathering places for visitors due to the shade provided by the electrical towers, the cleared flat area, and space for parking and gathering. The South Alamo Canal, which is managed by IID is located immediately outside of the SVRA boundary. The canal runs adjacent to the perimeter road along the southern and eastern boundaries of the SVRA (Photo 4). IID also operates and maintains the South Alamo Lateral 5-A, which runs along the northern boundary of Heber Dunes. IID has rights-of-way associated with the South Alamo Canal and South Alamo Lateral 5-A; however, further effort is required to determine the exact locations of the rights-of-way. In addition, a pump house and a water treatment plant are located on a small piece of land between the eastern boundary of the SVRA and the South Alamo Canal (see Figure 6). IID owns the land and OHMVR Division accesses it and maintains it as part of its water delivery operations.

Photo 3. View of SDG&E electrical towers at southern end of SVRA

Photo 4. Adjacent agricultural uses, South Alamo Canal, and perimeter road, looking to the west.

Surrounding Land Uses

Heber Dunes SVRA is located within unincorporated Imperial County, California. The site is surrounded by large parcels of land used for intensive irrigated agricultural field production. Generally, agricultural land use extends for miles in all directions around the project site with scattered residential homes throughout the area. The primary crop grown adjacent to the site is alfalfa. A system of canals managed by IID provides irrigation water for the cropland.

The site is bounded to the north by Heber Road. Cropland is located immediately north of the SVRA. There are approximately five residential home sites located within 0.5 mile to the north and northwest of the project site along King Road. Cropland continues to the north with agricultural land use dominating the area, extending north to the City of Holtville. I-8 is located approximately 3 miles north of Heber Dunes SVRA.

The South Alamo Canal forms most of the southern and eastern boundaries of Heber Dunes SVRA. The canal traverses north and south along the entire eastern site boundary of the SVRA and forms a portion of the southern boundary (Photo 4). Immediately east of and adjacent to the canal is an approximately 306-acre undeveloped parcel of land that was purchased by Caltrans for mitigation purposes associated with previous improvements to SR-7 (Photo 5). An additional approximately 350 acres of Caltrans-owned land is located east of SR-7. These parcels are designated for heavy agricultural purposes by the County of Imperial, though they are not presently cultivated or irrigated. SR-7 is located less than 0.5 mile east of the project site and provides the main regional access to the site. SR-7 connects to I-8 to the north and the U.S./Mexico border to the south.

Photo 5. Caltrans parcel with Heber Dunes SVRA in distance

The U.S./Mexico border is located approximately 2.5 miles to the south of Heber Dunes SVRA. SR-7 travels south past the project site and eventually ends at the Calexico East border crossing, south of the project site. This crossing accommodates most of the commercial trucking operations crossing the border in this region. There are multiple commercial trucking, warehousing, and storage operations located on the north side of the

border in Calexico. The nearest residential developments to the south are suburban tract developments and are located along SR-98, approximately 1 mile south of the project site.

Agricultural cropland is the primary land use immediately west of the project site and cropland continues for many miles to the west. There are scattered residential homes to the west, with the nearest located less than 0.5 mile from the project site along Claverie Road. The Ash Canal runs in a generally north-south alignment approximately 0.5 mile west of Heber Dunes SVRA.

While the SVRA is a unique land use within the context of adjacent land uses, it is generally considered compatible with those uses surrounding it. This is largely because it is a rural area with very few sensitive uses (i.e., residential, commercial, or other urban uses) that could be affected by sound, dust, or traffic associated with the SVRA.

3.2.2 Circulation

Heber Dunes SVRA is accessed by a circulation network that includes I-8 to the north, SR-111 to the west, SR-7 to the east, and SR-98 to the south (see Figures 1 and 2). I-8 is the primary east-west highway in the vicinity, connecting San Diego to the west and Arizona and beyond to the east. SR-111 and SR-7 are main north-south access routes that generally connect communities north and south of I-8. SR-98 is another east-west highway that runs just north of the U.S./Mexico border.

The main entrance for Heber Dunes SVRA is located on Heber Road, just west of SR-7. This entry point is marked with DPR signage and is stop-sign controlled. Secondary emergency and employee access is located approximately 565 feet west of the intersection of SR-7 and Heber Road, and is restricted by a locked gate. Another emergency access point is located on the southern edge of the SVRA and is restricted by a locked gate. Figure 6 identifies access points and facilities at the SVRA.

The main access road into the SVRA runs along the western boundary of the site providing 0.7 mile of paved two-lane travel into the SVRA, terminating at the main dirt riding area near the ranger facilities. This internal roadway is unimproved with no curb or gutters and has a posted speed limit of 15 miles per hour (mph). The secondary emergency access road is unpaved and parallels the South Alamo Canal on the eastern boundary of the site.

OHV circulation within the park is a network of trails and open riding areas; however, the majority of riding is in the northern part of the SVRA, near the restroom facilities and picnic areas. There are several large, flat, clay pan areas that are often used for open riding; one is near the terminus of Heber Dunes Road and the other is further south, within the interior of the SVRA. The sand dunes are distributed throughout the SVRA, and there is a cluster of higher sand dunes in the southern part of the SVRA. None of these trail or open riding areas have specific names or signage. An unpaved perimeter road is located along the SVRA boundaries.

The open riding areas create safety issues at Heber Dunes. The open riding areas tend to be flat and some riders enjoy passing through these areas at high speeds. Likewise, because of topography and vegetation, at times visibility is limited within the open riding areas. Currently, open riding occurs in proximity to areas

where large groups tend to gather (in the center of the SVRA, near restrooms and picnic tables), which creates safety concerns for nonriders in these areas.

As mentioned in Section 3.1.1, the following near-, mid-, and long-term projects are anticipated in the project area:

- Widening SR-98 from SR-111 to SR-7 from two to four lanes
- Widening SR-111 from two to four lanes
- Widening Jasper Road to become a six-lane expressway
- Constructing SR-115 to connect with I-8
- Bowker Road interchange with I-8
- Construction of a new interchange on SR-7 (northeast of Heber Dunes SVRA) to access a future planned private airport

Based on Caltrans growth projections through 2035, the segment of Heber Road from SR-7 to the Heber Dunes SVRA entrance is anticipated to experience a 37 percent increase in vehicular traffic over existing volumes (Fehr & Peers 2009).

3.2.3 SVRA Facilities

There are a limited number of developed facilities within Heber Dunes SVRA, and the majority of the SVRA is dedicated to open sand dune and trail riding (see Figure 6).

Ranger Facilities – The SVRA ranger area is where the main concentration of infrastructure is located. A year-round ranger lives on-site in the SVRA ranger area. This area includes the following: a trailer residence that receives potable water from the on-site treatment plant and propane from refillable tanks; a ranger office and workshop/tool area; a parking area for SVRA vehicles; and an old restroom facility that is currently used for storage.

Restroom Facilities – A recently constructed restroom is located at the northern part of the park near the ranger facilities (Photo 6). It consists of flush-toilets, sinks, and showers.

Picnic Facilities – There are a total of 13 picnic table areas, including one that is Americans with Disabilities Act (ADA)-accessible. Seven of the 15 picnic areas are clustered near the restroom facility. The remaining six are scattered south of Heber Dunes Road. Each of these picnic table areas includes a picnic table and benches, a fire pit, and a trash can. The picnic tables include a shade-cover structure. Fires are permitted only in designated fire pits, and the on-site rangers monitor this use in their regular patrolling of the SVRA.

Camp Host Facilities – This is an unimproved site on the south side of the main access road into the SVRA where a seasonal camp host locates a trailer during several months out of the year. There are dumpsters in the immediate vicinity. Volunteer camp hosts are present at the entrance of the SVRA during the busy months, typically from November to March of each year. The SVRA volunteers assist the rangers in cleanup and maintenance of the SVRA and facilities.

Photo 6. Newly constructed restroom and shower facility

Pump House – A gated pump house and water purification facility is located in the northeastern part of the SVRA. It treats water drawn from the South Alamo Canal for use in the SVRA.

Signage – Some signage and wayfinding exists throughout the SVRA. At the main SVRA entrance area, a single-panel entry kiosk provides a "Guide to California Off-Road Adventures" poster (Photo 7). Along the entry road and perimeter road are various signs relating the rules of the SVRA, such as the requirement to wear helmets and the all terrain vehicle (ATV) passenger prohibition. Other signs state the SVRA hours, relate the no fireworks and no camping rules of the SVRA, and identify SVRA boundaries (Photo 8).

Photo 7. Informational kiosk at SVRA entrance

Photo 8. Safety and other signage along main access road

3.2.4 Visitor Patterns

Heber Dunes SVRA is open 7 days a week year-round and is managed for day use only. It receives light visitation during weekdays, with the bulk of visitation occurring on Saturdays and Sundays. Sunday is viewed as the SVRA's busiest day. As with other OHV parks in the region, Heber Dunes SVRA experiences great visitation fluctuation by seasons, with the highest levels occurring in the late fall, winter, and early spring (November through April). A greatly reduced number of recreationists visit the SVRA during the hotter seasons of late spring, summer, and early fall (May through October) as the high air temperatures discourage use. Nevertheless, some dedicated riders visit the SVRA even during the hotter months, typically in the morning and evening hours.

The largest recorded number of visitors observed at Heber Dunes SVRA is 160 people on one day (OHMVR Division 2009). Table 1 shows an approximate number of visitors in a 6-month period between November 2007 and April 2008, which is typically considered the busiest time of year. The figures were derived from lead ranger counts of vehicles on-site, using the assumption of 3.5 persons per vehicle (OHMVR Division 2009).

Table 1
Approximate Heber Dunes SVRA Visitation during Peak Months

Date	***Number of Vehicles Counted***	***Approximate Number of Visitors***
November 2007	987	3,454.5
December 2007	1,105	3,867.5
January 2008	797	2,789.5
February 2008	800	2,800
March 2008	684	2,394
April 2008	681	2,383.5
Source: DPR Monthly Visitor Attendance Reports		

Visitor surveys conducted in February and March 2009 indicate that visitors to Heber Dunes SVRA typically come in small and large groups of families and friends (between 5 and 10 individuals). Most visitors stay at the SVRA for a good portion of the day, yet the total time spent riding OHVs is typically only a few hours. Specifically, the survey results indicate that 80 percent of visitors stay more than 4 hours, yet a large proportion of visitors (40 percent) ride OHVs for 2 hours or less. The primary additional recreational activities that visitors take part in include gathering with family and friends, picnicking and barbequing, watching people ride OHVs, and viewing scenery.

As indicated in visitor surveys administered in 2009, the majority of visitors (90 percent) to Heber Dunes SVRA are local residents who travel less than 30 minutes to visit the SVRA. The visitor surveys indicated that the majority of visitors come from the nearby communities of Calexico, El Centro, Holtville, Imperial, and Heber, which are within short driving distance of the SVRA. As shown in Table 2 below, the overwhelming majority of these communities is composed of a Hispanic or Latino population. As such, it is likely that a large proportion of the visitors to Heber Dunes SVRA are of this ethnic background and reflect the local communities.

Table 2
Hispanic and Latino Composition of Nearby Communities

Community	***Total Population***	***Percent Hispanic or Latino***
Calexico	27,109	95.3%
El Centro	37,835	74.6%
Holtville	5,612	73.8%
Imperial	7,560	61.1%
Heber	2,988	97.5%
Source: U.S. Bureau of the Census 2000 (Summary File 1)		

Because most visitors are from the local community, Heber Dunes SVRA has become a popular gathering and picnicking area for families and friends. The visitor survey revealed that approximately 32 percent of visitors were children under the age of 15, signifying the popularity of the SVRA for families with children.

3.2.5 Interpretation and Educational Resources

Heber Dunes SVRA does not currently provide formalized educational programs for visitors. However, on-site staff informally provide interpretive, educational, and safety information. There is no formal visitor or interpretive center at the SVRA, or published materials or maps specifically for Heber Dunes SVRA. Riding trails throughout the SVRA do not have a formalized nomenclature or signage.

3.2.6 Operations and Maintenance Functions

Operations and Visitor Services

Heber Dunes SVRA is open 7 days a week from 7:00 a.m. to 9:00 p.m.; the entrance gate is closed outside of operating hours to prevent entry. These limited hours were instituted by DPR when the park was acquired from the County; prior to that, there were no enforced operating hours. A permanent on-site ranger began residing at Heber Dunes in 2007. Visitor surveys have revealed that the presence of an on-site ranger has

improved the safety, cleanliness, and overall management of the SVRA. There are currently no on-site concessions.

The primary recreational service provided to visitors is open area and riding trail areas for OHVs. There are currently no marked trails or signage identifying specific areas of the SVRA, though there are several clearly defined user areas within in the SVRA with different riding features (i.e., flat clay plan areas, steep sand dunes, perimeter trail, rolling sand dunes). Visitor surveys indicate that 60 percent of OHV riders at Heber Dunes SVRA use ATVs, followed by dirt bikes at 17 percent. Other vehicles that are rarely used include 4x4s, side-by-sides, dune buggies, trucks, and sand rails. Due to the open nature of the SVRA, the majority of Heber Dunes SVRA is accessible to all riders, particularly those on ATVs. There are some deeper ravines in the SVRA that are densely vegetated and prohibit riding access. Staff often clear brush from trail areas, particularly on the east side of the SVRA, to maintain their use.

The SVRA also provides picnicking and gathering space with its covered picnic areas and fire pits, as described above.

Public Safety

One resident SVRA ranger lives on-site at Heber Dunes SVRA. The rangers provide security for the SVRA, are the first to respond to fire and medical emergencies, and have law enforcement authority. In the event of an emergency, the resident ranger requests assistance from the Southern Communication Center (SURCOM) of the California State Parks Radio System. SURCOM then directs requests to the relevant responsible agency. In addition, calls made to 911 from cell phones within the SVRA are automatically routed to the California Highway Patrol, which then transfers the call to SURCOM and SURCOM then directs requests to the relevant responsible agency. Imperial County Fire Department (ICFD) responds to all emergency calls originating from Heber Dunes. In addition, Gold Cross Ambulance is dispatched to all medical aid calls. If Gold Cross Ambulance is unable to respond, the City of Calexico Fire Department provides ambulance support.

Imperial County Fire Department

ICFD is the jurisdictional agency responsible for responding to fires within the SVRA. The closest ICFD fire station is approximately 5 miles east of the entrance to the SVRA in Heber. The typical response time from the Heber station to the SVRA is approximately 10 to 15 minutes (ICFD 2009). ICFD currently pumps water out of the South Alamo Canal when responding to fires at the SVRA.

Utilities and Services

The SVRA purchases water from IID. All water used in the SVRA comes from the South Alamo Canal, which runs along the eastern boundary of the Heber Dunes SVRA. Water from the canal is treated by an on-site water treatment plant located in the northeastern part of the SVRA, as shown in Figure 6. Water is diverted from the canal into a cistern with a rock filtration system. The 2,000-gallon cistern is located due east of the shower/restroom facility, immediately east of the SVRA property boundary and just west of the canal. The cistern is owned by IID and maintained by OHMVR Division. Once the water has been treated by a rock

filtration system, it goes through reverse osmosis and is treated by chlorine and then is held in a sealed 4,000-gallon storage tank. The treated water on-site is used in restrooms and for drinking.

There are limited electrical needs on-site and IID also provides electricity to Heber Dunes SVRA. This electricity supports the ranger facilities and restrooms.

3.2.7 SVRA Support

Heber Dunes SVRA has a limited number of volunteers or volunteer programs on-site. There are two volunteer camp hosts that reside in a trailer at the entry to the SVRA in the peak use months of November to March (Photo 9). The on-site volunteers assist the rangers in cleanup and maintenance of the SVRA and facilities during these high use periods. In addition, the San Diego-Imperial Council Desert Trails District of the Boy Scouts of America have participated in cleanup and debris removal at the SVRA.

Photo 9. Volunteer camp host area off Heber Beach Road at SVRA entrance

3.2.8 Issues and Opportunities

Based on the existing land use and facility conditions identified at Heber Dunes SVRA, the following key issues and opportunities have been identified:

- Most visitors are local and of Hispanic or Latino origin
- Some areas of the SVRA are more heavily used than others
- Improving the system of riding trails and open riding areas could provide varied recreational experiences and improved safety
- Heber Dunes is a valued place for family gatherings
- Improving the group picnic and gathering facilities could enhance the visitor experience
- Place names could assist in wayfinding and emergency response

- Limited educational and interpretive programs are currently at the SVRA
- Good relationships with neighbors should be maintained
- Consider potential future expansion of the SVRA
- Maintaining access to IID and SDG&E facilities on or adjacent to Heber Dunes is important to these organizations.

Most visitors are local and of Hispanic or Latino origin – Based on the results of the visitor survey and DPR staff interaction with visitors, it is clear that the primary users of the SVRA are members of the local community and are predominantly of Hispanic or Latino origin. Preserving and enhancing the importance of this recreational amenity for the local communities that it primarily serves will be key in the future growth of the SVRA. This could include providing signage, educational materials, and other SVRA information in both English and Spanish, which is consistent with DPR's Strategic Initiatives for improving interpretive and educational services (DPR n.d.). It could also include more expansive visitor counts to determine the utilization of the SVRA.

Some areas of the SVRA are more heavily used than others – The predominant riding areas are currently concentrated in the northern part of the SVRA in proximity to facilities such as restrooms, shaded picnic tables, and shade cover provided by tamarisk. There is potential to expand or reconfigure facilities into other parts of the SVRA to distribute riders throughout the 343 acres in underutilized areas, such as areas near the northernmost electrical tower, which has become an informal popular gathering area. Another way to identify popular gathering areas would be to identify specific trails and riding areas with names and signage. This would also help improve emergency access and management of the park.

Improving the system of riding trails and open riding areas could provide varied recreational experiences and improved safety – Riding opportunities at Heber Dunes SVRA are mainly in the form of open areas with some trails. Moreover, currently no separation exists for areas that are more heavily used by children and families. While speed limits are posted near picnic areas, they are located in a flat clay pan area that is often used as a high speed zone.

Areas of the SVRA could be established for specific types and levels of riding and additional obstacles could be provided to enhance the OHV experience. Separate tracks for young children and adolescents could improve rider and nonrider safety. Open riding could be designated in areas removed from the picnic and restroom facilities. Well-delineated paths and riding areas could be used for rider education and safety training.

Heber Dunes is a valued place for family gatherings – The majority of SVRA users are in groups of between 5 and 10 individuals, and a large proportion are children under the age of 15. There are currently no specific riding areas for children and the flat clay pan area near the restroom facilities typically draws faster riders. There is the potential to create a designated youth riding area in a location where it is close to picnic areas and other facilities. Additionally, there are no other real activities provided for families and individuals that are not riding OHVs (besides spectating).

Improving the group picnic and gathering facilities could enhance the visitor experience – Additional picnic and shade facilities that can accommodate large groups should be considered (e.g., large ramadas or

clusters of small ramadas). While it will be important to maintain the primary use of the SVRA as an OHV recreational area, there is the potential to enhance the visiting experience for non-OHV riders.

Place names could assist in wayfinding – Signage and identification of popular gathering areas could improve the overall visitor experience at Heber Dunes. Place names and associated wayfinding information could make the visitor experience more enjoyable by making it easier for visitors to find each other at the SVRA. Likewise, place names could help emergency responders quickly locate visitors in distress. The use of place names in conjunction with enhanced safety information could improve visitor safety as well. For example, by giving the children's trail a name and providing clear safety instructions, visitors would understand that they should be cautious in the vicinity of the children's trail.

Limited educational and interpretive programs are currently at the SVRA – There is currently a lack of educational resources located at Heber Dunes SVRA. While the park is relatively small in size, there is value in interpretive information specific to the SVRA. This could include interpretive kiosks identifying the history of the area and unique biological resources; vegetation or habitat signage at key locations; and additional safety signage.

Good relationships with neighbors should be maintained – DPR has had a good-standing relationship with the local adjacent land owners and easement holders. Throughout the planning process and implementation of specific projects in the SVRA, DPR should continue to ensure that this established relationship is upheld. In addition, sensitivity and consistency with existing and planned land uses could ensure good relationships.

Potential future expansion of the SVRA should be considered – There is the potential for DPR to consider the acquisition of the adjacent Caltrans-owned parcel for expansion of the Heber Dunes SVRA. This 306-acre parcel would nearly double the size of the SVRA. The parcel is mainly flat (it does not have the dunes structure of the SVRA). Acquisition of this land would allow DPR to use the land in a manner that would not conflict with OHV recreation, thus reducing the potential for adjoining land use conflicts. Additional recreational uses that are compatible with OHV use could be considered for this parcel as well.

Maintaining access to IID and SDG&E facilities on or adjacent to Heber Dunes is important to these organizations – Consideration should be given to organizations, such as IID and SDG&E, which have an interest in the long-term development, operation, and management of Heber Dunes. For example, IID provides water to Heber Dunes and has facilities in the vicinity of the SVRA. Operation of Heber Dunes should not impact access to IID facilities. Likewise, drainage patterns should not be altered in a manner that would negatively impact IID's water conveyance structures adjacent to Heber Dunes. In addition, operation of Heber Dunes should not impact access to SDG&E towers.

3.3 SIGNIFICANT RESOURCE VALUES

This section describes the natural resources within the SVRA.

3.3.1 Physical Resources

Topography

Heber Dunes SVRA consists of rolling sand dunes and areas of clay pan soils. The dunes range in elevation from 25 to 50 feet above sea level and consist of fine sands with silty sand, clay silts, and silty clays. These topographic features are unique in that they are surrounded by flat, irrigated agricultural lands.

Geology and Soils

Heber Dunes SVRA is located in the southern Imperial Valley that is part of the Salton Trough, a structural and topographic depression that lies within the Basin and Range physiographic province. The Salton Trough is an extension of the East Pacific Rise as it emerges from the 1,000-mile-long trough occupied by the Gulf of California and continues northward to Palm Springs. Several other active faults occur in and near the project area, including the Imperial and Brawley faults.

The sub-sea-level basin of the Salton Trough has received a continuous influx of sand, silt, and clay derived from the surrounding mountains and the Colorado River, which created ephemeral lakes in the basin until roughly 300 years ago. As recently as 300 years ago, Lake Cahuilla filled the Imperial Valley basin to the elevation of the Colorado River delta. The shoreline of this ancient lake has an elevation of about 35 feet above mean sea level and is visible today. Between the east side of the ancient lakebed and the Algodones Sand Hills is the Imperial East Mesa, a terrace of the Colorado River delta.

Geologic maps show the region as underlain by Quaternary lake deposits and alluvium (Strand 1962). Quaternary sand dunes are mapped on the property. The Imperial fault crosses the property from southeast to northwest (Real et al. 1979; Kahle et al. 1984). A 1937 aerial photograph (Youd and Wieczorek 1982) shows that the area surrounding the property was predominantly covered with sand dunes with a stream channel to the west of the site. The overall large size of the dune substrate at the SVRA precluded its development for agriculture, unlike many of the smaller dune areas throughout the Salton Trough, which were easier to remove or level for other uses.

A soil survey has been prepared for Imperial County that includes a map of soils found at the SVRA (USDA 1981). The soil survey indicates that six soil types exist at Heber Dunes SVRA. The majority of the site, 83 percent, is composed of Rositas fine sand (283 acres). Other on-site soils types include Meloland and Holtville loams (21 acres), Vint loamy very fine sand (13 acres), Meloland very fine sandy loam (12 acres), Vint and Indio very fine sandy loams (9 acres), and Indio loam (1 acre).

Surface soil of the Rositas soil association consists of nearly level to moderately steep (with slopes up to 30 percent), excessively well-drained sand to silt loam formed in the transitional area between the ancient beachline of the Lake Cahuilla basin to the middle and upper levels of alluvial fans from the Imperial West Mesa (USDA 1981). The USDA describes these soils as deep (to at least 60 inches), highly permeable, and with a low water capacity. The soil erosion hazard is generally slight, but soils in this unit are susceptible to blowing and erosion during infrequent periods of intense rainfall. These soils are mainly used for desert recreation and wildlife habitat, but they have the potential for irrigated farming.

Climate

Heber Dunes SVRA is located in the Salton Sea Air Basin (SSAB), which consists of parts of Riverside County and all of Imperial County. The SSAB is bound by the San Jacinto Mountains on the north and by the Little San Bernardino Mountains on the east. The climate of SSAB exhibits characteristics typical of a desert: low annual precipitation, very hot summers, mild winters, high evaporation rates, and strong inversions.

One of the main determinants of climatology in the SSAB is a semipermanent high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, the Pacific High is located well to the north, directing storm tracks north of California and maintaining clear skies for much of the year. When the Pacific High moves southward during the winter, weakened low-pressure storms and the orographic barrier bring little rainfall. The combination of subsiding air pressure, surrounding mountain barriers, and sufficient distance from the cold waters of the Pacific Ocean, severely limits precipitation in Imperial County to an annual rainfall averaging 2.61 inches.

Imperial County experiences mild and dry winters with daily maximum temperatures in the 65 to 75 degrees Fahrenheit (ºF) range, extremely hot summers with daily maximum temperatures of 104 to 115ºF, and very little rain (most of the ~3 inches of annual precipitation occurs in late summer or midwinter). Summer weather patterns are dominated by intense heat inducing low-pressure areas over the interior desert. The flat terrain of the valley, coupled with strong temperature differentials created by intense solar heating, produces moderate winds and deep thermal convections.

Although Imperial County occasionally experiences high winds of speed greater than 30 mph (most frequently in April and May), wind speeds in the area are generally less than 10 mph. Predominant wind directions are to the west and west-southwest during all four seasons, and the average annual daily wind speed is 6.9 mph.

In the atmosphere, air temperature normally decreases as altitude increases. At varying distances above the earth's surface, however, a reversal of this gradient can occur. This condition, termed an inversion, is a warm layer of air above a layer of cooler air, and it has the effect of limiting the vertical dispersion of pollutants. The height of the inversion determines the size of the mixing volume trapped below. Inversion strength or intensity is measured by the thickness of the layer and the difference in temperature between the base and the top of the inversion. The strength of the inversion determines how easily it can be broken by winds or solar heating.

Imperial County experiences surface inversions almost every day of the year. Due to strong surface heating during the day, these inversions are usually broken allowing pollutants to more easily disperse. Weak, surface inversions are caused by radiative cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing downslope from the hills and pooling on the valley floor.

The presence of the Pacific high-pressure cell can cause the air to warm to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion, can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to

disrupt. Consequently, they can persist for a day or more, causing air stagnation and the buildup of pollutants. Subsidence inversions are common between November and June but appear to be relatively rare between July and October.

Air Quality

In Imperial County, APCD is the agency responsible for protecting the public health and welfare through the administration of federal and state air quality laws and policies. Included in APCD's tasks are monitoring air pollution, preparing the Imperial County portion of the SIP, and promulgating Rules and Regulations. The SIP includes strategies and tactics to be used to attain and maintain acceptable air quality in Imperial County.

Both California Air Resources Board and U.S. Environmental Protection Agency (EPA) designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not meeting the standards. If an area is redesignated from nonattainment to attainment, the federal Clean Air Act requires a revision to the SIP, called a maintenance plan, to demonstrate how the air quality standard will be maintained for 10 years.

The SSAB is currently designated by USEPA standards as a moderate nonattainment area for the 8-hour ozone standard and a serious nonattainment area for respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less than PM_{10} (EPA 2009). The SSAB is in attainment for the remaining criteria air pollutants.

The majority of the SVRA riding area is composed of sand dunes or clay pan areas with loose sand covering. Due to the loose nature of the sandy soils, OHV use results in dust generation that includes fugitive PM_{10} and $PM_{2.5}$ from ground disturbance. The presence of surface and subsidence inversions results in a stable atmosphere, which allows particulate matter to accumulate and achieve elevated concentrations, and reduce visibility. The occurrence of stronger subsidence inversions coincides with the period of greatest OHV activity at the SVRA, i.e., November through April. High fugitive dust emissions from OHV activity, coupled with the presence of inversions and high winds in the months of April and May, contribute to high particulate matter concentrations and reduced visibility at the SVRA. Visits to the SVRA show that much of the vegetation, particularly the tamarisk, has a light coating of dust, which is due to OHV activity. The dense vegetation that surrounds the perimeter of the SVRA likely prevents some of the fugitive dust from settling on nearby agricultural fields; however, there are likely still some secondary effects.

In addition, operation of OHVs within the SVRA leads to exhaust emissions from fuel combustion to operate the OHVs. Secondary sources of emissions also include park-operated or private cooking facilities.

Hydrology and Water Resources

Heber Dunes SVRA is located within the Imperial Hydrologic Unit (HU) of the Colorado River Basin. The Imperial HU encompasses an area of approximately 2,271 square miles. The major drainages within the Imperial HU consist of the Alamo and New rivers. The Alamo and New rivers lie approximately 0.5 mile east and 9 miles west of Heber Dunes SVRA, respectively. Both rivers drain to the Salton Sea approximately 30

miles to the north of Heber Dunes SVRA. These rivers convey agricultural irrigation drainage water from farmlands in the Imperial Valley, surface runoff, and lesser amounts of treated municipal and industrial waste waters from the Imperial Valley. The flow in the New River also contains agricultural drainage, treated and untreated sewage, and industrial waste discharges from Mexicali, Mexico (CRBRWQCB 2006). EDAW AECOM (EDAW) is working on identifying site runoff patterns from Heber Dunes.

Colorado River water, imported via the All American Canal, is the predominant water supply and is used for irrigation, industrial, and domestic purposes (CRBRWQCB 2006). Numerous canals and agricultural drainages also occur within the Imperial HU. The Ash Main Canal lies approximately 0.5 mile to the west of Heber Dunes SVRA, while the South Alamo Canal borders the SVRA on the east and west boundaries.

3.3.2 Biological Resources

Heber Dunes SVRA is located in the Salton Trough area of the Colorado Desert on the lake deposits of the ancient Lake Cahuilla, which completely dried up approximately 400 years ago. This small area is dominated by relict dune landscape that is surrounded by agricultural land use. Even though much of the habitat is dominated by the nonnative tamarisk, the site remains an island of habitat in an otherwise sea of agricultural development. Because of this, the site is inhabited by numerous wildlife species, both migratory and resident. The Heber Dunes are not directly connected to any other open space or natural wildlife habitat.

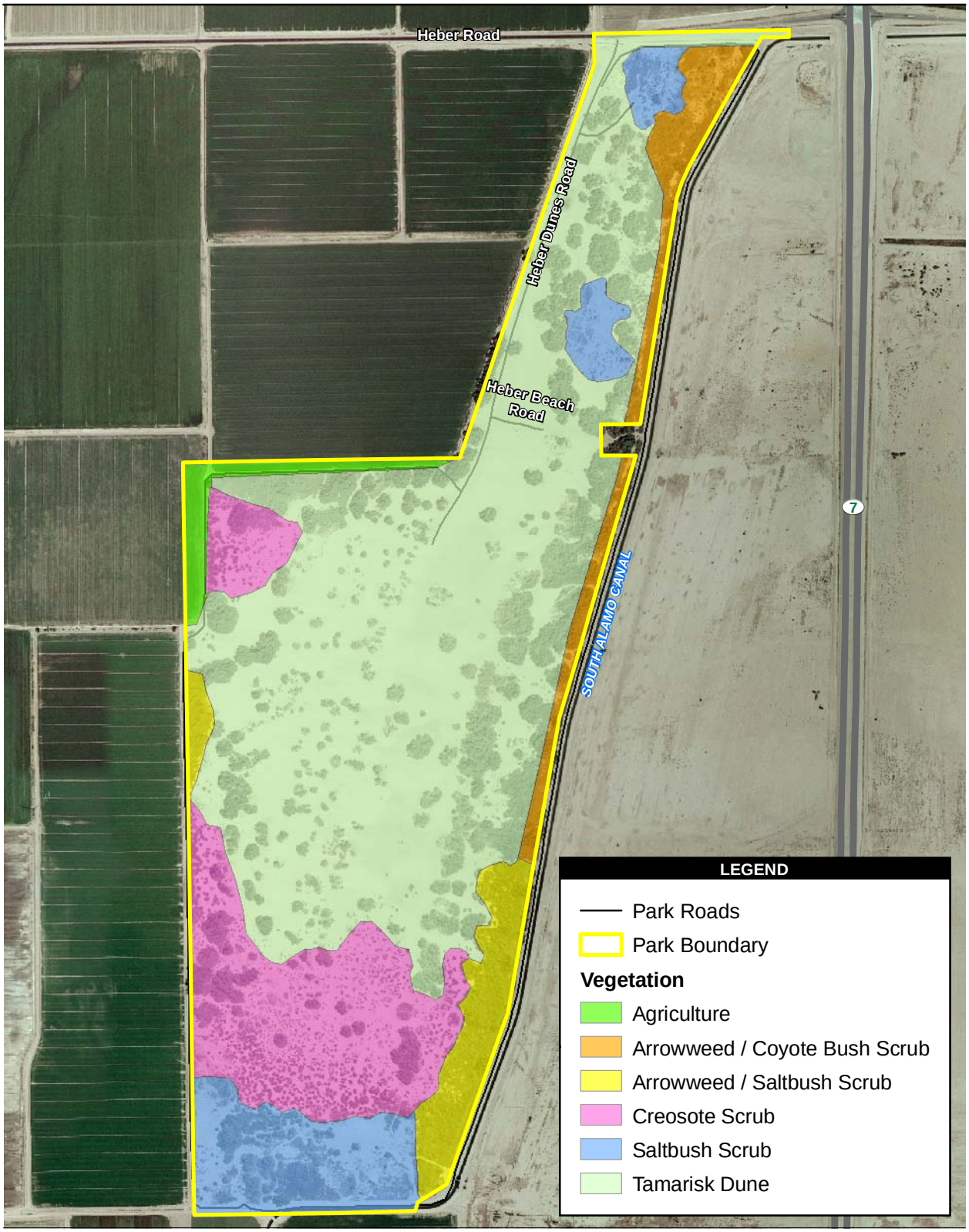
Vegetation

A total of five vegetation types have been identified for Heber Dunes SVRA. These types include the following:

- Creosote scrub
- Saltbush scrub
- Arrowweed/Saltbush scrub
- Arrowweed/Coyote bush scrub
- Tamarisk dune

A map of the existing vegetation communities within Heber Dunes SVRA is provided in Figure 7. All of these vegetation types represent important resource values for both plants and wildlife. The tamarisk-covered dune habitat is the most common vegetation type within the SVRA and this represents a nonnative vegetation community. The most common native vegetation community at the SVRA is the creosote scrub vegetation. In addition to the creosote scrub, there are three other native vegetation communities: saltbush scrub, arrowweed/saltbush scrub, and arrowweed/coyote bush scrub. Although the total area for native vegetation is less than the area of tamarisk dunes, the native vegetations provide habitat for native plant and animal species that would otherwise not occur in the park. Each of the vegetation types found within the boundaries of the SVRA is described below. In addition to the five habitat types found at the SVRA, agricultural uses are located adjacent to Heber Dunes.

It is important to note that even with the extensive off-road activity in and around the creosote scrub areas many areas still have remnant soil crust formation on the dunes. The formation of soil crust is a common



Source: Aerials Express 2006

1,000 500 0 1,000 Feet

Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 7
Vegetation and Plant Communities

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure7_Vegetation_85x11.mxd, 06/15/09, PalavidoM

occurrence on desert soils, especially those with a high content of sand and silt like the soil at Heber Dunes. This crust is usually the result of wind deposition along with the microbiotic activity of algae, cyanobacteria, and other microorganisms in the soil. The formation of this crust helps to lock up the soil surface, which provides for top soil stability, general erosion control, and the capture and retention of moisture. This soil crust can be very important for providing stable habitat for understory plants and animals as well as for the more deep-rooted shrub species. At Heber Dunes SVRA, off-road activity has not only disturbed this very delicate soil layer, in the more heavily used areas it has destroyed it completely. The lack of a diverse understory of annual plant species at the SVRA can be at least partially attributed to this disturbance, and in some areas the soil crust loss is adversely affecting even the creosote shrubs by undermining the root system and washing away the important top soil layer.

Creosote Scrub

This vegetation community is dominated by creosote bush (*Larrea tridentata*) and occurs in two different locations in the SVRA. The largest area occurs in the southwest portion of the park with a smaller area located in the central western edge. Between the two locations there is approximately 56.0 acres of creosote scrub. The creosote scrub in these areas is found on the dune mounds and may represent the natural vegetation that occurred on the dunes that are now covered in tamarisk (see below). The creosote shrubs at the SVRA are very large specimens, as much as three times the size of the creosote shrubs typically found in this area. It is assumed that the size of these shrubs is at least partially associated with the general age class of the shrubs. Dunes found in Imperial County are often vegetated with species like desert buckwheat (*Eriogonum deserticola*) or mesquite (*Prosopis glandulosa*). In some of the dune areas of Imperial County, such as the Imperial Sand Dunes Recreation Area, the vegetation may be dominated by creosote scrub. Without historical data it is difficult to determine what the vegetation on the dunes was before the invasion of tamarisk, but given the size and age class of creosote shrubs at the SVRA, it is reasonable to assume that the natural vegetation at Heber Dunes included a major component of creosote scrub.

Within the creosote scrub there is a very disturbed understory that has been heavily affected by off-road trails. Where the off-road activity has been limited, the understory vegetation is low in diversity with just a few annual species that are common to dunes and other sandy soil areas. The most common understory species in these areas is narrow-leaf oligomeris (*Oligomeris linifolia*). Other native species found in the understory include popcorn flower (*Cryptantha* sp.) and plicate coldenia (*Tiquilia plicata*). Two nonnative annual species common in this vegetation are black mustard (*Brassica nigra*) and Mediterranean schismus (*Schismus barbatus*). Understory species that are often associated with the dune systems are conspicuously missing from the site, probably due to the heavy OHV activity at the SVRA. These species include burro bush (*Ambrosia dumosa*), indigo bush (*Psorathamnus schottii*), and dye weed (*Psorothamnus emoryi*).

Saltbush Scrub

The saltbush scrub community is found in three different areas of the SVRA: one at the very southern end of the SVRA and two at the northeastern end. Between the three locations there is approximately 33.9 acres of saltbush scrub. This community is dominated by big saltbush (*Atriplex lentiformis*) throughout most of the area, with a mixture of big saltbush and bush seepweed (*Suaeda moquinii*) in one area. Mixed in with the heavy concentration of saltbush and seepweed are occasional patches of arrowweed (*Pluchea sericea*), coyote bush (*Baccharis emoryi*), apricot mallow (*Sphaeralcea ambigua*), and the occasional tamarisk (*Tamarix*

ramosissima). There is very little native understory component species in the saltbush scrub. Although there are off-road trails throughout the saltbush scrub areas, the effect on the vegetation is not as substantial as those seen in the creosote scrub areas where there is naturally more open soil to ride on and to disturb.

It is important to note that there has been periodic die-off of the saltbush in some of these areas. Although a direct explanation for the periodic die-off has yet to be identified, it may be attributed to a number of causes, including herbicide drift from the adjacent farm fields (which are often aerially sprayed), affects of irrigated water, herbivory by insects, or an unknown plant pathogen.

Arrowweed/Saltbush Scrub

Two vegetation types are dominated in part by arrowweed. The first is the arrowweed/saltbush scrub. There are two areas with this vegetation community in the SVRA, one along the central portion of the western boundary and a larger patch in the southeastern corner of the park. Between the two areas there is approximately 18.1 acres of arrowweed/saltbush scrub. This community differs from the saltbush scrub community by having arrowweed in about 50 percent of the vegetation. The arrowweed dominated shrub areas probably represent the original habitat that occurred in the low areas that are not covered by dune sands. Other species found in this community include coyote bush and tamarisk. The tamarisk that is a problem in this area is primarily the more shrub-like species, salt-cedar (*Tamarix ramosissima*), not the tree-like species that is found on the dunes (see below).This community includes very few native understory plants but often has dense patches of the nonnative black mustard and other weed species. Similar to the saltbush scrub there are off-road trails throughout the arrowweed/saltbush scrub areas; however, their effect on the vegetation is not as substantial as effects seen in the creosote scrub areas.

Arrowweed/Coyote Bush Scrub

This vegetation community occurs in a linear area along the eastern edge of the park and covers approximately 17.0 acres of the SVRA. As with the arrowweed/saltbush community, this community has about 50 percent cover of arrowweed, but instead of saltbush in the remainder there is coyote bush. There appears to be more water resources available on this side of the park, possibly due to the linear South Alamo Canal that runs parallel with the eastern boundary. Because of this water resource, wetland-adapted species are scattered in this area including mesquite (*Prosopis glandulosa*), cottonwood (*Populus fremontii*), and black willow (*Salix gooddingii*). This area also has scattered tamarisk throughout and very little native understory species. The density of this vegetation type has precluded the level of off-road trail activity found in the other areas of the park.

Tamarisk Dune

The tamarisk dune community covers the greatest area of the park, dominating the central portion of the SVRA. The tamarisk dune community covers approximately 209.5 acres of the park and is the area most heavily affected by off-road activity. The large athel tamarisk trees (*Tamarix aphylla*) growing on the dunes have most likely replaced a native vegetation type. While it is difficult to determine previous vegetation types without historical data, based on the size and age class of creosote shrubs at the SVRA, the native vegetation type in this area may have been a creosote scrub community similar to the one described above. With their deep taproots, these tamarisk trees have clearly tapped into the moisture that is often held in dune systems of

this type. Tamarisk roots occasionally intrude into canals and tap canal water. However, the South Alamo Canal is lined with concrete, which reduces the potential for this vegetation community to tap into water from this canal.

Scattered native understory species have been detected in this community including narrow-leaf oligomeris, popcorn flower, and plicate coldenia. These understory species are not nearly as common as they are in the creosote scrub vegetation. Nonnative species found in the understory of the vegetation type include black mustard, Mediterranean schismus, and Russian thistle (*Salsola tragus*). The off-road activity in this area has created a vegetation community that is usually either tamarisk trees or bare open sand dunes.

Sensitive Plant Species within the SVRA

There are no known sensitive plant species within Heber Dunes SVRA. Although a number of sensitive plant species are known to occur on dune systems (e.g., Wiggins' croton [*Croton wigginsii*]), none of these species occur at the SVRA. It is probable that endemic dune plant species once occurred at the park but the off-road activity has extirpated them over time.

Sensitive Plant Communities within the SVRA

Sensitive plant communities are those that have experienced a substantial decline since the arrival of early Americans to California. Within the Salton Trough, this decline is usually associated with agricultural uses. None of the plant communities found at Heber SVRA are considered sensitive, either locally or regionally.

Invasive Nonnative Species within the SVRA

Nonnative (exotic, alien, nonindigenous) species are those that have not evolved in a particular area but have been introduced through human activities, either incidentally or deliberately. Most nonnative species are not invasive and do not cause adverse effects on natural plant and animal communities. Nevertheless, some nonnative species have resulted in the conversion of native habitats to a nonnative vegetation type, with a corresponding reduction of native plants and degradation of wildlife habitat.

While there are numerous nonnative annual and other understory plant species found at the SVRA, none of these species are common enough to have converted the native habitats to nonnative plant communities. The primary nonnative species of concern is the large stands of athel tamarisk, which have type-converted the native vegetation (possibly creosote scrub) on the dunes to a vegetation dominated by the tamarisk trees. These trees are very large and can preclude the growth and development of other species (both native and nonnative) from growing near or under their canopy. In addition, the deep taproots produced by the tamarisk trees are capable of depleting the water table and affecting native vegetation up to 100 feet away. The more shrub-like salt-cedar species has become common along the east side, as well as in the southern and northern ends of the SVRA. This evasion of salt-cedar has begun to type convert the saltbush and arrowweed areas. In the desert areas of the southwest, tamarisk can be one of the most invasive and dominant weed species known to affect native habitats.

Wildlife

The five native and nonnative habitat types described above that are present at Heber Dunes SVRA support various wildlife species, which are described below.

Creosote Scrub

Many desert wildlife species utilize creosote scrub for cover, foraging, and inhabitation and some wildlife species are specific to this vegetation. Desert reptiles, amphibians, mammals, and birds will use creosote scrub to avoid predation and to escape the excessive daytime temperatures in the desert. Some wildlife species will browse creosote vegetation (e.g., black-tailed jackrabbit *[Lepus californicus*]) or will feed on the creosote fruits (e.g., desert woodrat [*Neotoma lepida*]) themselves. Of these two species, only the black-tailed jackrabbit is known from the SVRA (SERG 1998).

More wildlife species and more wildlife sightings have been recorded in the creosote scrub portions of the SVRA than any other vegetation on the site. Bird species seen include red-winged black bird (*Agelaius phoniceus*), Gambel's quail (*Lophortyx gambelii*), lesser nighthawks (*Chordeiles acutipennis*), and roadrunners (*Geococcyx californianus*). Reptile species found include western whiptail (*Aspidoscelis tigris*), long-tailed brush lizard (*Urosaurus graciosus*), long-nosed snake (*Rhinocheilus lecontei*), and desert iguana (*Dipsasaurus darsalis*). The desert iguana is only known from the creosote scrub areas and the arrowweed habitat areas, while the long-tailed brush lizard is found in all the habitat types except the tamarisk dune areas. There were more mammal species found in the creosote scrub than any other habitat type. The desert pocket mouse (*Chaetodipus penicillatus*) and cactus mouse (Peromyscus eremicus) were found throughout most of the vegetation types at Heber (except the tamarisk dune areas), but both species are more common in the creosote scrub areas.

Several species frequently found in desert habitats, such as little pocket mouse (*Perognathus longimembris*) and desert wood rat appear to be absent from Heber Dunes. Particularly noteworthy is the absence of kangaroo rats (genus *Dipodomys*), which are perhaps the most common rodent occurring in creosote scrub and tamarisk/dune habitats. Some kangaroo rats, such as *D. deserti*, are blow-sand specialists that are restricted to dunes and other areas with soft, sandy soils. The absence of kangaroo rats and other native rodent species from Heber Dunes SVRA is most likely due to the small, isolated nature of the habitat on-site, which in surrounded by a "sea" of agricultural land. Other species conspicuously absent from the creosote scrub habitat include the zebra-tailed lizard (*Callisaurus draconoides*), flat-tailed horned lizard (*Phrynosoma mcallii*), long-nose leopard lizard (*Gambelia wislizenii*), shovelnose snake (*Chionactis occipitalis*), and white-throated woodrat (*Neotoma albigula*).

Saltbush Scrub

Following the creosote scrub habitat, the habitat with the most wildlife species and sightings is the saltbush scrub areas of the SVRA where there is good cover and food source for some wildlife species. While there are no wildlife species that are endemic to the saltbush scrub, this vegetation type offers the best cover for understory and ground-dwelling species. Many of the bird species sighted at the SVRA are known from this vegetation type, and the saltbush scrub had the highest density of reptile sightings on-site, particularly the western whiptail lizard, which is very common in this habitat type as an understory species. Mammal species

that occurred in the saltbush scrub include most of the common species for the SVRA, but of particular note is the spotted skunk (*Spilogale putorius*), which has only been found in the saltbush scrub.

Arrowweed Scrub

The two arrowweed scrub vegetation types have the least number of wildlife species sightings for the native vegetation types at the SVRA. Both the arrowweed/saltbush scrub and the arrowweed/coyote bush scrub offer good cover and foraging value, but do not have as many wildlife species and sightings as compared to the creosote and saltbush scrub habitat types. The arrowweed in particular is visited by numerous bird species foraging for insects and seeds. Bird species that were particularly common in this vegetation include red-winged blackbird (the most common bird species at the SVRA), mourning dove *(Zenaida macroura*), white-winged dove (*Zenaida asiatica*), and verdin (*Auriparus flaviceps*). The arrowweed scrub areas had the highest concentration of side-blotched lizard (*Uta stansburiana*) for the site, but this species was found in the other vegetation types as well. Substantial populations of the desert spiny lizard (*Sceloporus magister*) are also found in the arrowweed scrub.

Tamarisk Dune

The tamarisk dune areas had the lowest number of wildlife species sightings of any of the vegetation types at the SVRA. The bird, mammal, and reptile diversity for this habitat type is much lower than the native vegetation types. The one exception is the sightings for sidewinder rattlesnake (*Crotalus cerates*), which is only known only to occur in the tamarisk dune areas.

As mentioned above, there are several desert small mammal species that are typically common and are lacking from the SVRA, especially from the sand dune portions of the site. Although the tamarisk dune areas have the potential to support species like the desert wood rat, little pocket mouse, and especially kangaroo rat species, none of these species have been recorded at Heber Dunes SVRA.

Agricultural Fields

The adjacent agricultural fields and associated roads that surround Heber offer habitat value to some of the desert wildlife species. A few of the wildlife species observed in the area are actually more common in the adjacent agricultural areas than the native vegetation within the SVRA, in particular some of the large mammal species. These species include Audobon's cottontail (*Sylvilagus audubonii*), black-tailed jackrabbit, and roundtailed ground squirrel (*Spermophilus tereticaudus*) (SERG 1998). The more regular occurrence of these species in the agricultural areas is due to the high concentration of available food making them better foraging sites for heavy browsers like rabbits. While these species are more common in the agricultural field areas, they all have been found regularly in the interior of the SVRA during monitoring activities.

One bird species, western burrowing owl (*Athene cunicularia*), has been observed in the surrounding agricultural areas on many occasions; however, only a few times in the vegetation types within the SVRA. The burrowing owl has been observed nesting once in the saltbush scrub and once in the arrowweed habitat. The burrowing owl is known to often prefer agricultural areas over native desert scrub communities as the available food sources (insects and small mammals) in the agricultural areas are usually greater year round than many of the native vegetation types.

Other Wildlife Species within the SVRA

A number of species have been recorded at the SVRA but are not associated with any of the specific vegetation types. Bird species use that have been recorded at the SVRA include migratory songbirds (including warbler species), migratory usage by Swainson's hawks (*Buteo swainsoni*), turkey vultures (*Cathartes aura*), meadowlarks (*Sturnella neglecta*), northern harriers (*Circus cyaneus*), and nesting red-tailed hawks (*Buteo jamaicensis*).

Other reptile species that have been recorded include the gopher snake (*Pituophis melanoleucus*), California kingsnake (*Lampropeltis getula californiae*), and the desert banded gecko (*Coleonyx variegatus variegatus*).Other mammal species that have been recorded include valley pocket gophers (*Thomomys bottae*), desert gray shrews (*Notiosorex crawfordi crawfordi*), and bobcats (*Lynx rufus baileyi*).

Sensitive Wildlife Species within the SVRA

As mentioned above, the western burrowing owl is known to occur at Heber Dunes SVRA, as well as in the adjacent agricultural areas. The burrowing owl is identified as a species of special concern by the California Department of Fish and Game (CDFG). Other sensitive wildlife species that have been recorded from the SVRA include Albert's towhee (*Pipilo aberti* – CDFG special animal), sage sparrow (*Amphispiza belli* – CDFG watch list), and white-faced ibis *(Plegadis chihi* – CDFG watch list). Although not considered sensitive, Heber Dunes SVRA is one of the very most western occurrences for western diamondback rattlesnake (*Crotalus atrox*), which is known from both roadkill and live specimens found at the SVRA.

Pest Species of Wildlife

Brown-headed cowbird (*Molothrus ater*) populations have been observed at the Heber Dunes SVRA. This species is characterized as a parasitic species because individual females lay their eggs in other bird nests, tricking the other birds into rearing the brown-headed cowbird young instead of their own. This parasitic species has had a large impact on local native bird reproduction rates, which ultimately impacts population growth and stability. In addition to decreased reproduction rates, local species must compete with brown-headed cowbirds for food and habitat as well.

The SVRA also has substantial problems with feral cats and dogs, as well as domesticated cats and dogs that have been abandoned at the SVRA. These species can directly compete and impact the native predatory species that are known to occur at the SVRA and can cause substantial degradation of bird, reptile, and small mammal populations.

3.3.3 Cultural Resources

A cultural resources records search and a cultural resources walking survey were completed in 2009. The cultural resources survey was conducted between March 31 and April 2, 2009. Constraints on the field survey included dense impassable vegetation in areas of the SVRA, particularly on dune tops and in the southern area of the property. Trail cuts and areas of exposed dune stratigraphy were examined in detail for evidence of subsurface deposits.

One new resource was identified (temporary site number HD-1). This resource consists of a disturbed scatter of household ceramics, glass, and barbed wire dating to the first half of the twentieth century; the material lacks association with any particular residence or occupation. In addition, the previously recorded South Alamo Canal (CA-IMP-7364H/P-13-007364) is located just outside the SVRA boundaries.

Newly identified resource HD-1 appears to consist of dredger/drag line deposits that were likely created during the lining of the existing South Alamo Canal in 1989. The artifactual material is typical of household refuse deposits found throughout the Imperial Valley. No subsurface testing was undertaken. However, based on historical research, the site is not eligible for the California Register of Historical Resources.

Regarding the previously recorded South Alamo Canal, it was originally constructed in 1908 and has undergone periodic reconstruction. A concrete lining was added in 1989 and involved backfilling operations using sand from two undetermined locations within Heber Dunes SVRA (Rister 1995). While this site borders along the eastern boundary of Heber Dunes SVRA, this segment of the canal has not been previously recorded.

Regional Prehistory

Paleoindian

The prehistory of the desert region of Imperial County is generally divided into three major periods of occupation: Paleoindian, Archaic, and Late Prehistoric. The first well-documented cultural tradition in southern California is the San Dieguito complex (12,000 to 7000 years before present [B.P.]). The type site is on the San Dieguito River in north-coastal San Diego County, though materials have also been found around dry inland lakes (including Lake Cahuilla), on desert terraces and outside of Tucson, Arizona (Kirkish et al. 2000). Related materials have been found in the Mojave Desert and in the Great Basin, sometimes called the Lake Mojave complex (e.g., Campbell et al. 1937). Diagnostic artifact types and categories associated with the San Dieguito complex include percussion-flaked core tools and flake-based tools such as scraper planes; choppers; scrapers; crescentics; elongated bifacial knives; and diagnostic Silver Lake, Lake Mojave, and leaf-shaped projectile points (Rogers 1939; Warren 1967).

In areas adjacent to the coast, many Paleoindian period sites are believed to have been covered by the rise in sea levels that began at the end of the Pleistocene. In more inland regions like Imperial County, alluvial sedimentation in valley areas may have covered these materials. Few San Dieguito-Lake Mojave sites in the desert contain subsurface deposits, temporally diagnostic artifacts, or datable material (Hayden 1976; Rogers 1939).

Archaic

Desert and coastal Archaic period sites have generally been dealt with separately, although there are clear similarities between the two. In the desert, the Archaic can be divided into the Pinto complex (7000 to 4000 B.P.) and the Amargosa or Gypsum complex (4000 to 1500 B.P.). The Pinto complex shows evidence of a shift from big game exploitation to a broader-based economy with increased emphasis on the exploitation of plant resources and is thought to be an adaption to erratic climatic drying of the Altithermal (Grayson 1993; Warren 1984; Warren and Crabtree 1986). Groundstone artifacts are rare; these are typically thin slabs with

smooth, highly polished surfaces which "may be platforms upon which fibrous leaves or skins were scraped. Projectile points are distinctive crude, percussion-flaked Pinto series atlatl points. Other lithics include percussion-flaked scrapers, knives, scraper planes, and choppers (Underwood and Gregory 2006).

The subsequent Amargosa or Gypsum complex is characterized by the presence of fine, pressure-flaked Elko, Humboldt, and Gypsum-series projectile points; leaf-shaped points; rectangular-based knives; flake scrapers; T-shaped drills; and occasional large scraper planes, choppers, and hammerstones (Underwood and Gregory 2006). Manos and basin metates became relatively common, and the mortar and pestle were introduced late in this period (Warren 1984). The florescence of tool types and the addition of groundstone hard seed-processing equipment suggest an attempt to adapt to drier desert conditions in the greater Southwest. Most examples of this complex have been found in the southern Great Basin-Mojave Desert.

Late Prehistoric

The incursion of Yuman-speaking people via the Gila/Colorado River drainages of western Arizona is apparent by approximately 2,000 years ago, and subsequent movements westward had great impact on the people of Southern California (Moriarty 1966). This Late Prehistoric period (1500 to 450 B.P.) is similarly characterized by two geographic expressions, the transmontane in the desert east of the mountains and the cismontane in the coast and foothill area west of the mountains. Both patterns indicate higher population densities and elaborations in social, political, and technological systems. Culture traits generally associated with this period include increasingly elaborate kinship systems and rock art, including ground figures or geoglyphs (McGuire 1982). Extensive trail systems also indicate connections between the coast and desert for trade, religious activities, and other interactions, peaceful or otherwise (Davis 1961).

The desert manifestation of the Late Prehistoric is broadly referred to as the Patayan pattern (e.g., Waters 1982). Paddle and anvil pottery first appears, likely via the Yuman-speaking Hokan culture of the middle Gila River area (Rogers 1945; Schroeder 1975, 1979). Cremation rather than inhumation also became the burial norm.

Subsistence in desert areas is thought to have focused on acorns and grass seeds, with small game serving as a primary protein resource and big game as a secondary resource. Vegetation resources included honey mesquite and screwbean mesquite with smaller amounts of palo verde, ironwood, and native grasses (Underwood and Gregory 2006). Settlement in the Patayan consisted of seasonal settlements of small mobile groups concentrated along the Colorado River floodplain (Kirkish et al. 2000).

Ethnohistory

This area of the Salton Trough is in the traditional territory of the Kamia. Also known as Kumeyaay, Ipai, Tipai, and Diegueño, the Kamia in this area settled primarily along the New and Alamo rivers (Kirkish et al. 2000). The Kamia spoke a Yuman language and ranged over the Imperial Valley and northeastern Baja California (Underwood and Gregory 2006).

The Kamia or Desert Kumeyaay relied on gathering, supplementing that subsistence base with floodplain horticulture along the New and Alamo rivers and at various springs (Underwood and Gregory 2006). Domesticated plants include maize, tepary beans, squash, and pumpkin and gourds, with grasses intentionally

planted for harvesting of their seeds. Large game hunting is thought to have been only a minor part of Kamia subsistence. Small game like lagomorphs were netted, and fish and aquatic birds formed a large component of the animal protein (Bee 1983; Castetter and Bell 1951; Forde 1931; Stewart 1983 in Kirkish et al. 2000).

The predominant determining factor for placement of villages and campsites was the ready availability of water, preferably on a year-round basis, with seasonal movements to exploit available food resources. Inland bands could travel to the coast to fish and gather salt, then shift to desert areas in the spring to gather agave (*Agave deserti*), moving to higher altitudes later in the year to gather seasonally available acorns and pine nuts (Cline 1984; Shipek 1991). During the winter and spring, Kamia groups lived in seasonal villages located on floodplain terraces.

Regional History

Early Spanish expeditions in the lower Colorado area make no mention of the desert Kamia (Kirkish et al. 2000). Spanish colonization began in earnest in 1769. This era represents a time of increased European exploration and settlement in southern California, though primarily in coastal areas. Dual military and religious contingents established the San Diego Presidio and the Mission San Diego de Alcalá along the coast. The mission system introduced horses, cattle, and other agricultural goods and implements to the area. It also disrupted traditional native lifeways, and many Native American populations became tied economically to the colonists. Contact with the interior came later, when Pedro Fages led a Spanish expedition through what is now eastern San Diego and Imperial counties in 1785. Despite the lack of early interaction between colonists and interior Native Americans, the Kamia near present-day Jacumba were already hostile to the Spaniards and in alliance with other native groups, actively resisting Spanish rule in the area by the time of Fages' expedition. Still, during their period of governance the Spaniards had little involvement in inland areas.

The cultural systems and institutions established by the Spanish continued to influence the region beyond 1821, when California came under Mexican rule. The Mexican period (1821–1848) retained many of the Spanish institutions and laws; the mission system, however, was secularized in 1834. Secularization allowed for increased Mexican settlement, with large tracts of land granted to individuals and families, and establishment of a rancho system based on cattle grazing (Pourade 1963). Secularization also meant that many Native Americans were further dispossessed. The Native Americans of the eastern mountain areas began to have hostile interactions with the Mexican settlers who began to enter the area. By this time, contact had led the Eastern Kumeyaay to incorporate domestic livestock, especially horses and cattle, procured through raids. Anglo-European contact also led to the adoption of agriculture, replacing the previous subsistence system based on hunting and gathering.

In present-day Imperial County, transportation rather than settlement remained the primary focus during the nineteenth century, with mail and stage routes threaded through the area. Small settlements grew along the routes in the mid-nineteenth century and the Southern Pacific line between Los Angeles and Yuma was completed in 1877. While entrepreneurs like Dr. Oliver M. Wozencraft saw the potential to bring water into the area via canal in 1861, development of a water conveyance system that would allow population growth in the area did not occur until 1901. Creation of the California Development Company in the mid-1890s led to the financing and construction of the first canal in the lower Colorado Desert in 1901 (Hendricks 1971). A Southern Pacific spur line through the newly named Imperial Valley from Niland to the border at Calexico was completed by 1904, taking advantage of the burgeoning agricultural production of the area. Siltation of

the canal and overflowing river channels, however, flooded the Salton Sink between 1905 and 1907 and created the Salton Sea. Residents of the valley voted to separate from San Diego County, and Imperial County was founded in August of that year (Hendricks 1971).

The IID was formed by referendum in 1911, taking over the assets of the now-bankrupt California Development Corporation. Continuing to acquire smaller water companies and their infrastructure, IID was delivering water to approximately 500,000 acres of agricultural and residential property in the Imperial Valley through a wide-ranging water conveyance system of unprecedented scale by the mid-1920s (IID 2006).

Transportation development continued in the valley over the course of the twentieth century. Following much of the route of the Old Plank Road that had been maintained by travelers in eastern San Diego and Imperial counties, the original alignment of Highway 80 was in place by 1919. A “second generation” of the highway was built in the 1920s and 1930s, now known as Old Highway 80 (County of San Diego n.d.). The construction of I-8 in 1967 marked the end of Highway 80’s primacy as the transportation corridor and helped usher in renewed population growth and development in the Imperial Valley.

SVRA History

Discussions with the on-site ranger indicate that little recorded history on the Heber Dunes property is available and most information has been obtained through oral interviews with long-time residents (Herrick 2007). Many local residents know the area as "Heber Beach." There are differing stories of how the label originated. Some claim that it refers to the recreational use of flood waters from the Alamo River that create stands of water surrounded by the dune sands. Others claim the name “came as a joke, when visiting relatives from the East came to visit California with visions of palm trees and waves and orange groves in their heads, locals would take them to Heber Beach, where the Eastern visitors were faced with the stark reality of the lowland tropical desert that is the Southern Imperial Valley” (Herrick 2007).

According to Karen Craft, the former director of the Eastern Information Center, the project area was part of a much more extensive network of dunes before being graded in 1905 for the construction of irrigation canals (Craft 1998). While the earliest portions of the South Alamo Canal were constructed in 1908, the portion of the canal along the eastern boundary of the SVRA was constructed sometime between 1945 and 1957 based on the 1945 USGS 15' and 1957 USGS 7.5' Calexico topographic quadrangles. It was lined with concrete in 1989 (Rister 1995). It is known that IID and the Imperial County Public Works Department have removed surplus sands from two locations on the property to facilitate weed removal and land leveling. IID subsequently used this material in backfilling operations as part of the lining of the South Alamo Canal (Rister 1995). Local resident Mike Claverie noted that his uncle recalled there being “Indian pottery” in the dunes when he was a boy, though none has been observed in recent studies (Claverie; Hines 1999).

3.3.4 Aesthetic Resources

The overall visual setting of Heber Dunes SVRA can be described as rolling sand dunes with areas of desert scrub vegetation, primarily tall tamarisk trees with some creosote (Photo 10). Densely vegetated areas are primarily on dune tops, around the perimeter of the SVRA, and in deeper valleys. The sand dunes are a unique feature in the area, which is surrounded primarily by flat, irrigated agricultural land. The dunes ungulate across the site, but no substantially large or pronounced geologic formations are visible on the site.

Photo 10. View of clay pan riding area and tamarisk-topped sand dunes

Views from the dune tops offer pleasing glimpses of adjacent dunes and vegetation (Photo 11). Due to topography and dense vegetation, adjacent agricultural areas are not visible from many dune tops in the southern portion of the SVRA. Because many views from dune tops are limited to adjacent rolling dunes and greenery, these views provide a feeling of escape into a natural setting for residents of a valley dominated by agricultural vistas. Topography and vegetation also create unusual views, such as the keyhole view through vegetation on a dune top shown in Photo 12. Likewise, windy conditions create interesting sand patterns that provide particularly pleasing vistas at sunset (Photo 13).

Photo 11. View from dune top within the SVRA

Photo 12. Keyhole view from dune top

Photo 13. View from dune top at sunset

Built visual elements on the project site include the recently constructed restroom facility (Photo 6), the old restroom structure currently used for storage, the wooden ranger office, and the ranger housing. There is a fenced-in storage and maintenance area with multiple metal storage units. A trailer home serves as the SVRA ranger's residence. Most of these man-made elements are centrally located and clustered together. Picnic facilities are located throughout Heber Dunes SVRA and typically include a concrete slab with a shade structure covering picnic tables (Photo 14). Dumpsters and trash cans are also visible throughout the SVRA as well as signage, as described above.

In the southwest portion of the SVRA are three large SDG&E transmission towers as shown in Photo 2. These towers carry overhead transmission lines, which connect to smaller transmission poles located both on the project site and off-site. The towers are by far the tallest structures on-site and in the immediate vicinity.

Photo 14. Picnic and fire ring gathering areas

The majority of the SVRA, including the entire interior, is visible only to visitors on OHVs. There are areas of more expansive flat clay pan topography that provide for more distant views within the SVRA. Vegetation that exists on Heber Dunes SVRA ranges from small shrubs and bushes to tall trees that block views to and from the site. The densest vegetation occurs along the eastern boundary of the site, obscuring views of the site from areas west, including SR-7. From Heber Road, there are views south to the SVRA along the primary access road; however, its interior is not visible.

Due to the screening nature of the vegetation surrounding the perimeter of the SVRA, views off-site from Heber Dunes are limited in most places. From the tops of some dunes, adjacent agricultural uses are visible; however, they are often obstructed by vegetation and other dunes. In the northern part of the park, distant mountains are visible, particularly

The unique sand dune environment within the SVRA is surrounded entirely on the north, south, and west by flat, extensive agricultural land. Adjacent to the east is an undeveloped Caltrans parcel that has sparse vegetation and is void of structures. These surrounding land uses are not directly visible from the interior of the SVRA due to the dense perimeter vegetation. However, the surrounding flat cropland paired with minimal tall landscaping or structures allows for vast views in almost all directions from the perimeter road.

SR-7, which is located between 500 feet in the north and 2,500 feet in the south from the SVRA, has limited obstructed views of Heber Dunes SVRA. The expansive undeveloped Caltrans parcel, as well as the dense perimeter tamarisk vegetation, limits direct views of the SVRA from SR-7.

3.3.5 Sound

The existing sound environment at Heber Dunes SVRA is influenced primarily by transportation sound emanating from vehicular traffic on the regional and local area roadway networks. The majority of vehicular traffic noise in the vicinity of the project occurs due to SR-7, east of the SVRA. Additional sound sources that contribute to the existing ambient sound environment to a lesser extent include occasional aircraft overflights,

and seasonal operation of agricultural equipment on adjacent parcels. Most on-site sound sources are OHV used for recreational riding.

Existing Noise-Sensitive Land Uses

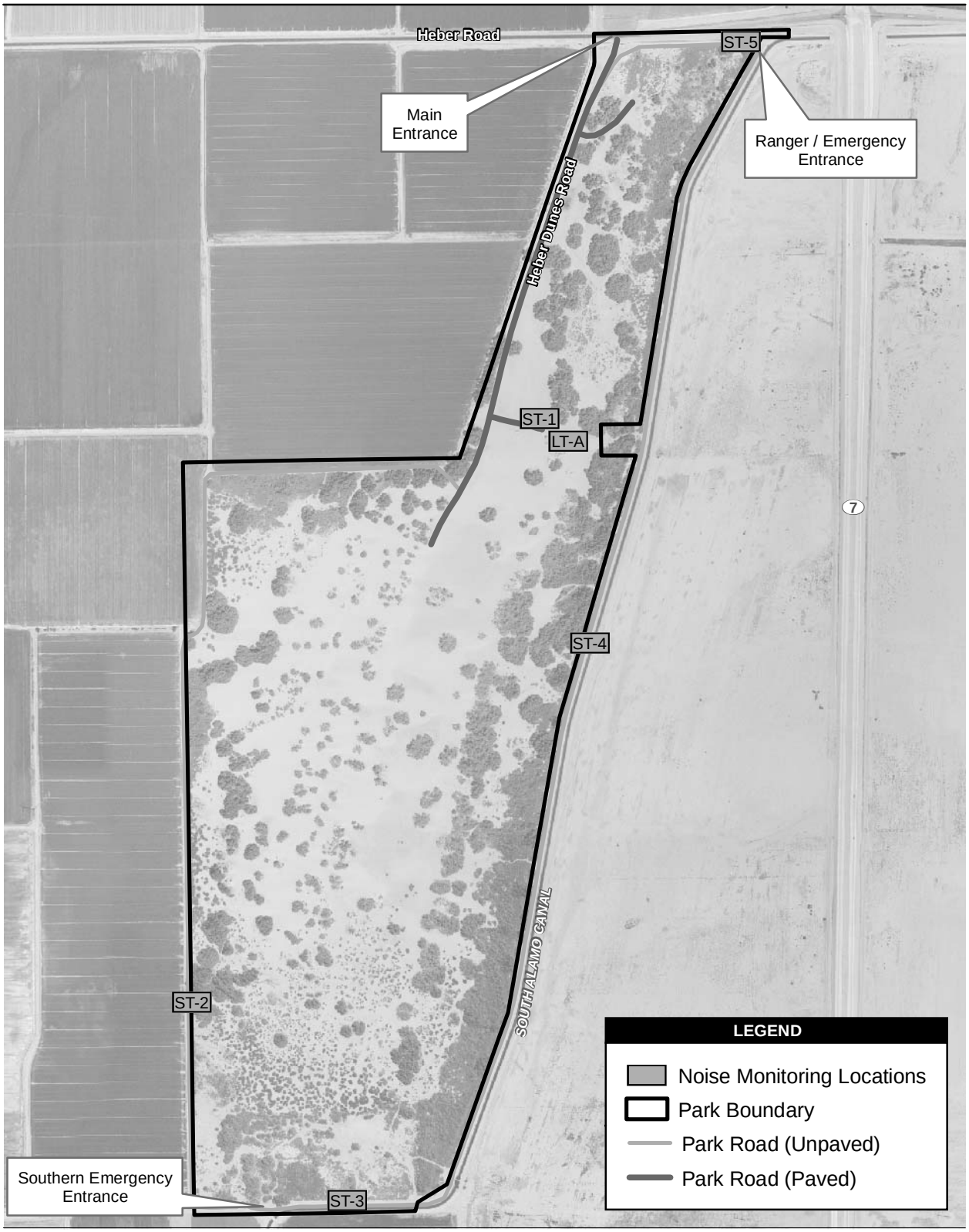
Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals both at interior and exterior locations. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are also considered sensitive to increases in exterior sound levels. Schools, places of worship, hotels, libraries, and other places, where low interior sound levels are essential, are also considered noise-sensitive land uses. Land surrounding the SVRA is zoned as agricultural land uses A2 and A3.

Noise-sensitive land uses in the vicinity of Heber Dunes SVRA include both on-site and off-site residential uses, the nearest of which is the on-site housing for the resident ranger assigned to the SVRA. Off-site residential dwellings are single-family residences associated with the surrounding agricultural land uses. The nearest off-site residential dwellings are located off of Fawcett Road and Claverie Road, approximately 0.4-mile west of the SVRA boundary. Based on the sound level measurements, it is estimated sound levels from peak park use would reach approximately 50 dBA at the nearest house. While sound levels of this magnitude would not likely exceed noise ordinance limits or General Plan guidelines, they would likely be audible during quiet periods.

Ambient Sound Survey

An ambient sound survey was conducted between April 17 and 19, 2009, to document the existing sound environment at various locations within the SVRA vicinity. Long-term continuous sound level measurements were conducted in accordance with American National Standards Institute (ANSI) standards at two locations using Larson Davis Laboratories (LDL) Model 820 Type 1, precision integrating sound level meters (SLMs). Additional short-term sound level monitoring was conducted at five locations within the SVRA using an LDL Model 824 one-third octave, Type 1 SLM. The SLMs were calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure measurement accuracy. The equipment meets all pertinent specifications of the ANSI standards for Type 1 SLMs (ANSI S1.4-1983[R2006]). Ambient sound survey locations are shown in Figure 8. Definitions of acoustical terminology that are referenced in this discussion are provided in Table 3. The equivalent sound level (L_{eq}), maximum sound level (L_{max}), and L_{50} values taken at each ambient sound measurement location are presented in Table 4.

During the survey, average daytime hourly sound levels within the project area ranged from approximately 55 decibels, A-weighted (dBA) to 63 dBA L_{eq}, with maximum sound levels that ranged from 60 dBA to 88 dBA L_{max}. Primary sources at the sound level measurement locations were OHV operations at the SVRA for measurement locations on the project site and adjacent to the SVRA boundary (measurement Locations ST-1 through ST-4). Measurement location ST-5 was found to be primarily affected by vehicular traffic on Heber Road and SR-7. The long-term monitoring location (LT-A) was primarily affected by operations of OHVs at the SVRA with traffic from the local roadway network contributing to a lesser extent. It should also be noted that LT-A was located at the on-site residential receptor. Sound levels generated from operational activities at



Source: Aerials Express 2006

1,000 500 0 1,000 Feet

Scale: 1 = 12,000; 1 inch = 1,000 feet

Figure 8
Noise Monitoring Locations

Path: P:\2007\07080197.10 Heber Dunes\6.0 GIS\6.2 Project Directory\6.2.5 Layout\Figures\Figure8_NoiseMonitoringLocations_85x11.mxd, 06/15/09, PalavidoM

Table 3
Definitions of Acoustical Terminology Referenced in this Section

- Decibel (dB): A sound level expressed in decibels is the logarithmic ratio of two like pressure quantities, with one pressure quantity being a reference sound pressure. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly added. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB.
- A-Weighting: A-weighted decibels, abbreviated dBA, are an expression of the relative loudness of sounds in air as perceived by the human ear.
- L_{max} (maximum sound level): The highest A/B/C weighted integrated sound level occurring during a specific period of time.
- L_{min} (minimum sound level): The lowest A/B/C weighted integrated sound level during a specific period of time.
- Peak: The highest weighted or unweighted instantaneous peak to peak value occurring during a measurement period.
- L_n (statistical descriptor): The sound level exceeded n% of a specific period of time, generally accepted as an hourly statistic. An L_{10} would be the sound level exceeded 10% of the measurement period.
- L_{eq} (equivalent sound level): The energy mean (average) sound level. The steady state sound level which, in a specified period of time contains the same acoustical energy as a varying sound level over the same time period.

Table 4
Summary of Measured Ambient Sound Survey Levels

			Average Measured Hourly Sound Levels, dB						
				Daytime (7 a.m.–7 p.m.)			***Nighttime (10 p.m.–7 a.m.)***		
Site	***Location***	***Date/ Time***	***CNEL***	***L_{eq}***	***L_{max}***	***L_{50}***	***L_{eq}***	***L_{max}***	***L_{50}***
LT-A	Adjacent to the on-site residential dwelling	April 16-17, 2009	59.5	59.2	71.2	53.0	40.7	52.1	35.8
		April 18, 2009	57.5	59.8	84.3	40.7	40.5	56.6	35.0
		April 19, 2009	61.2	55.3	71.5	41.6	39.2	53.9	34.3
ST-1	Picnic area within Heber Dunes SVRA	April 19, 2009; 1:15 p.m.		63.3	88.4	53.2			
ST-2	Southwest boundary of the SVRA	April 19, 2009; 2:40 p.m.		54.0	82.5	40.8			
ST-3	Southern boundary of the SVRA	April 19, 2009; 3:50 p.m.		55.7	84.7	39.1			
ST-4	Eastern boundary of the SVRA	April 19, 2009; 5:04 p.m.		44.5	60.8	41.9			
ST-5	Northern boundary of the SVRA	April 19, 2009; 5:46 p.m.		55.3	81.3	47.2			

Monitoring locations correspond to those depicted in Figure 8.

Notes: dB = A-weighted decibels; CNEL= Community noise equivalent level; L_{eq} = the equivalent hourly average sound level; L_{50} = the sound level exceeded 50% of a specific period of time; L_{max} = maximum sound level.

Source: 2009 data collected by EDAW.

Heber Dunes SVRA, included OHVs such as 4-wheel ATVs, motorcycles, jeeps, sand rails, and buggies. Meteorological conditions during the measurement periods were favorable, with clear skies, temperatures ranging from 93°F to 105°F, and light winds from the northwest at 1 to 4 mph.

Existing Traffic Noise

Existing traffic noise levels were calculated for roadway segments in the project vicinity using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic data provided in the Existing Traffic Conditions Report prepared for the project (Fehr & Peers 2009).

Table 5 summarizes the modeled existing traffic noise levels at a representative distance of 100 feet from the centerline of each major roadway in the project vicinity and lists distances from roadway centerlines to the 60-dB, 65-dB, and 70-dB Community Noise Equivalent Level (CNEL) traffic noise contours. Traffic noise modeling results are based on existing average daily traffic volumes. As shown in Table 5, the location of the 60-dB CNEL traffic noise contours along the local roadway network range from 11 to 780 feet from the centerline of the modeled roadways. The extent to which existing land uses in the project area are affected by existing traffic noise depends on their respective proximity to the roadways and their individual sensitivity to traffic noise. As indicated in Table 5, the primary roadways of concern for traffic noise would be I-8, SR-7, and SR-98. The nearest receptor to the project site along these roadways would be residential uses approximately 0.5 mile north of the project site along King Road. These residences are approximately 300 feet from the centerline of the nearest travel way, thus traffic noise levels at these residences would be approximately 62 dBA CNEL. These traffic noise levels are considered compatible with residential land use. Additionally, due to the distance from the Heber Dunes, it is unlikely that OHV use contributes significantly to ambient sound levels at these residences. However, during peak OHV use, when traffic noise is low, OHV activities at Heber Dunes may be audible to people outside at these residences.

Table 5
Summary of Modeled Existing Traffic Noise Levels

			Distance (feet) from Roadway Centerline to CNEL Contour		
Roadway	***Segment***	***CNEL (dB) 100 feet***	***70 dB***	***65 dB***	***60 dB***
Interstate 8	East of State Route 111 Junction	73.4	168	362	780
State Route 7	At State Route 98 Junction	68.8	83	178	384
State Route 98	West of State Route 7 Junction	70.7	111	240	517
Heber Road	West of SVRA Entrance	52.5	7	15	31
Heber Road	From SVRA Entrance to State Route 7	52.5	7	15	32
Heber Road	West of Mets Road	53.1	7	16	35
Mets Road	North of Heber Road	45.6	2	5	11

Notes: dB = A-weighted decibel; CNEL= Community Noise Equivalent Level
Source: 2008 data modeled by EDAW.

3.3.6 Issues and Opportunities

Based on the existing significant resource values identified at Heber Dunes SVRA, the following key issues and opportunities have been identified:

- Heber Dunes contains interesting and unique biological resources
- The existing tamarisk vegetation on-site creates a natural resources management challenge
- Dust control measures should be addressed in the General Plan
- Consider interpretive potential exists for the unique topographic and geologic setting and biological resources of Heber Dunes
- Off-site land uses should be considered with respect to sound generated at the SVRA

Heber Dunes contains interesting and unique biological resources – Though the majority of vegetation on-site is nonnative tamarisk trees of low habitat quality, unique biological resources exist within the SVRA that could be preserved, restored, and enhanced. Particularly, the creosote habitat in the southern part of the park is a unique native habitat type that, with the appropriate management efforts, could be enhanced and potentially preserved. This could include managing OHV use in creosote areas, managing tamarisk, and education/interpretation efforts.

The existing tamarisk vegetation on-site creates a natural resources management challenge – Because tamarisk is an invasive nonnative vegetation community, biological restoration and/or enhancement efforts would consider the advantages and disadvantages of tamarisk removal. However, tamarisk is very difficult to eradicate completely because it resprouts from any remaining root structure. It is also challenging to restore native vegetation communities in the dune landscapes of southern California. In addition, the tamarisk trees provide significant areas of shade, which are particularly valued in the desert climate of Heber Dunes. Likewise, all of the on-site vegetation (including tamarisk) serves to hold down sand. Therefore, any tamarisk removal proposals would need to consider the potential impact on visitors resulting from the loss of valued shade areas and potential incremental fugitive dust generation resulting from the potential net loss of vegetation (e.g., removal of tamarisk and unsuccessful establishment of native vegetation).

Dust control measures should be addressed in the General Plan – OHV operation generates dust, which adversely impacts air quality. Due to the unique sand dune topography at Heber Dunes, dust is also generated by natural processes, such as windy conditions. Because air quality is an issue of regional concern in Imperial County, planning efforts should focus on creative strategies to minimize the potential impacts of OHV use at Heber Dunes. Several dust control measures could be considered in an effort to reduce the fugitive dust. These measures include the designation of riding areas (and identification of off-limit riding areas) to limit the areas of impact; regular watering of heavily used areas, particularly near adjacent land uses and the ranger housing area; and the use of soil additives to reduce dust generation.

Interpretive potential exists for the unique topographic and geologic setting and biological resources of Heber Dunes – In addition to the unique biological resources found on-site, the unique topographic and geologic setting that has resulted in the dunes could be presented to SVRA visitors. This could be in the form of signage or maps, educational and interpretive programs, tours, or other programs.

Off-site land uses should be considered with respect to sound generated at the SVRA – It is unlikely that OHV use contributes significantly to ambient sound levels at nearby residences. The proposed commercial and industrial uses within the Gateway Specific Plan planning area (approximately 1 mile south of Heber Dunes) are not particularly sensitive to sound (and may generate substantial sound themselves). Although existing and proposed land uses surrounding the SVRA appear compatible with OHV operation, the planning team should be cognizant of potential incompatibility as the General Plan planning process moves forward.

3.4 PLANNING INFLUENCES

3.4.1 Systemwide Planning

Planning for DPR must be wide-ranging to consider issues that cross regional, local community, and park boundaries. Federal, state, county, and community agencies are responsible for providing oversight and review of various planning-related laws and policies, such as the California Environmental Quality Act, Colorado River Basin Regional Water Quality Control Board (CRBRWQCB), and Air Quality Management District regulations. Additionally, various Department resource management directives guide the planning process, including the following resources that are relevant to the Heber Dunes SVRA planning effort:

- DPR Mission Statement
- OHMVR Division Mission Statement
- DPR Strategic Initiatives
- California Statewide Motorized Trail
- Natural Communities Conservation Program
- Access to Parks Guidelines
- Public Resources Code
- Off-Highway Motor Vehicle Recreation Act
- Soil Conservation Guidelines/Standards for Off-Highway Vehicle Recreation Management
- Habitat Monitoring System

DPR Mission Statement

DPR's Mission Statement is to "provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation."

OHMVR Division Mission Statement

The Mission of OHMVR Division is to provide leadership statewide in the area of OHV recreation; to acquire, develop, and operate SVRAs; and to otherwise provide for a statewide system of managed OHV recreational opportunities through funding to other public agencies. To ensure that quality recreational opportunities remain available for future generations by providing for education, conservation, and enforcement efforts that balance OHV recreation impacts with programs that conserve and protect cultural and natural resources.

DPR Strategic Initiatives

DPR's Strategic Initiatives have been crafted to closely correspond with its time-honored philosophy to preserve, protect and interpret California's natural, cultural, and recreational resources. Beyond this fundamental truth, the Strategic Initiatives look to the future—to where the DPR's system needs to be. The continuing ability to preserve and protect the very best of California's resources, and to make these special places available to the increasing number of visitors, relies heavily on how efficiently and effectively DPR addresses both current and future issues and opportunities. Given the high percentage of Hispanic/Latino residents in the population centers in the vicinity of Heber Dunes, involvement of these communities in the Heber Dunes General Plan process could contribute to satisfying Objective 3.1 ("Increase participation by diverse populations in State Park System planning projects") from the Strategic Initiatives document.

California Statewide Motorized Trail

Section 5090.44 of the Public Resources Code provides for the designation of corridors in California for a Statewide Motorized Trail. The California Statewide Motorized Trail consists of corridors that are designated and maintained for recreational travel by OHVs. Portions of the California Statewide Motorized Trail may include lands designated and maintained as trailheads. Because Heber Dunes is surrounded by agricultural development and the closest OHV recreation area is approximately 30 miles from the SVRA, it would not be practical to connect Heber Dunes to the California Statewide Motorized Trail.

Habitat Conservation Plan

A Habitat Conservation Plan (HCP) is a broad-based landscape level federal planning tool utilized to achieve long-term biological regulatory goals and provides a legal protection to discretionary activities covered by the Endangered Species Act. IID is currently in the process of preparing a Natural Communities Conservation Program (NCCP)/HCP. Covered activities are anticipated to include all water conservation projects and mitigation measures, whether undertaken by IID or by farmers, tenants, or landowners. While IID has facilities adjacent to Heber Dunes, the NCCP/HCP that is currently under preparation is not expected to impact operations or management at the SVRA.

Natural Communities Conservation Program

The NCCP, developed by CDFG in 1991, is an effort unique to California. The NCCP provides regional planning strategies for the protection of plants, animals, and their habitats, while allowing suitable economic development. The primary objective of the NCCP is to conserve natural communities at the ecosystem scale while accommodating compatible land use. IID is currently in the process of preparing an NCCP/HCP. Covered activities are anticipated to include all water conservation projects and mitigation measures, whether undertaken by IID or by farmers, tenants, or landowners. While IID has facilities adjacent to Heber Dunes, the NCCP/HCP that is currently under preparation is not expected to impact operations or management at the SVRA.

California State Parks Accessibility Guidelines 2009

The Access to Parks Guidelines were first published in 1994 and the most recent revision took place in 2009. The Access to Parks Guidelines detail the procedure to make state parks universally accessible while

maintaining the quality of park resources. Also included in the guidelines are recommendations and regulations for complying with the standards for accessibility. The vision of the guidelines is embodied in the General Plan. The guidelines that would be most applicable to Heber Dunes include the following: picnic sites, fixed benches, ramps, restrooms, drinking fountains, and signage.

Public Resources Code

California Public Resources Code, Sections 5019.50–5019.80, Classification of the State Parks System, provides guidelines for the designation of California State Parks and guiding principles for park improvements. The Public Resources Code classifies different types of State Park units and provides guidelines for the upkeep and improvements of parks. Although this code does not provide recommendations and/or requirements specific to SVRAs, it will be used as a general guide to plan appropriate improvements within the park.

Off-Highway Motor Vehicle Recreation Act

The Off-Highway Motor Vehicle Recreation Act requires DPR's OHMVR Division to implement and administer the Off-Highway Motor Vehicle Recreation Program, which provides for opportunities for OHV recreation at specified areas throughout the state (California Public Resources Code Section 5090 et seq.). The Off-Highway Motor Vehicle Recreation Act was most recently amended in 2007 with the passage of Senate Bill 742. The act states that effectively managed areas and adequate facilities for the use of off-highway vehicles and conservation and enforcement are essential for ecologically balanced recreation. The act further states that when areas or trails or portions thereof cannot be maintained to appropriate established standards for sustained long-term use, they should be closed to use and repaired, to prevent accelerated erosion. Furthermore, those areas should remain closed until they can be managed within the soil conservation standard or should be closed and restored.

Soil Conservation Guidelines/Standards for Off-Highway Vehicle Recreation Management

The Soil Conservation Guidelines/Standards for Off-Highway Vehicle Recreation Management is a resource management plan for soil conservation that is applicable to OHV areas funded by the California OHV fund, including all SVRAs. The guidelines provide measures to help achieve the standard that OHV areas and trails are to be maintained in a condition that will allow for feasible restoration by natural resource managers. Under the context of the guidelines and the Public Resources Code, restoration means the restoration of land to the contours, the plant communities, and the plant covers comparable to those on surrounding lands or at least those that existed prior to OHV use. In addition, the guidelines provide measures to help guide repair and maintenance of trails to help anticipate and prevent accelerated and unnatural erosion. These guidelines/standards should be considered as potential land use areas are evaluated (e.g., open riding areas, designated trail areas, no riding areas/resource protection areas) through the General Plan process. For example, areas with more sensitive soils and/or plant communities may be most appropriate for a resource protection area, whereas areas more tolerant of OHV use could be considered for open riding areas.

Habitat Monitoring System

Specific biological provisions in the Off-Highway Motor Vehicle Recreation Act outline management programs designed to work with natural processes of vegetation succession, to control the spread of noxious

and invasive weeds, and to protect the natural wildlife habitat. The Habitat Monitoring System was developed to emphasize a broad range of scientifically accepted techniques and measures that are appropriate for the unique habitats found within the SVRAs. The Habitat Monitoring System provides information on baseline studies, focused studies, monitoring, and survey protocols. The guide is to be used by SVRA resource managers as a tool to aid the development of park-specific monitoring plans and techniques. The guide will be used throughout the General Plan process to aid in documenting existing biological resources at Heber Dunes. Biological resource assessments conducted by the General Plan team to date have complied with the guidelines set forth by the Habitat Monitoring System.

3.4.2 Regional Population Projections

Most visitors to Heber Dunes SVRA originate in Imperial County (OHMVR Division 2008; EDAW 2009). The nearest population centers include Mexicali (across the international border with Mexico), Calexico, El Centro, Holtville, and Heber. These urban centers have had high growth rates over the last several years (see Table 6). Recreation demand and use, over time, are affected by the changing demographic patterns of the areas served. As of April 2007, Imperial County had over 8,600 green-sticker registered OHVs. In addition, Riverside and San Diego counties had a total of 176,169 additional green-sticker registered OHVs as of 2007. These local registered users (and to some extent users from adjacent counties) will create the highest demand for SVRA use.

Table 6
Population Growth Trends

Community	***2000[a]***	***2008[b]***	***Percent Change 2000-2008***
Calexico	27,109	38,733	42.9
El Centro	37,835	43,316	14.5
Holtville	5,612	6,467	15.2
Mexicali*	764,602	855,962**	11.9
Imperial County	142,361	176,158	23.7

Source: (a) U.S. Bureau of the Census 2000; (b) California Department of Finance 2008;

* California Center for Border and Regional Economic Studies n.d.

**2005 data are used because 2008 data are unavailable.

Note: Heber is not an incorporated city; no population data is available.

According to the 2000 U.S. Census, there were 142,361 people in Imperial County. SCAG projects that growth in Imperial County will accelerate, adding roughly another 136,000 residents by 2030, an increase of more than 75 percent. The southern California region (including Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and Ventura counties) is projected to increase to 27,240,131 by 2030 (SANDAG 2008; SCAG 2008). Over time, local and regional population growth is likely to contribute to an increase in visitation at Heber Dunes SVRA.

Hispanics or Latinos make up the majority of the residents of Imperial County. At the time of the 2000 U.S. Census, Hispanic or Latino residents of Imperial County were estimated at 102,817, representing 72.2 percent of the total county population. Statewide there were about 11 million Hispanic people out of the total statewide population of 34 million people (32.4 percent). The high proportion of Hispanic people within the county has implications for SVRA planning. For example, there is a correlation between Hispanic people

recreating in large (often family-based) groups and a high demand for developed recreation sites, particularly those with picnic tables and barbeque grills. Group picnics also tend to be longer in duration than for some other ethnic groups.

The Strategic Initiatives document created by DPR has been crafted to closely correspond with DPR's time-honored philosophy to preserve, protect and interpret California's natural, cultural, and recreational resources. One of strategic initiatives included in the document is "Realizing Diversity." The first goal of this initiative reads as follows:

Embrace diversity norms and elevate awareness throughout California State Parks while developing and strengthening partnerships, relationships, and collaborations within diverse communities.

The large presence of Hispanic or Latino residents in Imperial County creates an opportunity for DPR to work toward meeting Goal 1 by engaging these residents in the planning process and long-term evolution of the SVRA.

3.4.3 Public Input

Public input will play an essential role in the formulation of recommendations, programs, and priorities for the Heber Dunes SVRA General Plan. DPR has initiated a stakeholder-driven process whereby issues and ideas voiced by community members will guide project research, alternatives analysis, and recommendations.

The public participation program includes:

- **On-site Visitor Survey**, using a person-to-person questionnaire. The surveys were conducted at Heber Dunes SVRA in February and March 2009.
- **Stakeholder Interviews**, conducted with a cross-section of stakeholders regarding potential ideas, concerns, and common goals associated with development of the Heber Dunes SVRA General Plan. The interviews were conducted in March 2009.
- **Two Public Workshops,** to be held to gather public input during the formulation of the Heber Dunes SVRA General Plan. At the first workshop, scheduled for late summer 2009, OHMVR Division will present concept alternatives for the SVRA. During the second workshop, which is tentatively scheduled for late fall 2009, the Heber Dunes vision and land use plan will be presented.
- **Fact Sheets and Newsletters**, providing background information on the project, updates on project progress, and announcements of the public workshops.

Initial Community Outreach

The visitor survey and stakeholder interviews represent the first stage of the public participation process for the Heber Dunes SVRA General Plan project. Accordingly, the public participation program will involve several additional outreach efforts throughout the General Plan process. However, as a first step toward incorporating stakeholder input into the General Plan process, information generated during the visitor survey and stakeholder interviews has been synthesized into the major themes presented below.

Visitor Survey

The purpose of the visitor survey was to understand visitors' use patterns, concerns, and needs. Information on visitor demographics, visitor use patterns, identification of valued places and activities at Heber Dunes, opportunities for improvement, and safety concerns was collected. The surveys were not designed to be statistically representative of all visitors to Heber Dunes; nevertheless, these results provide valuable insight for the planning process. EDAW conducted the survey on behalf of OHMVR Division. EDAW obtained information from Heber Dunes SVRA visitors through person-to-person "questionnaire" interviews during February and March 2009.

Stakeholder Interviews

The purpose of the stakeholder interviews was to understand stakeholders' ideas, concerns, and common goals with respect to Heber Dunes SVRA. Meetings with a cross-section of stakeholders were conducted in March 2009. The interview participants—representing local planners, public agencies and utilities, public safety entities, OHV interests, social groups, civic organizations, environmental concerns, and Heber Dunes visitors and neighbors—shared their perspectives on long-range planning issues, ideas, concerns, and opportunities.

Major Themes of Initial Community Outreach

The major themes presented in this section represent a synthesis of input captured from the visitor survey and stakeholder interviews on ideas, concerns, and common goals related to Heber Dunes SVRA. In effect, the major themes encapsulate the topics that were raised most through the visitor survey and stakeholder interviews.

Meets important local recreation need – Stakeholders frequently raised the observation that Heber Dunes SVRA fulfills an important local recreational need. The SVRA is close to several population centers within Imperial County and the results of the visitor survey indicate that the overwhelming majority of visitors choose to visit Heber Dunes because it is "close to home." Interestingly, over 90 percent of visitors surveyed indicated it takes them less than 30 minutes to travel to Heber Dunes. Tied to some of these concepts were comments about the potential for camping at Heber Dunes and the need to consider whether overnight use would shift the character of the SVRA from a local recreation area to an amenity that primarily serves regions beyond Imperial County.

Recognition of improved SVRA management – One of the strongest recurring themes that surfaced during the visitor survey and stakeholder interviews was the impression that Heber Dunes is generally cleaner and safer under management by OHMVR Division (Heber Dunes was originally a County park. DPR acquired Heber Dunes in December 2007, in part, because the County lacked sufficient operational funding for the park.) During surveys, many visitors mentioned that they appreciated the improvements made by OHMVR Division since acquiring the SVRA, including efforts to improve maintenance and safety conditions, as well as the installation of new restrooms.

In terms of safety conditions, visitors and stakeholders commented that enforcement and patrol activities by the resident ranger, such as issuing tickets for double-riding and riding without helmets, have improved safety

conditions at the SVRA. Likewise, some visitors pointed out that the mere presence of an on-site ranger may deter illegal and/or irresponsible activities at the SVRA. Many parents commented that they feel that Heber Dunes is a safe and comfortable place to recreate with their children because of these efforts. Some stakeholders noted that Heber Dunes had problems with trespassing and associated public safety issues, such as vandalism and unauthorized late night parties, in the past. It was acknowledged that the presence of an on-site ranger and the ability to close the entrance gate overnight has likely controlled these issues.

Improving safety for all SVRA visitors – There was widespread acknowledgement that safety conditions at Heber Dunes are generally good. At the same time, visitors and other stakeholders would like to see safety enhanced as part of the General Plan process. Of particular concern was improving safety for children at Heber Dunes SVRA.

Some safety concerns expressed during the visitor survey and stakeholder interviews centered on how to reduce the potential for OHV collisions, as well as collisions between OHVs and nonriders. The importance of rider education was also raised as a consideration. Comments were also made about opportunities to enhance safety through designation of use areas (for example, free ride area, children's trail, and group picnic areas) and the establishment of associated management approaches.

It should be noted that when visitors were asked if "they generally feel safe" at Heber Dunes nearly all visitors surveyed responded positively. Given that safety concerns related to OHV operation surfaced at other points in the survey—as well as in the stakeholder interviews—it is likely that visitors responded to this survey question in terms of personal safety (for example, visitors feel safe because they are not worried about petty theft or assault).

Enhancing the recreation experience for families and groups – The results of the visitor survey and stakeholder interviews indicated that most visits to Heber Dunes occur during weekends. These weekend visitors tend to be large groups of families and/or friends with children. Almost two-thirds of the visitors surveyed were in groups of six or more people and visitors under the age of 15 accounted for nearly one-third of all visitors present on the days of the surveys. Dedicated solo riders tend to use the SVRA during the week.

Most visitors that go to Heber Dunes in large groups stay in the SVRA for a good portion of the day, yet the total time spent riding OHVs is typically only a few hours. Specifically, the survey results indicate that 80 percent of visitors stay more than 4 hours, yet most visitors spend under 4 hours riding OHVs. The primary additional recreational activities that Heber Dunes visitors take part in include gathering with family and friends, picnicking and barbequing, watching people ride OHVs, and viewing scenery. Many people stated that there is a need for additional passive recreational opportunities at Heber Dunes that are compatible with OHV use. Suggestions tied to these discussions included barbeque facilities, additional shaded areas, additional small and large group picnic areas, additional restrooms, additional drinking water fountains and spigots, established riding trails removed from picnic areas, and creation of a children's trail.

Environmental considerations for the planning process – Environmental considerations for the planning process that were raised most frequently involved natural areas and air quality. Heber Dunes is primarily sand dunes with pockets of vegetation (both native and nonnative) located throughout the SVRA. Many visitors and other stakeholders value the natural characteristics and open area of Heber Dunes.

Most existing trees are tamarisk, a nonnative, invasive species. The value of the existing trees for shade and natural characteristics was cited repeatedly. Tied to these discussions was dialogue about tamarisk's invasive qualities and the relatively high rate at which it absorbs water. Some stakeholders would like to see the tamarisk replaced by native vegetation. Other stakeholders commented that a tamarisk removal program would be costly and difficult, and that it would be challenging to establish native vegetation in its place.

Air quality impacts from dust and engine emissions were raised as a concern. Dust was recognized by many as a regional air quality issue. Discussion also included the role of existing trees in stabilizing sandy soils and thereby potentially reducing dust dispersion.

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4.0 DRAFT PARK VISION, UNIT CLASSIFICATION, AND GOALS

4.1 DECLARATION OF PURPOSE

The declaration of purpose describes the purpose of the SVRA and is the broadest statement of management goals designed to fulfill the vision of the SVRA. A declaration of purpose is required by California Public Resources Code, Section 5002.2(b), "setting forth specific long-range management objectives for the park consistent with the park's classification…."

The purpose of Heber Dunes SVRA is to provide effectively managed, responsible OHV and related recreational opportunities with recognition of the significance of the SVRA to the local population. The unit's relatively small size and unique outdoor recreational setting provide opportunities for OHV riding, family and social gathering, and interpretative programs.

4.2 UNIT VISION

A unit vision describes the SVRA in future years, when DPR has achieved its general plan objectives and has satisfied visitor expectations.

Heber Dunes SVRA is envisioned to provide a safe and convenient place for friends, families, and groups to enjoy the outdoor recreational setting. On any given day, visitors will be able to take part in managed off-highway motor vehicle recreation and other activities, relax, and enjoy the unique setting. The SVRA's community significance, as well as its natural history, will provide an opportunity for education and interpretation. Future expansion of Heber Dunes SVRA would provide a greater range of recreational and resource management opportunities.

4.3 UNIT CLASSIFICATION

The Heber Dunes unit is classified as an SVRA.

4.4 DRAFT GOALS

Goals and guidelines of a General Plan address existing issues and provide ongoing guidance and management strategies that can be implemented to achieve the long-term vision for the park. The goals will establish the purpose of the SVRA and will provide the framework for the future establishment of guidelines, which will provide the direction that DPR will consider to achieve these goals.

4.4.1 Natural and Physical Resources

Goal RES-1: Manage the SVRA for protection of natural communities and the quality of the OHV recreational experience.

Goal RES-2: Help protect local and regional air quality, particularly dust control.

4.4.2 Visitor Use and Recreation

Goal REC-1: Provide recreational opportunities for OHV riders of diverse ages and experience levels (including youth) and other SVRA visitors in a safe environment.

Goal REC-2: Enhance individual-, family-, and community-centered recreational opportunities.

Goal REC-3: Consider expanding recreational opportunities that are compatible with OHV use.

Goal REC-4: Provide essential visitor and management facilities to enhance the visitor experience and SVRA operations.

Goal REC-5: Establish a coordinated way-finding program that clarifies how to access and enjoy the SVRA.

4.4.3 Interpretation and Education

Goal INT-1: Develop education and interpretive materials that respond to the SVRA's sense of place and history and meet the needs of the diverse visitor population.

Goal INT-2: Increase visitors' knowledge and appreciation of the history, natural resources, and recreational opportunities of the SVRA.

Goal INT-3: Expand understanding of ecological relationships and heighten awareness and sensitivity to human impacts.

Goal INT-4: Promote outreach efforts to develop partnerships for interpretive programming and responsible OHV education.

4.4.4 Park Use and Operations

Goal OP-1: Maintain and enhance the quality of OHV recreational opportunities.

Goal OP-2: Provide recreational opportunities compatible with OHV use.

Goal OP-3: Consider expanding the SVRA to enhance recreation and resource management.

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