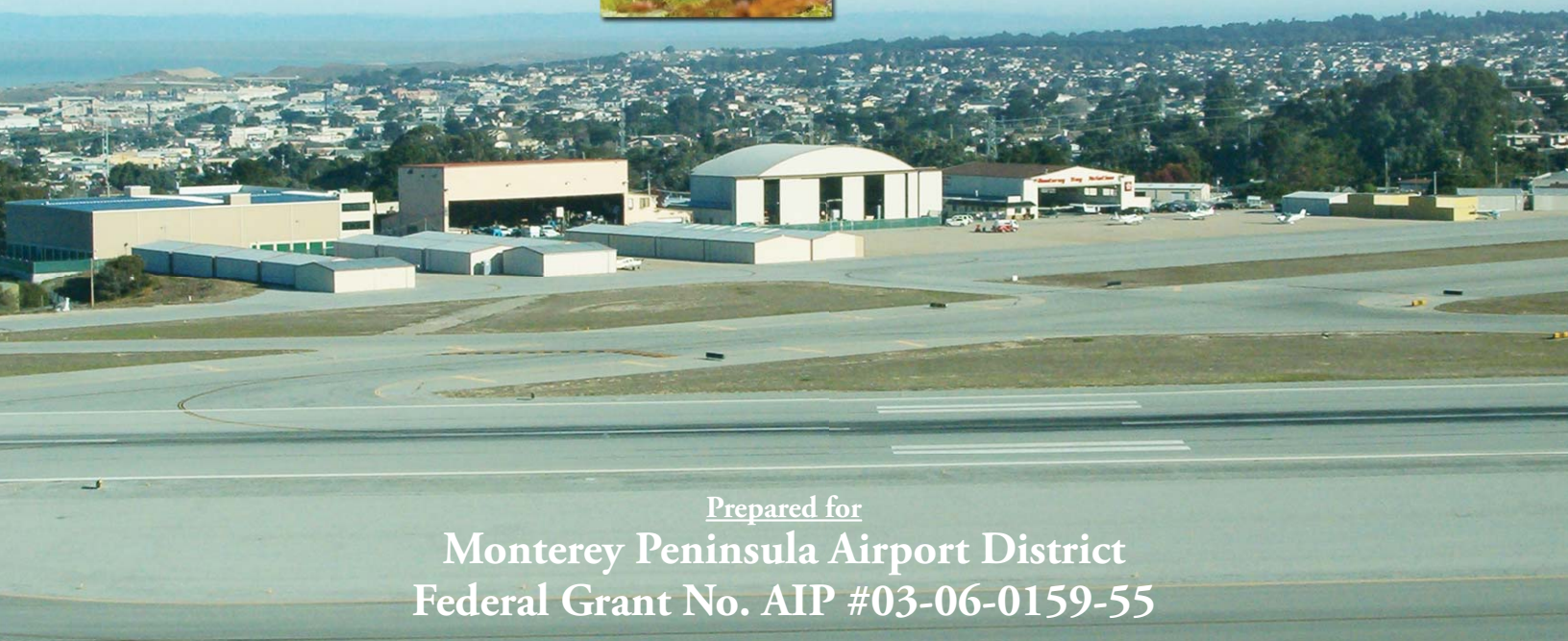




Wildlife Hazard Management Plan for

# MONTEREY PENINSULA AIRPORT



Prepared for  
Monterey Peninsula Airport District  
Federal Grant No. AIP #03-06-0159-55



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Western-Pacific Region  
Airports Division

P. O. Box 92007  
Los Angeles, CA 90009-2007

**Received**

January 28, 2013

FEB 4 2013

Desmond Johnston  
Project Manager, Planning & Environmental  
Monterey Regional Airport  
200 Fred Kane Drive #200  
Monterey, CA 93940

Planning and Development  
Monterey Peninsula Airport District

**Monterey Regional Airport  
Monterey, CA  
Wildlife Hazard Management Plan**

Dear Mr. Johnston:

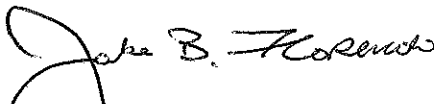
Our Office has completed a review of Monterey Regional Airport's draft Wildlife Hazard Management Plan (WHMP) that was prepared by Coffman Associates, SWCA Environmental Consultants and DeTect, Inc. to address potential hazards to aircraft and human safety associated with wildlife populations and movements at or near Monterey Regional Airport. Your WHMP appears to satisfy the requirements of 14 Code of Federal Regulations (CFR) 139.337(f) concerning wildlife hazard management at airports.

We remind you that your WHMP must be reviewed at least once every 12 consecutive calendar months and periodically revised to ensure the content is current and that the Plan is effective in dealing with known wildlife hazards in the airport environment.

Please submit two copies of your WHMP for FAA approval.

If you have any questions or concerns, please feel free to contact me via email at [Jake.florendo@faa.gov](mailto:Jake.florendo@faa.gov) or by telephone at 310-725-3653.

Sincerely,

  
Jake B. Florendo  
Airport Certification Safety Inspector

**Received**

FEB 14 2013

Planning and Development  
Monterey Peninsula Airport District

**WILDLIFE HAZARD MANAGEMENT PLAN**

**for**

**Monterey Peninsula Airport  
Monterey, California**

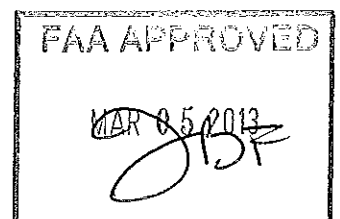
**Prepared by:**

**Monterey Peninsula Airport District  
200 Fred Kane Drive, Suite 200  
Monterey, CA 93940**

**and**

**Coffman Associates**

**February 2013**





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Element 1

# Introduction





## Element One

### INTRODUCTION

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Wildlife can create a variety of problems that affect operations at airports, the most significant being the thousands of collisions that occur annually between wildlife and aircraft. Annually, bird and other wildlife strikes cause in excess of \$1.2 billion in damage to civilian aircraft around the world<sup>1</sup>. While wildlife strikes that result in aviation fatalities are rare, aircraft have been brought down and many more have been seriously damaged.

Wildlife can also create secondary hazards at airports. For instance, rodents may chew on electrical cables powering runway lights, birds can construct nests in buildings creating fire hazards, and roosting birds leave droppings that can damage property and become a human health threat.

On June 11, 2009, the Federal Aviation Administration (FAA) issued CertAlert 09-10 to remind airport operators and FAA airport certification safety inspectors of their obligations under Part 139.337(b) to conduct a Wildlife Hazard Assessment (WHA) if a “triggering event” has occurred at their airport. According to the FAA Wildlife Strike Database, Monterey Peninsula Airport (MRY) has experienced all four “triggering” events; therefore, it was required to conduct a WHA. In August 2011, a WHA was completed for MRY to identify potential hazards to aircraft and human safety associated with wildlife movements on and within the area encompassing

---

John R. Allan, The cost of Bird Strikes and Bird Strike Prevention, August 2000<sup>1</sup>

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10,000 feet off the north and south sides of the airport and five miles along the runway approaches. The WHA boundary was determined using the FAA's Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*.

Many actions can be taken to decrease wildlife hazards, depending on the species, time of year, determination of why they are using the airfield, habitat characteristics on and around the airfield, and a host of other variables. It is, therefore, necessary to fully understand an animal's biology, particularly in relation to specific environmental characteristics, when establishing a wildlife control program. WHAs provide the framework through which a more complete and site-specific understanding of wildlife hazards on an airport are developed. They are typically conducted for one full year because wildlife populations, especially migratory birds, exhibit seasonal fluctuations in behavior and abundance. The WHA is summarized in **Element 2** of this document.

Throughout the preparation of the WHA, recommendations to reduce wildlife hazards were made which are based on an analysis of the data collected. FAA also suggested that the recommendations contained in the WHA be the foundation of the Wildlife Hazard Management Plan (WHMP). A WHMP addresses the procedures, policies, and responsibilities necessary to reduce wildlife hazards. The goal of an airport's WHMP is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife around the airport. The WHMP must accomplish the following:

- Identify the person responsible for implementing each phase of the plan;
- Identify and provide information on hazardous wildlife attractants on or near the airport;
- Identify appropriate wildlife management techniques to minimize the wildlife hazard;
- Prioritize appropriate management measures;
- Recommend necessary equipment and supplies;
- Identify training requirements for the airport personnel who will implement the WHMP; and
- Identify when and how the plan will be updated.

## **MONTEREY PENINSULA AIRPORT PROFILE**

As shown on **Exhibit 1A**, MRY is located in Monterey County, California, adjacent to the Cities of Monterey and Del Rey Oaks and approximately 100 miles south of San Francisco. The airport encompasses 498 acres of property. MRY is owned and operated by the Monterey Peninsula Airport District.

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The airport experienced 57,124 aircraft operations and 184,169 enplanements in 2011. It offers scheduled non-stop passenger service via six airlines to five domestic cities in the United States including San Francisco, Los Angeles, San Diego, Phoenix, Denver, and Las Vegas.

## ***WILDLIFE HAZARD WORKING GROUP***

At the onset of the WHMP preparation, a Wildlife Hazards Working Group (WHWG) was formulated to provide review and input of the WHMP and to also follow through with implementation of the plan's recommendations through periodic meetings with the Wildlife Management Coordinator (to be discussed in more detail later). Individuals from MRY operations and management, Air Traffic Control, MRY Crash/Fire/Rescue (ARFF), MRY security, tenants, airlines, pilot associations, FAA representatives, local United States Department of Agriculture Wildlife Services, local United States Fish and Wildlife Service, and California Game and Fish were invited to be members of the WHWG. A kick-off meeting was held on September 22, 2011, with members of the group at the onset of the WHMP preparation process. A second WHWG meeting was held on February 1, 2012, to discuss wildlife management techniques specific to MRY. **Appendix A** has a list of the WHWG members and meeting sign-in sheets.

## ***ABOUT THIS DOCUMENT***

This WHMP document was prepared according to Title 14 Code of Federal Regulations (CFR) Part 139.337, Subparts (c), (d), and (e). This document starts with an overview of the WHA completed in August 2011 in **Element 2**.

**Elements 3** and **4** of this document address the wildlife management and responsibilities necessary to reduce wildlife hazards at MRY. **Element 5** outlines the evaluation and update process for the WHMP. Associated support appendices are also provided documenting the WHWG membership, WHA approval letter, wildlife reporting logs, and guiding regulations.

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Element 2

## Overview of Wildlife Hazards



## Element Two

### OVERVIEW OF WILDLIFE HAZARDS

---

The Federal Aviation Administration (FAA) recognizes that certain species of wildlife pose potential hazards to aircraft operations at airports in the United States. As a result, the FAA has initiated several programs to address this important safety issue, one of which is a Wildlife Hazard Assessment (WHA). In order to reduce the potential for wildlife strikes to occur, Title 14 Code of Federal Regulations (CFR) Part 139.337 requires certificated airports to conduct a WHA if any of the following “triggering” events occur on or near the airport:

- An air carrier aircraft experiences multiple wildlife strikes;
- An air carrier aircraft experiences substantial damage from striking wildlife;
- An air carrier aircraft experiences an engine ingestion of wildlife; or
- Wildlife of a size, or in numbers, capable of causing any of the previous events, is observed to have access to any airport flight pattern or aircraft movement area.

According to the FAA Wildlife Strike Database, Monterey Peninsula Airport (MRY) has experienced all four “triggering” events; therefore, it was required to conduct a WHA. In 2011, a WHA was completed for MRY to identify potential hazards to aircraft and human safety associated with wildlife movements on and adjacent to the airport. The intent of the WHA was to provide the FAA with sufficient information regarding potential wildlife hazards and to determine whether the preparation of a Wildlife Hazard Management Plan (WHMP) is warranted.

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Upon approval of the WHA in a letter dated August 5, 2011, the FAA has determined the need for a WHMP for the airport. As a result, the WHMP for MRY further analyzes the findings of the WHA and delineates the responsibilities, policies, procedures, and regulations necessary to reduce identified wildlife hazards on and adjacent to the airport.

## **WILDLIFE HAZARDS TO AVIATION**

The aviation community has long recognized that wildlife can present a variety of problems that affect aircraft operations. The forced emergency landing of U.S. Airways Flight 1549 in the Hudson River on January 15, 2009, demonstrated to the public that wildlife strikes, in this particular instance with birds, are a serious aviation safety issue. Between 1990 and 2009, 99,411 wildlife strikes involving civil aircraft were reported to the FAA. **Table 2A** provides a breakdown of the wildlife groups that accounted for the reported strikes.

<b>TABLE 2A</b>					
<b>Reported Wildlife Strikes (1990-2009)</b>					
<b>Year</b>	<b>Strikes by Wildlife Group</b>				<b>Annual Strikes</b>
	<b>Birds</b>	<b>Terrestrial Mammals*</b>	<b>Reptiles*</b>	<b>Bats</b>	
1990	1,737	52	0	4	1,793
1991	2,252	54	0	3	2,309
1992	2,351	73	1	2	2,427
1993	2,391	67	0	6	2,464
1994	2,458	82	1	2	2,543
1995	2,640	84	8	5	2,737
1996	2,838	91	3	1	2,933
1997	3,350	95	14	1	3,460
1998	3,654	111	7	3	3,775
1999	5,001	96	1	7	5,105
2000	5,863	124	3	16	6,006
2001	5,636	139	8	8	5,791
2002	6,045	119	15	19	6,198
2003	5,850	127	5	20	6,002
2004	6,401	127	6	27	6,561
2005	7,076	132	7	27	7,242
2006	7,036	143	10	49	7,238
2007	7,516	175	7	53	7,751
2008	7,368	183	5	46	7,602
2009	9,163	233	10	68	9,474
<b>Totals</b>	<b>96,626</b>	<b>2,307</b>	<b>111</b>	<b>367</b>	<b>99,411</b>
* Species with body masses less than 2.2 pounds are excluded					
Source: Federal Aviation Administration and U.S. Department of Agriculture					

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As presented, birds were involved in 97.2 percent of the strikes reported, terrestrial mammals in 2.3 percent, bats in 0.4 percent, and reptiles in 0.1 percent. The number of wildlife strikes reported annually has increased five-fold from 1990 to 2009. In addition, the 25 percent increase in reported strikes from 2008 to 2009 was the largest one-year increase during the timeframe. It can be assumed that the emergency landing of U.S. Airways Flight 1549 in the Hudson River attributed to the significant increase in wildlife strikes reported in 2009 due to increased awareness of the wildlife strike issue and cooperation within the aviation industry to report wildlife strikes. Other factors that contribute to this increasing threat are growing populations of wildlife and increasing aircraft operations by quieter, turbofan-powered aircraft.

Wildlife strikes have caused catastrophic accidents that involved the loss of human lives. Globally, 229 people have been killed and 210 aircraft have been destroyed during the past 20 years as a result of wildlife strikes. Furthermore, these strikes annually cost the aviation industry in the United States at least \$500 million in direct damage and associated costs and over 500,000 hours of aircraft down time.

It is very evident that wildlife has historically and continues to pose a major safety hazard to aviation in the United States and globally. Although the number of reported wildlife strikes has increased in recent years, the FAA estimates that the total number of strikes reported only represents approximately 20 percent of the number of strikes actually occurring across the country. As a result, it is important for airports such as MRY to continue to monitor wildlife movements that could affect aircraft operations and devise programs and procedures to minimize the safety hazards that certain species of wildlife present on and adjacent to the airport.

## ***AIRPORT FACILITIES***

The airport contains an array of development that can be divided into two distinct categories: airside facilities and landside facilities. Airside facilities include those directly associated with aircraft operations, while landside facilities include those necessary to provide an interface between surface and air transportation and support aircraft servicing, storage, maintenance, and operational safety.

Airside facilities generally include, but are not limited to, runways, taxiways, connecting taxiways, airfield lighting, and navigational aids. As depicted on **Exhibit 2A**, MRY is served by two runways. The primary runway, Runway 10R/28L, is 7,616 feet long and 150 feet wide and constructed of grooved asphalt. This runway is predominantly used by the commercial service and business jet activity at the airport. Runway 28L has a displaced threshold of 1,000 feet. A displaced threshold is located at a point on the runway, other than the designated beginning of the runway, for landings. The portion of the runway behind the threshold is available for take-

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offs in both directions and landings from the opposite direction. The parallel runway, Runway 10L/28R, is 3,513 feet long and 60 feet wide.

Each runway at the airport is provided a minimum of one straight-in instrument approach procedure. Of these, the instrument landing system (ILS) is a precision approach offered to Runway 10R. A medium intensity approach lighting system with runway alignment indicator lights (MALSR) supports this approach and extends approximately 2,200 feet west of the approach end of Runway 10R.

In addition to the runways, there is also an extensive taxiway system to provide access to the various facilities at the airport. **Table 2B** summarizes the basic runway data for MRY.

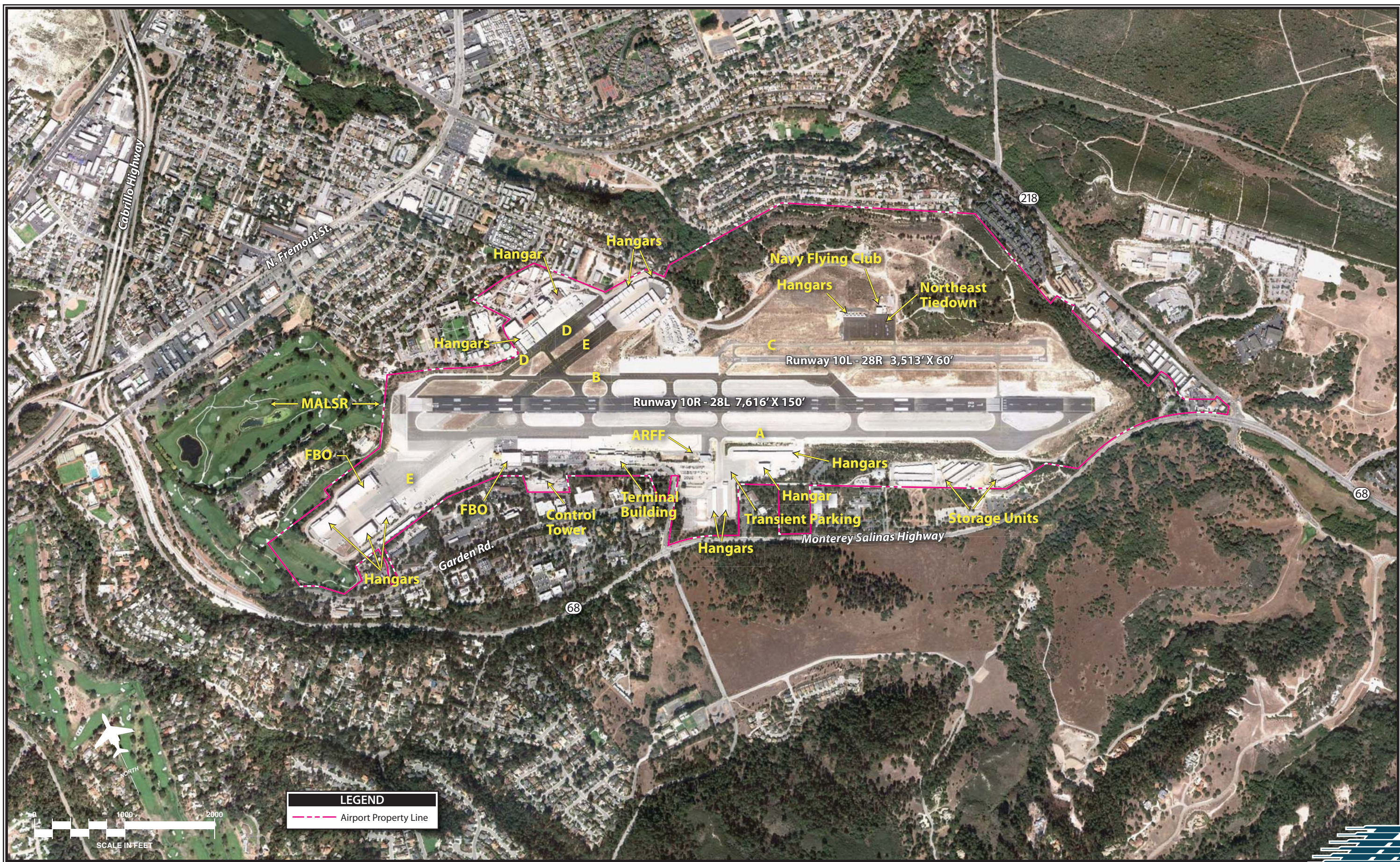
TABLE 2B Runway Data Monterey Peninsula Airport				
	EXISTING RUNWAYS			
	10R	28L	10L	28R
Length (feet)	7,616		3,513	
Width (feet)	150		60	
Surface Material	Asphalt, Grooved		Asphalt	
Approach Aids	MALSR PAPI	VASI REIL	None	None
Instrument Approach Procedures	ILS or LOC RNAV (GPS)	LOC/DME RNAV (GPS)	RNAV (GPS)	GPS
Displaced Threshold (feet)	0	1,000	0	0
MALSR	Medium Intensity Approach Light System with Runway Alignment Indicator Lights			
PAPI	Precision Approach Path Indicator			
VASI	Visual Approach Slope Indicator Lights			
REIL	Runway End Identifier Lights			
ILS	Instrument Landing System			
LOC	Localizer			
RNAV	Area Navigation			
GPS	Global Positioning System			
DME	Distance Measuring Equipment			
Source: FAA Form 5010-1, <i>Airport Master Record</i>				

Landside facilities are essential to the daily operation of the airport and consist primarily of those facilities required to accommodate aircraft, pilots, and passengers while they are at the airport. Landside facilities at MRY are depicted on **Exhibit 2A**.

The airport terminal building houses Monterey Peninsula Airport District administrative offices and services for commercial airline activities. Passenger facilities include airline ticketing desks, baggage return area, rental car agents, a full service restaurant, departure area café, and a gift shop.

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Three fixed base operators (FBOs), each providing a wide range of aviation-related services, are located at MRY. The current FBOs include Del Monte Aviation and Monterey Jet Center located west of the terminal building, and a general aviation facility located on the north side of the airport. Fuel, avionics repair, aircraft maintenance, flight instruction, aircraft rental, and aircraft parking services are available from these tenants. Additionally, the airport has an airport rescue and firefighting (ARFF) station located on-site to provide fire suppression services in case of an emergency.

## ***ADJACENT LAND USE***

As indicated on **Exhibit 2B**, the land uses surrounding the airport include a mix of residential, commercial, and industrial properties. Directly north of the airport is residential development located within the City of Del Rey Oaks. This area consists primarily of single-family residential dwellings and a multi-unit dwelling complex on the northeast side of the airport. There are also industrial and commercial developments located within the City of Del Rey Oaks located along Canyon Del Rey Boulevard. Also on the north side of the airport is the City of Monterey's Casanova-Oak Knolls neighborhood, which includes single-family residential properties and multi-family residential properties. Directly west of the airport is the Monterey Pines Golf Course and the Monterey County Fairgrounds complex. Immediately to the south of the airport on Garden Road are several industrial and commercial locations that include offices and warehouses. East of the airport is the Ryan Ranch development, which consists of industrial and commercial land uses.

## ***EXISTING ENVIRONMENT***

MRY is situated approximately 1.5 miles east of the Monterey Bay shoreline and within the Pacific Flyway. The Pacific Flyway is a major north-south route of travel for migratory birds, extending from Alaska to South America. Migratory birds utilize this corridor both in the spring and fall, following food sources, heading to breeding grounds, or traveling to wintering sites.

A large variety of wildlife live in the vicinity of MRY, and many species of birds pass through the area during their seasonal migrations within the Pacific Flyway. The airport has retained the United States Department of Agriculture (USDA) Wildlife Services in the past to investigate and manage coyotes and black-tailed deer within airport property. Furthermore, small mammals such as the California ground squirrel have been observed in areas adjacent to the runways and taxiways. Numerous species of birds have also been identified on and adjacent to the airport.

The geographic location of MRY within the Pacific Flyway and the wildlife habitats on and adjacent to the airport provide for a significant wildlife presence that includes both resident and seasonal population. From September 1990 through December 2010, 20 wildlife strikes have

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been reported at MRY. Of these 20 reported strikes, 19 involved bird species, while one included foxes on the runway. These strikes did not result in any human injuries; however, aircraft damage did occur in a few instances.

## ***WILDLIFE HAZARD ASSESSMENT***

As previously discussed, a WHA was completed in 2011 for the airport that identified potential wildlife hazards to aircraft and human safety. In this section, baseline information on wildlife and wildlife habitats at MRY are summarized and evaluated in relation to potential aviation safety concerns to fulfill the requirements of 14 CFR Part 139.337.

### **WILDLIFE STRIKES**

Wildlife strike records at airports across the United States have shown that birds and mammals can pose a serious threat to aviation safety by being present on the airport or within the flight path of aircraft adjacent to the airport. Wildlife strikes are almost always fatal to the animal and can cause costly damages and delays to aircraft and potential loss of human life.

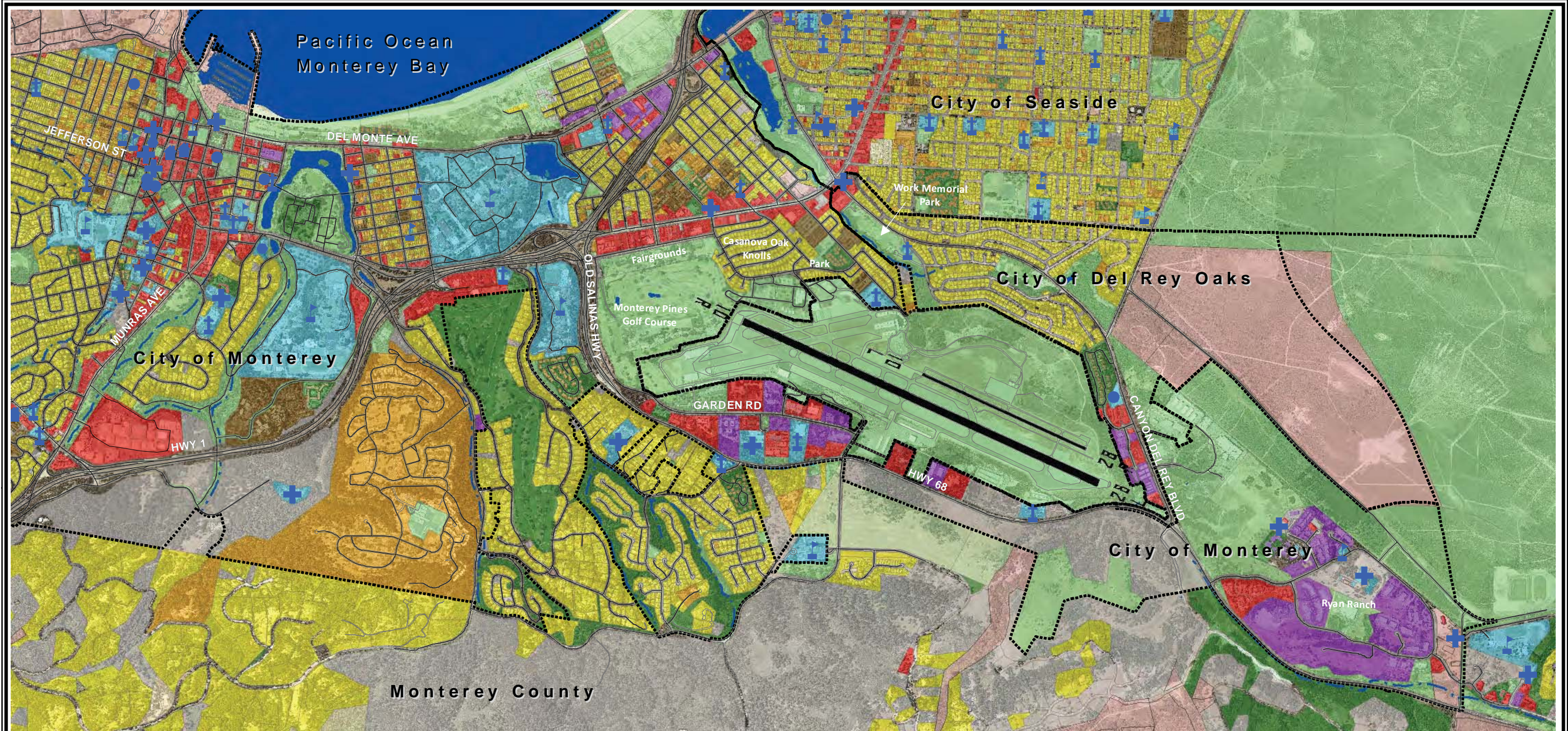
Historically, approximately 40 percent of bird strikes involving commercial service and general aviation aircraft occurred when the aircraft was still on the ground, and approximately 75 percent of total strikes occurred at or below 500 feet above ground level (AGL). Overall, the majority of bird strikes have occurred at or below 3,500 feet AGL. Terrestrial mammal strikes have predominately occurred when the aircraft was still on the ground; however, nine percent of the reported strikes occurred when the aircraft was in the air and struck the animal with its landing gear.

As previously stated, between 1990 and 2010, 20 wildlife strikes were reported at MRY. The following summarizes the documented strikes during this timeframe:

- Of the 20 total strikes, 15 (75 percent) involved commercial aircraft and five (25 percent) involved a private aircraft.
- No damage was reported on 17 (85 percent) of the strikes. Minor damage was reported on two (10 percent) of the strikes. Substantial damage was reported with one (5 percent) strike.
- Bird species were involved in 19 (95 percent) of the reported strikes. The remaining one (5 percent) strike involved foxes on the runway, which resulted in an aborted takeoff.

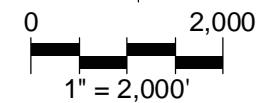
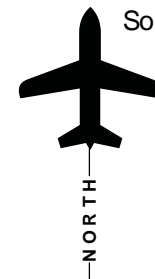
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## LEGEND

..... Municipal Boundary	Commercial	Noise-Sensitive Institutions
- - - - - Airport Boundary	Industrial	Place of Worship
Rural Density Residential	Public	Medical Facility
Low Density Residential	Planned Unit Development	Schools/Day Schools
Medium Density Residential	Park and Open Space	Fraternal Organization
High Density Residential	Vacant / Undeveloped	Theaters
Manufactured Housing	Water	Libraries and Museums



Source: Monterey County Assessor's Database.  
Ortho-photography provided by Central Coast Joint Data Committee, Dated June and October 2003.





- Gulls made up 50 percent of identified species recorded in the strike reports. No other species or groups have been recorded more than once. On two occasions, flocks of more than two gulls were struck at one time, and large flocks of 11 to 100 gulls have been documented on two separate occasions. Forty-five percent of the strike reports do not identify the species that was struck.

**Table 2C** provides data on when wildlife strikes occurred at MRY according to the FAA's National Wildlife Strike Database. Of the 20 reported incidents, 13 occurred between November and February. With the exception of June, the spring and summer months have the smallest number of reported incidents. The increase in strikes from November through February is consistent with survey data included in the WHA, which shows an increase in bird activity through the fall and winter migration periods. The elevated number of strikes in the month of June included species of birds including the American crow, which are residents in the area and provide a daily presence on and adjacent to the airport.

<b>TABLE 2C</b> <b>Reported Strikes per Month</b> <b>September 1990- December 2010</b> <b>Monterey Peninsula Airport</b>	
Month	Number of Strikes
January	3
February	2
March	1
April	0
May	0
June	3
July	0
August	1
September	1
October	1
November	5
December	2
Source: MRY Wildlife Hazard Assessment (FAA National Wildlife Strike Database)	

## WILDLIFE HABITATS AND ATTRACTANTS

Wildlife species are attracted to areas on and adjacent to MRY because one or more of their basic needs are available. These basic needs include food, water, and shelter. In addition, the geographic location of the airport within the Pacific Flyway and the wildlife habitats on and adjacent to the airport provide for a significant wildlife presence that includes both resident and seasonal population.

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The vegetative communities and wildlife habitats on and adjacent to MRY include central maritime chaparral, coast live oak woodland, and ruderal (short grass) vegetation. In addition, developed areas including aircraft movement areas, building development, and parking lots also attract wildlife. There are additional attractants within five miles of the airport that include water/wetlands, wooded areas, grasslands, parks and recreational areas, and residential/commercial/industrial developments. **Exhibit 2C** further breaks down the general habitat types that occur in the vicinity of MRY.

## **Food**

Rodents, insects, earthworms, and other invertebrates are highly attractive food items to many species of birds and mammals. Ground squirrels, woodrats, and mice have been observed at MRY, and these attract hawks and coyotes, among other predators. Insects and other invertebrates can attract many species of wildlife, particularly blackbirds and crows. Open fields, parks, and golf courses on and adjacent to the airport provide feeding and loafing habitat for many bird species, especially Canada geese. Numerous hotels and restaurants near the airport have also contributed as a food source to different wildlife species with the trash, handouts, and scattered refuse near their dumpster areas.

## **Water**

Water, including associated wetlands, ditches, ponds, Monterey Bay, and other features, is an attractant for hazardous wildlife in the vicinity of MRY. The airport is situated approximately 1.5 miles east of Monterey Bay, which makes up a large majority of the open water area near the airport. Golf courses and parks adjacent to the airport, particularly the Monterey Pines Golf Course, also support water features that attract a variety of bird species. The U.S. Fish and Wildlife Service's National Wetlands Inventory indicates the presence of three potential wetland areas located on the north side of airport property that could attract several wildlife species. A detention basin used to contain and treat stormwater runoff is also located at the southwest corner of airport property and attracts several types of birds, including gulls and crows. Several other bodies of water within a short distance of the airport attract bird species which occasionally transition through the airport traffic patterns designated for arriving and departing aircraft.

## **Shelter**

Wide varieties of natural and man-made features on and adjacent to the airport provide shelter and cover for wildlife species. As previously mentioned, a variety of vegetative cover, including central maritime chaparral, coast live oak woodland, and ruderal (short grass) vegetation is located on the airport. These habitats generally provide shelter for wildlife capable of utilizing developed areas and those that prefer more natural habitats. A wide variety of structures on the airport, including the airport terminal building, aircraft hangars, parking lots, light poles,

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Category	Area in Acres
Airport Property	498
Water/Wetlands	10457
Residential/Commercial/Industrial	5094
Parks/Recreational	2866
Trees and Shrubs	32240
Grassland and Open Space	8770
<b>Total</b>	<b>59925</b>

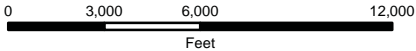
# Monterey Peninsula Airport

## Legend

- Street
- Monterey Peninsula Airport
- Area of Interest
- Water/Wetlands
- Parks/Recreation
- Trees and Shrubs
- Grassland and Open Space
- Residential/Commercial/Industrial

## Source:

Aerial Photography is dated 2009 and downloaded from the National Agricultural Imagery Program.  
Wetlands data from the US Fish and Wildlife Service.  
Airport boundary from the Monterey Peninsula Airport Layout Plan.  
Coffman Associates land use classification determined by reclassification of 2009 NAIP Natural Color imagery.



MONTEREY PENINSULA AIRPORT DISTRICT

Exhibit 2C  
WILDLIFE HABITAT MAP



fences, and navigational aids, can provide cover, nest sites, and perches for wildlife species. Activities in residential, commercial, and industrial areas also attract several types of birds, including pigeons, blackbirds, and doves. These man-made structures such as signs and rooftops primarily provide a perching habitat.

## **HAZARDOUS WILDLIFE AT MONTEREY PENINSULA AIRPORT**

As a part of the WHA, several surveys were completed over the course of a one-year period at MRY to observe and count the types and number of wildlife species present on and adjacent to the airport. The results of the survey yielded a significant number of wildlife guilds that include:

- Avian
- Small Mammals
- Coyotes
- Black-tailed Deer

### **Avian Guild**

The most common wildlife observed during a one-year period at MRY were birds. A total of 13,333 birds were observed at the airport from January 2010 through January 2011. The numbers and species of birds observed fluctuated across the seasons. Some species were present during certain months and absent during other months, while others were more resident in nature and observed throughout the year. The months experiencing the highest total of bird counts were January, February, October, November, and December. These results are consistent with the occurrences of reported wildlife strikes presented earlier. **Table 2D** provides a summary of the avian point-count results by guild.

#### *Corvids*

The corvid guild represented 28 percent of the observations during the one-year timeframe, which was the most of all observed guilds. The American crow, western scrub jay, and Stellar's jay were the corvid species observed during the surveys. Of these, the American crow was the most commonly observed species.

American crows routinely used a flight path that crosses the west end of the airport, and on several occasions, over 100 of them were observed flying through the airport's traffic patterns. The movement of American crows tended to increase in the morning and evening hours. In the late spring and early summer months, the crows were observed congregating in the airfield operation area and foraging between the runway and taxiway system.

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### *Shorebirds*

The shorebird guild accounted for 14 percent of the documented observations at the airport and included the double-crested cormorants, killdeer, and black-bellied plover. The killdeer and black-bellied plover were regularly observed using the infield areas at MRY standing on the runways or making short flights across the runways.

Killdeer were observed throughout the year; however, the number of individuals observed increased in the fall. Black-bellied plover were observed mainly during the fall and winter migration seasons.

### *Waterfowl*

The waterfowl guild consisted of 13 percent of total avian observations during the survey period; however, very few of the observations were made on airport property. Most of the waterfowl were observed west of airport property at the Monterey Pines Golf Course and El Estero Park, both of which contain man-made water features. Canada geese were the most abundant bird species representing the waterfowl guild. These geese were observed to typically move between public parks at altitudes well below the flight path of aircraft utilizing MRY. It should be noted that when these geese utilize Monterey Pines Golf Course, they could pose a safety risk to aircraft arriving from the west due to the close proximity of the golf course to the Runway 10R threshold.

### *Blackbirds/Starlings*

The blackbird/starling guild accounted for 13 percent of the survey observations and was represented by Brewer's blackbird, the red-winged blackbird, and European starling. Most of these observations included small groups of either European starlings or Brewer's blackbirds foraging in the infield areas or flying through MRY airspace. In some instances, very large groups of these birds in excess of 100 were observed. European starling and blackbird foraging and other movements increased during the fall and winter months.

### *Gulls*

As previously discussed, gulls accounted for 50 percent of the reported wildlife strikes at MRY over the past 20 years. Gulls accounted for 11 percent of the WHA observations for avian activity, the majority of which were observed to be perching on various airport structures or flying over airport property. The majority of gulls observed were west of the airport at El Estero Park. On certain occasions, groups of gulls were observed soaring in the airspace above the park at higher elevations that could potentially interfere with aircraft approaching MRY from the west.

### *Other Guilds*

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Several other avian guilds were observed on or adjacent to the airport that accounted for approximately 20 percent of the total observations. Of these, the raptor and wading bird guilds present the biggest safety hazard to aircraft given their size. Wading birds observed included the black-crowned night heron, great blue heron, great egret, and American bittern. Most of these birds were located west of the airport and rarely entered the airport's airspace.

The raptor guild that was documented during surveys included the red-tailed hawk, American kestrel, white-tailed kite, great horned-owl, and turkey vulture. Unlike the wading birds, raptors were routinely observed on and above the airport in search of food in the infield areas. Turkey vultures were typically observed soaring in the airspace to the southeast of the airport when winds were in excess of 15 miles per hour.

Although not observed during WHA surveys, airport personnel have observed wild turkeys in different areas on the airfield. The turkeys were in small groups, usually traversing the north-east and southeast areas of airport property; however, they have been observed in the south-west area of the airport as well.

**TABLE 2D**  
**Avian Point Count**  
**January 2010 - January 2011**  
**Monterey Peninsula Airport**

Avian Guild	Number of Individuals Observed	Average Group Size	Percentage of Overall Count
Corvid	3,760	6	28
Shorebird	1,826	11	14
Waterfowl	1,694	15	13
Blackbird/Starling	1,676	10	13
Gull	1,408	11	11
Ground Forager	631	3	5
Columbid	577	6	4
Aerial Insectivore	551	3	4
Foliage Gleaner	273	3	2
Raptor	255	1	2
Hummingbird	100	1	<1
Wading Bird	25	1	<1
Woodpecker	11	1	<1
Unknown Birds	546	7	5
<b>Total Birds</b>	<b>13,333</b>	<b>6</b>	<b>100</b>

Source: MRY Wildlife Hazard Assessment

## Small Mammals

During the WHA, small mammal trapping, spotlight surveys, and routine visual surveys were conducted on small mammals. During these occasions, the California ground squirrel, Monte-

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rey dusky-footed woodrat, California mice, and deer mice were either captured or observed. These small mammals were most commonly found to be in ruderal (short grass) vegetation adjacent to the runways and taxiways. The presence of these animals attracts large raptor species previously discussed.

### **Coyotes**

While coyotes were never physically observed during the one-year survey period, several signs on the airport point to the fact that coyotes utilize the facility as a movement corridor. Coyote tracks and scat were observed in the eastern area of airport property and several breaches were noted in the perimeter fence that coyotes are using to enter airport property. No evidence was observed to indicate that the coyotes are using airport property for foraging or building dens.

### **Black-tailed Deer**

Individual black-tailed deer were observed on airport property on several occasions during the survey period. These animals appear to be jumping the perimeter fence and entering the airfield during nighttime conditions. During a spotlight survey, a doe and a buck were observed within the perimeter fence on the north side of the airport and by airport personnel.

## **WILDLIFE HAZARD SUMMARY**

Based upon the WHA, **Table 2E** presents a summary of the potentially hazardous wildlife movements at MRY. These movements have a reasonable potential to result in an aircraft/wildlife incursion and include large mammals moving through the airport operation areas, avian flight paths crossing into aircraft traffic patterns, and flocking birds congregating within airport property. **Exhibit 2D** depicts these wildlife movements at MRY as observed during the WHA's one-year survey period and by airport personnel daily inspections.

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Source: Wildlife Hazard Assessment  
Completed by SWCA Environmental Consultants  
and Airport Personnel Observations



<b>TABLE 2E</b> <b>Wildlife Hazard Summary</b> <b>Monterey Peninsula Airport</b>		
<b>Wildlife Guild</b>	<b>Hazardous Movements</b>	<b>Seasons/Conditions</b>
Waterfowl	Canada geese and other waterfowl congregate at ponds located on Monterey Pines Golf Course.	All year. Increased activity in the fall and winter.
Raptors	Red-tailed hawks and other raptors forage in the infield areas and perch on various airport structures. Turkey vultures soar within MRY's airspace.	All year.
Shorebirds	Killdeer and black-bellied plover forage in the infield areas and stand on the runways.	All year.
Gulls	Most prevalent west of the airport but occasionally perch on airport structures.	All year. Increased activity in the fall and winter.
Blackbirds/Starlings	These birds forage in the infield areas and regularly roost on the northwest side of the airport.	All year. Increased activity in the fall and winter.
Turkeys	Observed mainly on the northeast and southeast areas of the airport in small groups.	Observed by airport personnel beginning in March 2012.
Coyote	Use east end of the airport as a movement corridor.	All year.
Black-tailed Deer	Use north side of the airport.	All year.
Source: MRY Wildlife Hazard Assessment		

## WILDLIFE HAZARD RECOMMENDATIONS

Based upon the findings of the WHA, the following recommendations have been made for MRY to address the potential wildlife hazards that occur on and adjacent to the airport. These recommendations should be prioritized based on feasibility with respect to cost of implementation, availability of FAA grant funding, and equipment and/or personnel available while considering the potential risk of hazards to aircraft safety. The WHMP, at a minimum, should provide a means for implementing these management recommendations as follows:

- Designate a Wildlife Coordinator to monitor and manage wildlife.
- Improve wildlife strike reporting.
- Train personnel to be trained in wildlife identification and abatement in order to implement proper hazing techniques.
- Obtain a U.S. Fish and Wildlife Service Migratory Bird Depredation Permit.
- Alter the short grass infields by installing artificial turf, as funding is available, and implementing an infield management program to control the California ground squirrel.

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- Repair and modify airport perimeter fencing to control coyotes and black-tailed deer.
- Utilize the Automated Terminal Information Service (ATIS) to warn pilots of hazardous wildlife movements.
- Implement community outreach techniques to gain neighboring support in controlling wildlife in the area.
- Monitor detention pond located at the southwest corner of the airport that includes removing sediment and vegetation, and installing netting to prevent wildlife access.

The remainder of this study will outline a series of wildlife management techniques based upon the recommendations listed above. A system for field monitoring and reporting will be formulated, best management practices will be used, and an annual work plan will be formulated and documented. A list of supplies and training will also be outlined in order to implement the recommended wildlife management practices.

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**Element 3**

## **Wildlife Management Strategies and Techniques**



## **Element Three**

### **WILDLIFE MANAGEMENT STRATEGIES AND TECHNIQUES**

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Wildlife management techniques are utilized at airports to discourage, disperse, and remove wildlife species of concern from high risk areas on the airfield. Their implementation encompasses the continual efforts routinely employed by airport staff to ensure that the airfield and adjacent airspace is as free of potential wildlife hazards for aircraft operations as is practicable.

Wildlife management operations are generally related to the situation of the moment, responding to any perceived threat to aircraft safety posed by wildlife species of concern. A key to successful wildlife hazard management is persistence and innovation on the part of airport staff implementing wildlife strategies and techniques at a particular facility. Airport wildlife personnel should select the appropriate control techniques according to biological, sociologic, economic, and political factors. The most common control techniques retain their effectiveness if they are used discreetly and in conjunction with other methods. The wildlife management control method(s) chosen at an airport will depend largely on the situation at hand and the particular species involved.

Wildlife management strategies and techniques in this element are intended to remedy wildlife hazards and discourage or remove hazardous wildlife from the airport operations area (AOA) to increase aircraft safety by keeping the airport and adjacent airspace as safe as possible. Ultimately, Monterey Peninsula Airport(MRY) staff will select appropriate control methods based on the safety, feasibility, environmental, and social effectiveness of the technique with regard

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to the specific wildlife hazard. Periodic coordination with the Wildlife Hazard Working Group (WHWG) will also be important in carrying out appropriate wildlife management strategies and techniques. In any event, caution should be given to aviation activities to prevent interfering with aircraft operations and proper coordination should be maintained with airport traffic control tower (ATCT) personnel.

## ***BASIC WILDLIFE CONTROL STRATEGIES***

A variety of control strategies, equipment, and resources are currently used to disperse wildlife attempting to utilize airports for food, water, or shelter. The wildlife management techniques used in any given situation will vary depending on the nature of the wildlife threat and the associated risk. The ultimate goal is to achieve the most efficient means of wildlife dispersal.

The five basic strategies airports can use to manage hazardous wildlife at or near the airport include:

- Habitat modification – reduction or elimination of food, water, or shelter that attract wildlife at or near an airport.
- Exclusion – use of physical barriers to stop wildlife from gaining access to food, water, or shelter at or near an airport.
- Repelling techniques – use of various audio, visual, or chemical repellents to harass and repel wildlife hazards.
- Population management – reduction or elimination of wildlife populations that are posing a hazard to aircraft at or near the airport by capturing and/or killing the animals posing a threat to aircraft safety.
- Flight schedule modification – delaying or advancing flight schedules or changing or closure of active runways in order to avoid potential known wildlife hazards.

The following presents these control strategies that are applicable to both birds and mammals. To maximize effectiveness, an airport may need to use a combination of control strategies to deal with wildlife, based upon available resources including personnel, funding, and specific wildlife issues.

## **HABITAT MODIFICATION**

Habitat modification includes the physical removal, exclusion, or manipulation of features or characteristics (both natural and man-made) that are attractive to wildlife species of concern. The objective of this strategy is to make the airfield less attractive to wildlife, thereby reducing

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the probability of a wildlife strike. Any action that reduces or removes food, water, and shelter from an airport may result in a proportionate reduction in wildlife population.

Habitat modification techniques must be a foundation of every airport's wildlife hazard management program, as it is generally the most effective long-term remedial measure for reducing wildlife hazards on or near the airfield. In order to minimize the risk to aviation safety posed by certain wildlife species at MRY, modifying habitats on airport property while also discouraging land use practices on non-airport property adjacent to MRY (i.e., Monterey Pines Golf Course) that can contribute to unacceptable wildlife hazards should be considered.

## **Food**

Airport personnel should be aware of food attractants for birds and other mammals that exist on and in proximity to the airport. Common food sources for birds include handouts from people in parks, animal feed mills, stormwater detention basins, sewer treatment plants, and improperly stored food waste in dumpsters around restaurants, hotels, and grocery stores. It has been noted that numerous hotels and restaurants in close proximity to MRY do not keep their dumpsters covered, and the dumpsters have become attractions for several bird and mammal species.

## **Water**

Due to water serving as a major attractant to wildlife, airport personnel should eliminate standing water to the greatest extent possible. Depressions in paved or vegetative areas that collect water after a rain event should be filled in or modified to allow for rapid drainage. The presence of any water at MRY is important due to its close proximity to the Pacific Coast since freshwater is attractive to birds for drinking and bathing. It is recommended that retention ponds, open drainage ditches, or other wetland sites not be constructed on or adjacent to an airport, if feasible and/or practicable. It should be noted that detention ponds are an essential element of the overall drainage system at MRY.

A stormwater detention basin located at the southwest corner of airport property allows for weedy vegetation and the occasional presence of standing water that attract bird species such as the American crow and western gull.

## **Shelter**

All wildlife species require shelter for resting, roosting, and reproduction. As such, airport personnel should continually monitor man-made and vegetative covers that can attract wildlife species. Managing an airport's airside ground cover to minimize bird and mammal activity should be closely monitored to determine which method works best at a particular location given the types of wildlife located on and adjacent to the airport.

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A variety of vegetative covers are located on airport property that include thick layered shrubs, wooded areas, and short grasses. Furthermore, several man-made structures including hangars, buildings, light poles, fences, and navigational aids at MRY provide for cover and potential nest sites for wildlife species.

Habitat modification can also be achieved by removing a wildlife attractant, such as the removal of a tree(s) to prevent roosting. Roosts present several problems for airports as they attract large numbers of birds, present an auditory nuisance, and contain feces build-up that is unsightly and may contain various diseases. If tree removal is not feasible, thinning tree branches in a tree makes it less attractive for roosting. As observed during the Wildlife Hazard Assessment (WHA), a Monterey cypress tree located adjacent to the northwest corner of airport property (not on airport property) is a popular roost for blackbirds and starlings at MRY. Consideration should be given to minimizing the use of this roost area, which in turn, could reduce the number of blackbirds and starlings that frequent airport property.

## **EXCLUSION**

When food, water, or shelter cannot be removed by habitat modification, exclusion through the use of physical barriers can be implemented to deny wildlife access to a particular area. Exclusion techniques are approached differently when dealing with birds and mammals.

Physical exclusion devices include spike strips, doors, nets, floating devices, and plastic strips that deter or prohibit perching or entry. While sometimes effective on a small scale, they can be cost-prohibitive on a large scale. Exclusion devices should be installed when birds or mammals are not presently occupying the area to be excluded.

For building facilities, installing tubular steel beams, curtains made of heavy plastic sheeting, and anti-perching devices such as spikes can stop or discourage birds from using certain areas. In addition, changing the angle of building ledges to 45 degrees or more can also deter birds. Incorporating these techniques during a building's design and construction phase can provide the most effective, long-term solution for bird exclusion or deterrence.

Reducing waterfowl and gull use of stormwater detention ponds and drainage ditches can be achieved by implementing overhead wire systems that distract and interfere with the birds' ingress and egress to the facility. Wire grid systems have been demonstrated to be most effective and applicable on ponds less than two surface acres in size. When it is not possible to drain a detention pond, the installation of netting or the use of "bird balls" or floating mats will exclude birds while also allowing evaporation of water. Designing ponds with steep slopes can discourage wading birds. It is recommended that culverts be used in drainage ditches whenever feasible to eliminate bird access and visibility to possible habitats and attractants.

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Mammals can pose a serious threat to aircraft safety. As such, a “zero tolerance” policy should be implemented for deer, livestock, and other large mammals on the airfield. The best procedure for excluding these animals is through proper fencing. It is recommended that a 10- to 12-foot chain link fence with three-strand barbed wire outriggers separate aircraft operations area from wildlife movements on and adjacent to the airport.

MRY is enclosed with perimeter fencing but large and medium-sized mammals such as black-tailed deer and coyotes, in addition to turkeys, have been observed during the WHA breaching the fencing and gaining access to the airfield. The proper installation, maintenance, and patrolling of the perimeter fencing should be a priority for airport personnel.

## **REPELLING TECHNIQUES**

Repelling and harassment techniques create psychological barriers by making an area or resource unattractive to wildlife or by making wildlife uncomfortable or fearful. It should be noted that repelling techniques do not compare favorably with habitat modification or exclusion techniques due to their cost-effectiveness over the long term, as wildlife species will continue to return to an area of attractiveness as long as it is accessible.

Repellents typically work by affecting an animal’s senses, and when used repeatedly without added reinforcement, wildlife can soon learn that the repellent devices and techniques are harmless and they may eventually ignore them, leading to habituation. For repelling and harassing techniques to be successful, it is important to properly train and equip airport personnel who understand the wildlife situation on and adjacent to the airport. Furthermore, consideration of adjacent land uses should be clearly understood prior to using certain repelling and harassing techniques. These techniques vary depending on their use with birds and mammals.

### **Audio Repellents**

These devices can be effective but birds and mammals tend to quickly ignore them if their fear of the techniques is not reinforced with some other strategy or technique. These methods can be labor intensive and must be maintained in order to be effective. When deterring wildlife with these devices, considerations should be made to minimize the risk of moving wildlife (especially birds) into the path of aircraft.

- **Pyrotechnics** have long been used as deterrents to birds in a variety of settings. These devices rely on an explosion or other type of loud noise and can produce a flash of light or burst of smoke to discourage birds from using a particular area. Devices include rifles and shotguns firing live ammunition or blanks that shoot exploding or noisy projectiles, including shell crackers, screamer shells, and bird bombs.

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- **Propane cannons**, also known as gas exploders, can serve to temporarily deter wildlife from airfields. This device produces a loud, intermittent explosion, usually at fixed intervals that exceed the blast of a shotgun.
- **Alarm and distress calls** are based on acoustical signals emitted by birds and other animals to convey information to other individuals of the same species. Recorded distress calls are available for common birds at airports, such as gulls, crows, and starlings. Without other means of reinforcement, most wildlife will quickly learn that distress calls and other alarm devices are harmless and will ignore them.
- **Ultrasonic devices** have proved to not be an effective wildlife repellent. Ultrasonic is the sound range above that which is detected by humans. Since most birds have a narrower range of sound frequencies than humans, chances are good that ultrasonic sounds won't be heard by birds.

## Visual Repellents

The use of visual repellents is generally practical for small areas and must be routinely altered to prevent birds and mammals from becoming accustomed to them. This method can be labor-intensive and fairly expensive, but has proven successful in dispersing certain wildlife species.

- **Predator models**, such as mounted hawks and owls, can be used to repel wildlife, mainly in the form of smaller birds. Color and animation have proved to make this technique more effective; however, typically only for the short-term.
- **Lights and mirrors** appear to have application for dispersing wildlife, mainly birds. Additional testing and studies are currently being done to better evaluate their effectiveness.
- **Effigies**, including devices such as scarecrows, scary-eyes, and predator-mimicking devices, have been demonstrated to reduce wildlife use, mainly birds, from target areas. Their effectiveness varies markedly depending on the type of effigy used, wildlife species being deterred, and the resource/site from which the wildlife is being deterred. The more realistic and colorful the features of an effigy are, the more effective it may become.
- **Reflective tapes and flags** have proved to be fairly ineffective at deterring wildlife, as habituation is considered highly likely.
- **Lasers** are a newer technique used to frighten and disperse wildlife from roosts or grazing areas. Testing has proved that birds such as crows, waterfowl, gulls, and vultures, which all have been observed at MRY, tend to avoid laser beams when targeted. This technique can

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be advantageous in deterring wildlife at long ranges without emitting a noise signal. They are more effective at night and during overcast conditions when lighting is low and when targeting structures or trees near roosting areas. Lasers have proved more successful at disrupting bird movements rather than mammals such as deer.

## Chemical Repellents

- **Anti-perching products** are available in liquid or paste form and, when applied, create a sticky surface that makes birds uncomfortable when perching or roosting. These repellents can be smeared or placed in wavy bands with a caulking gun. Birds are not entrapped by the sticky substances but dislike the tacky footing. They can be applied to a thin piece of pressed board, rigged clear plastic sheets, or other suitable material, which is then fastened to the area from which the birds are to be discouraged. This prevents any damage to the surface from the substance and speeds clean-up. In order to be effective, all potential perching areas should be treated in the problem area. The effective life of most products is six months to one year. Dust and high temperatures can reduce the useful life of this material. Tactile repellents can become unsightly as they collect debris, often necessitating clean-up and reapplication.
- **Feeding chemicals** act as a conditioned-aversion repellent for birds. Two chemicals registered as bird repellents for turf include anthraquinone and methyl anthranilate. These chemicals can be sprayed on vegetation and their effectiveness varies depending on growing conditions, rainfall, mowing, and the availability of alternative feeding areas.

Anthraquinone has been registered as a nonlethal vegetation grazing repellent in California. Birds eating food treated with anthraquinone become ill and develop a post-ingestion aversion to treated food sources and become conditioned to avoid the treated food source. Birds do not hesitate to eat the treated food since it is not a taste repellent or contact irritant. However, once the birds experience the consequences, they learn to avoid the area affected. Anthraquinone can also be visually identified in ultraviolet light, which birds can detect. It is a stable compound and virtually insoluble in water. Furthermore, it does not inhibit vegetation growth.

Methyl anthranilate is an artificial grape flavoring commonly used in foods and drinks that creates a taste aversion in birds. When this chemical repellent is applied to areas where birds feed, they are repelled by the taste. This formulation is currently registered as a repellent to protect turf from bird grazing and as a spray for airport infields to reduce bird activity. This product is also available as a paint or fogging agent and should be applied after every rain event and periodically during dry seasons to maintain effectiveness.

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Taste and odor repellents are also available for mammals such as deer. Some are applied directly to the vegetation while others are used as an odor repellent (i.e., predator urine). Their use on airfields is not recommended for mammals since they have exhibited no influence on wildlife movements.

- **Water formulations** are available for application to pools of standing water on airports and at other locations to repel birds from drinking or bathing. A methyl anthranilate formulation is commonly used in water.
- **Frightening agents** are poisons that, in sublethal doses, may cause disorientation and erratic behavior. They are typically added to bait, and only a portion of the bait presentation is treated so that a smaller number of the birds to be dispersed are affected. When the bait is ingested, a distress response occurs alerting other birds to fly away. Avitrol is a frightening agent registered for repelling pigeons, blackbirds, starlings, crows, gulls, and other common birds that frequent an airport. It should be noted that Avitrol can be administered in lethal doses as well.

**Falconry and dogs** have been an effective visual deterrent in repelling and hazing birds. Falconry is the practice of using falcons and hawks to chase other wildlife species, and then return to the handler. It is regulated under both federal and state laws. The advantage of falconry is that birds at an airport are subjected to a natural predator which they fear. Falconry is very expensive, as the care and handling of such birds is labor-intensive and time-consuming.

Trained dogs, such as border collies, can chase geese, turkeys, and other birds from the airfield as they also serve as a natural predator to wildlife. Dogs will have little influence on birds that are overflying an airport. Similar to falconry, the use of dogs can be expensive when considering the training and upkeep involved.

**Radio-Controlled Model Aircraft** provide both a visual and auditory stimuli that can be used to harass wildlife, mainly birds, on an airfield. In addition, they can be designed to appear as a predator such as a falcon and, in some cases, carry pyrotechnics to discharge during flight.

**Non-Lethal Projectiles** can be fired from a paint-ball gun or shotgun, inflicting temporary pain but no injury, to the wildlife species being struck. Several types of rubber or plastic projectiles, including paint balls, slugs, buckshot, pellets, and beads can be used. The proper distance for firing varies by projectile and the species being targeted.

## POPULATION MANAGEMENT

As previously indicated, habitat modifications, exclusion, and repellent techniques typically will not solve all wildlife hazards on an airport; therefore, hazardous wildlife sometimes must be

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removed from an airport. As such, population management involves the removal of hazardous wildlife by capturing and relocating target animals or by lethal means. Similar to other wildlife management strategies, population management techniques will vary depending on the type of wildlife being targeted, mainly birds and mammals. Important considerations when practicing population management techniques include:

- A federal Migratory Bird Depredation Permit, and often a state permit is required before taking (“to capture or kill” or “to attempt to capture or kill”) a migratory bird.
- A state permit is necessary before taking any state-protected birds or mammals.
- Capturing or killing must be done humanely and only by people who are trained in identification of wildlife species and appropriate techniques for taking.

### Live Capture

- **Chemical capture** involves incorporating chemicals, most notably alpha chloralose (A-C), to capture bird species such as waterfowl and pigeons. A-C is a chloral derivative of glucose and a central nervous system depressant used as an immobilizing agent. It is typically delivered in small quantities and placed into bread and corn baits to selectively capture certain types of bird species. Bread baits are common for capturing ducks and geese that can be hand-fed at urban ponds and lakes, while corn baits are recommended for pigeons or groups of waterfowl that cannot be individually baited. Birds ingesting a chemical dose of A-C can typically be captured within 30 to 90 minutes from ingestion and fully recover after four to 24 hours. Use of A-C can only be applied by the United States Department of Agriculture (USDA) – Wildlife Services and is limited to the species and methodologies approved by the Federal Drug Administration.

Mammals such as deer can be captured with tranquilizer guns; however, the live capture of deer is not recommended or allowed in most states because deer populations are at or near capacity. When practiced in the AOA, it is important to consider safeguards to ensure partially tranquilized deer do not enter runway areas.

- **Live trapping** allows for selectivity in such that non-targeted birds and mammals can be released unharmed. This technique includes the use of cage traps, walk-in traps, drop-door traps, decoy traps, box traps, pole traps, and leg-hold traps. Basket or box-type traps should be used to capture medium-sized mammals such as raccoons, skunks, beavers, and feral dogs. Leg-hold traps are often effective in capturing coyotes. Live capturing of large mammals such as deer is not recommended. Furthermore, state and local regulations may restrict the use of certain types of traps.

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Drop nets and net launchers are commonly used for capturing birds such as sparrows, blackbirds, and waterfowl. Net size determines which birds can be caught and pockets in the net allow birds to entangle themselves when flying into the net. Non-targeted wildlife species should be released at the site of capture.

## Lethal Control

Lethal control may be necessary as part of an airport's wildlife management program to control certain wildlife hazards. Lethal take should only be used as a last resort after all other reasonable nonlethal options have been exhausted.

In order to justify lethal take and lessen adverse public reaction, information should be developed and maintained including:

- The situation and how the presence or behavior of certain wildlife is a threat to aircraft safety;
  - Hazing and harassment strategies that were previously used and their results;
  - Documentation that the procedures were within guidelines and specific for the target wildlife species;
  - The location on the airfield where the lethal take occurred; and
  - The effectiveness of the program in helping to solve the problem.
- 
- **Destroying nests and eggs** can be undertaken to prevent birds such as Canada geese, turkeys, swans, gulls, pigeons, and starlings from nesting on airport property provided that correct permits are in place. At the time of nest destruction, the adult birds should be harassed from the airport if encountered. The nesting areas should be checked weekly for re-nesting until the end of the nesting season.

Egg destruction can be accomplished in several ways. Egg addling involves shaking an egg causing detachment of the embryo from the egg sac, making the embryo unviable. Other common methods include manually breaking the eggs or by oiling or spraying the eggs with a liquid that covers the entire shell preventing the embryo from obtaining oxygen. When eggs are left intact and replaced in the nest, re-nesting is often prevented.

- **Shooting** is most effective as a dispersal technique when dealing with large numbers of birds and generally falls into two main categories. First, pigeons, starlings, and other small birds that use hangars can be shot with an air rifle. This strategy can be done quietly and discreetly, with the objective being to disturb the birds and surrounding land uses as little as possible. Secondly, shooting common birds, such as gulls and geese, on the airfield during

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daylight hours with a shotgun reinforces other audio and visual repellent techniques while frightening the rest of the flock and permanently removing the target birds.

As stated previously, a “zero-tolerance” policy on the airfield should be adopted for large mammals such as deer that can create severe hazards to aircraft safety. If fencing is inadequate or if deer have gotten inside the airport’s fence, shooting may be the best procedure for removing them. Shooting of deer should be coordinated with the state wildlife agency. Shooting has proved to be an effective means of removing coyotes as well. Animals removed by shooting should be killed as quickly and humanely as possible.

If firearms use is to be conducted, authorized airport personnel should be required to attend firearms safety training. It should be noted that this control technique can be a sensitive public concern because of safety, noise, and potential misuse.

- **Oral toxicants** have varying levels of lethality for different species and the secondary toxicity effects on non-targeted wildlife should always be considered when using a toxicant. Toxicants should be applied by qualified and licensed personnel in any situation when deemed necessary and where minimal non-target take can be guaranteed.

Toxicants can be formulated with a variety of baits and used to control starlings, pigeons, gulls, ravens, and blackbirds under certain conditions. Currently, only one oral toxicant, DRC-1339 (Starlicide), is registered for use in bird population management. Studies show that DRC-1339 poses minimal risk of primary poisoning to non-targeted wildlife species. This toxicant is typically placed in locations where mammal exposure is limited. DRC-1339 requires the disposal of unused, treated baits and the burning or burial of dead birds. With this method, birds typically die one to three days after bait ingestion.

Small rodents that congregate in grassy areas on the airfield, attracting raptors and creating a hazard to aircraft safety, may be dealt with through the use of rodenticide. There are two types of rodenticides that may be available for use in airside vegetation that include anticoagulants and acute toxicants. Anticoagulant baits can be placed in various types of containers.

The only acute toxicant registered for aboveground treatment of field rodents is zinc phosphide. Its offensive taste and odor generally require pre-baiting with untreated bait to achieve consumption of a lethal dose. This toxicant could be used to target the California ground squirrels in the AOA at MRY. It has very little secondary toxicity; thus, not affecting raptors or other mammals should they consume the rodents that have ingested the toxicant. To prevent non-target take, treated bait should be put in tamper-resistant bait stations that only the ground squirrels can access. This will limit access by other birds or larger mammals that cannot or will not enter the confined space.

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- **Fumigants** can be used on rodents such as ground squirrels, gophers, and moles that create burrows under the ground. Gas cartridges, ignited from a burning fuse after placement in the burrow, generate carbon monoxide which can prove lethal to these mammals. Species that could be targeted at MRY include the ground squirrel dens in the AOA. The potential for secondary toxicity from fumigant use is very low.
- **Lethal trapping** includes the use of snares and quick-kill traps and can be used to remove woodchucks, beavers, or other medium-sized mammals that create problems on airports depending on state and local laws. Once set, these body gripping traps must be checked frequently to euthanize any animals that are captured but not yet killed. It is extremely important to place these traps in a location to minimize the take of non-targeted wildlife species.

## **FLIGHT SCHEDULE MODIFICATION**

There may be various instances when flight schedules of some aircraft can be adjusted to minimize the chance of a strike with a particular wildlife species that has a predictable movement pattern at an airport. It should be noted that this strategy may not be practical for airports, such as MRY, that serve scheduled commercial airline operations due to the regularity required to meet passenger demand.

Airport managers and ATCT personnel can issue Notices to Airmen (NOTAMs) that advise pilots of general airfield conditions and any known or potentially hazardous situations, including wildlife at or near the airport. At controlled airports, ATCT personnel can utilize the Automated Terminal Information Service (ATIS) to warn pilots of hazardous wildlife movements.


Certain wildlife hazards at MRY that were observed during the WHA are highly predictable to include the American crow flying across the approach end of Runway 10R within one hour of sunrise and sunset on a daily basis. Furthermore, turkey vultures are regularly observed soaring in the airspace adjacent to the east side of the airport when winds exceed 15 miles per hour.

## **SUMMARY OF WILDLIFE CONTROL STRATEGIES**

**Exhibits 3A** and **3B** provide a list of birds and mammals observed at MRY during the WHA and the effectiveness of certain wildlife control strategies and techniques based upon testing, experiments, and actual wildlife programs in place at different airports across the country. It should be noted that the effectiveness of certain techniques is not noted. This may be due to a lack of testing or non-applicability on certain types of birds or mammals.

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	Crows/Jays	Blackbird/ Starlings	Cormorants	Ducks/ Geese	Swans	Gulls	Hérons	Egrets	Pigeons/ Doves	Vulture/ Hawks	Falcons	Kites	Owls	Quail/Turkey	Shorebirds	Thrushes	Sparrows
																	
WILDLIFE CONTROL METHOD																	
NOTAMs/Flight Modification	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Habitat Modification																	
Food	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Water	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Shelter	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exclusion		G		G	G	F	F	F	G				G	F		G	G
Audio Repelling Techniques																	
Pyrotechnics	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Electronic Sounds	F	G	P	P	P	P	P	P	P	P	P	P	P	P	F	P	P
Ultrasonic	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Visual Repelling Techniques	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
Chemical Repelling Techniques	G	G	G	F	F	F	G	G	F	G	G	G	G	G	G	G	G
Falconry and Dogs			G	G	G	G	G	G									
Radio-Controlled Model Aircraft	F	F	F	F	F	F	F	F	F					F	F	F	F
Non-Lethal Projectiles				G	G									G			
Population Management - Live Capture																	
Chemical Capture	F			F		F			F								
Live Trapping		G		G	G	G			G								G
Population Management - Lethal Control																	
Destroying Nests and Eggs			G	G	G	G											
Shooting	G	F	G	G	G	F	G	G	G	F	P	G	F	G	F	P	P
Oral Toxicants						F			G								

**Effectiveness**

- B - Best
- G - Good
- F - Fair
- P - Poor
- N - Not recommended

Source: *Wildlife Hazard Management at Airports*; Airport Cooperative Research Program (ACRP) Report 32, *Guidebook for Addressing Aircraft/Wildlife Hazards at Airports*; ACRP Synthesis 23, *Bird Harrassment, Repellent, and Deterrent Techniques for Use on and Near Airports*; MRY Wildlife Hazard Assessment








MONTEREY PENINSULA AIRPORT DISTRICT

Exhibit 3A

WILDLIFE CONTROL STRATEGIES AND  
TECHNIQUES FOR BIRDS



	Coyote	Deer	Rodents
			
WILDLIFE CONTROL METHOD			
NOTAMs/Flight Modification	G	G	G
<b>Habitat Modification</b>			
Food	B	B	B
Water	B	B	B
Shelter	B	B	B
Exclusion	G	B	F
Audio Repelling Techniques	P	P	P
Visual Repelling Techniques	P	P	P
Chemical Repelling Techniques	N	N	N
<b>Population Management - Live Capture</b>			
Chemical Capture	F	F	F
Live Trapping	G	P	F
<b>Population Management - Lethal Control</b>			
Shooting	G	G	G
Toxicants			F
Fumigants			G
Lethal traps	G	G	F
<b>Effectiveness</b> B - Best G - Good F - Fair P - Poor N - Not recommended			
			
Source: <i>Wildlife Hazard Management at Airports; Airport Cooperative Research Program (ACRP) Report 32, Guidebook for Addressing Aircraft/Wildlife Hazards at Airports; MRY Wildlife Hazard Assessment</i>			

The use of habitat modification, exclusion, repelling, and population management strategies is an important component of an airport's wildlife management program. Nonlethal techniques (habitat modification, exclusion, and repelling) are generally more accepted by the public than lethal techniques; however, it must be recognized that most nonlethal techniques have only limited effectiveness in reducing wildlife use of specific areas on an airport.

Habitat modification to minimize or eliminate food, water, and shelter and exclusion techniques creating physical or psychological barriers should be the foundations of wildlife management programs at airports. In addition, altering flight schedules (if applicable) and increasing awareness of wildlife activities through the use of NOTAMs and ATIS (if applicable) should be another important component to implement. Integrating repelling techniques may be necessary to disrupt normal wildlife behaviors in the airport environment. Finally, lethal action may sometimes be necessary to reinforce the other management strategies only when proper permits, training, and equipment are in place.

### ***PERSONNEL, COMMUNICATION, AND PATROL***

Each individual responsible for wildlife management at MRY has a responsibility to assess and remove wildlife hazards that are encountered in the AOA to the extent practicable. All personnel should be equipped with radios and have proper training to contact ATCT personnel and in properly identifying wildlife species and hazards in the AOA and other areas adjacent to MRY. Airport personnel patrolling the airfield should contact the ATCT when necessary to access runways, taxiways, and navigational critical areas so that harassment of birds and mammals can be as thorough as possible due to the activity levels associated with the movement of aircraft.

If an immediate hazard exists that may compromise aircraft safety at MRY, arriving and departing aircraft at MRY should be detained until the hazard is eliminated. This will require proper coordination and radio communication with airport and ATCT personnel. Airport operations and maintenance personnel should continually be aware of wildlife movements and potential hazards while on the AOA. While ATCT personnel's main responsibility is to direct aircraft traffic, they should notify airport personnel immediately if pilots report wildlife hazards or any such hazards are observed from the ATCT.

Airport staff patrol the AOA and airport perimeter daily to monitor a variety of airfield issues including potentially hazardous wildlife movements and to mitigate them when necessary. Individuals conducting these patrols include airport operations and maintenance personnel, and to a limited degree, airport law enforcement. Monitoring of rolling terrain, ditches, detention ponds, areas between facilities, and wooded areas is important as these areas can remain hidden from view of the ATCT personnel and airport personnel conducting runway and taxiway sweeps. Patrols are conducted as often as necessary to appropriately deter wildlife activity on

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the airport. Consideration should be taken when dispersing wildlife so as not to introduce potential hazards into the path of inbound or outbound aircraft.

Routine inspections of the AOA are currently conducted several times a day and recorded by airport operations personnel and include observed wildlife and their associated movements. The presence of any dead animals resulting from aircraft strikes or reported by the pilot of aircraft or ATCT personnel is recorded on Federal Aviation Administration (FAA) Form 5200-7, *Bird/Other Wildlife Strike Report*. Bird or other wildlife remains found within 200 feet of the runway centerline are assumed to be evidence of a strike unless another reason for the animal's death is identified and should be bagged and attached with FAA Form 5200-7 for later inspection and identification by trained personnel having knowledge of positively identifying wildlife species particular to MRY. Wildlife strikes may be reported directly to the FAA electronically at: <http://wildlife-mitigation.tc.faa.gov/wildlife/strikenew.aspx>.

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**Element 4**

## **Wildlife Management Implementation**



## **Element Four**

### **WILDLIFE MANAGEMENT IMPLEMENTATION**

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Implementation of this Wildlife Hazard Management Plan (WHMP) will include an integrated approach considering both management and operational strategies that rely on a combination of wildlife management strategies and land use techniques to increase aviation safety at Monterey Peninsula Airport (MRY) by reducing the potential for wildlife hazards. Many of the strategies and techniques will be dependent on necessary funding, approvals, and permits prior to their implementation. Meeting periodically with the Wildlife Hazard Working Group (WHWG) is recommended to review the effectiveness of wildlife management practices contained within the WHMP.

Due to the timing and ongoing implementation of several wildlife management practices at MRYP, it is important that personnel continually update the progress and status of such practices. **Appendix E** provides current information related to the wildlife management techniques to be further discussed.

### ***ROLES AND RESPONSIBILITIES***

MRYP has designated a Wildlife Management Coordinator to manage and oversee all wildlife activities and ensure that wildlife management practices are carried out in accordance with Title

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14 Code of Federal Regulations (CFR) Part 139.337 and the WHMP. The Wildlife Management Coordinator should be responsible for the following activities:

- Conduct and coordinate wildlife management activities with MRY staff and other appropriate entities.
- Ensure proper training for all individuals involved with wildlife management.
- Obtain appropriate wildlife permits, equipment, and supplies as necessary.
- Keep detailed records of wildlife management activities.
- Periodically evaluate and review the WHMP.
- Participate with local, state, and federal agencies on land use decisions on and adjacent to the airport that could compromise aviation safety.
- Maintain Title 14 CFR Part 139 certification annual inspection and training records related to wildlife management.
- Elevate wildlife management issues to the General Manager, as appropriate.
- Meet the qualifications in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculum for Airport Personnel Involved in Controlling Wildlife Hazards on Airports*.

The cooperation of many departments at MRY is necessary for the successful implementation of the WHMP. It is important for airport operations, maintenance, law enforcement, and airport traffic control tower (ATCT) personnel to work together in order to successfully manage wildlife at MRY. Because of the close day-to-day working relationship between these departments, additional responsibilities to be shared include:

- Monitor and disperse wildlife, as needed, during airfield inspections.
- Report unusual or hazardous wildlife sightings and coordinate with the Wildlife Management Coordinator.
- Coordinate daily inspections and wildlife management patrols on the airport operations area (AOA) with the ATCT.
- Gather information about wildlife activity or strikes and respond to wildlife situations on the airfield when the Wildlife Management Coordinator is not on duty, including during nighttime conditions.

## **WILDLIFE HAZARD RECOMMENDATIONS**

Based upon the findings of the MRY Wildlife Hazard Assessment (WHA), the following wildlife management recommendations were made as previously outlined in Element Two. They include:

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- Designate a Wildlife Coordinator to monitor and manage wildlife.
- Improve wildlife strike reporting.
- Educate personnel to be trained in wildlife identification and abatement in order to implement proper hazing techniques.
- Obtain a U.S. Fish and Wildlife Service Migratory Bird Depredation Permit.
- Alter the areas adjacent to runways and taxiways by installing artificial turf, as funding is available, and implementing an infield management program to control the California ground squirrel.
- Repair and modify airport perimeter fencing to control coyotes and black-tailed deer.
- Utilize the Automated Terminal Information Service (ATIS) to warn pilots of hazardous wildlife movements.
- Implement community outreach techniques to gain neighboring support in controlling wildlife in the area.
- Monitor the detention basin located at the southwest corner of the airport, including removing sediment and vegetation and installing netting to prevent wildlife access.

## ***WILDLIFE HAZARD MANAGEMENT PLAN IMPLEMENTATION STRATEGIES AND TECHNIQUES***

The airport's wildlife management options are somewhat limited given the adjacent residential land uses and urban surroundings nearby. As previously discussed, in order for other items to be implemented, proper funding levels and permits will be required. The measures to be implemented are categorized into administrative actions, habitat/facilities modifications, and wildlife control as designated in the WHA. In addition, an implementation timeline is provided to measure the overall goals for completion and/or ongoing progress. A description of the various techniques to be implemented for wildlife hazard management at MRY follows. **Appendix E** contains further information related to the status of the wildlife management techniques.

### **CONDUCT ANNUAL TRAINING FOR AIRPORT WILDLIFE PERSONNEL**

#### **Administrative Action**

**Action** – Conduct annual training program(s) focused on safe and effective applications of wildlife hazard management measures specific to MRY for all airport personnel involved with wildlife management (i.e., airport operations, airport maintenance, law enforcement, ATCT, etc.).

**Implementation Timeline** – Ongoing through recurrent training.

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## **OBTAIN/MAINTAIN A MIGRATORY BIRD DEPREDATION PERMIT**

### **Administrative Action**

**Action** – Obtain a Migratory Bird Depredation Permit from the United States Fish and Wildlife Services (USFWS) in the event that lethal take of certain bird species is needed. Once the permit is obtained, MRY should keep an active depredation permit at all times if the lethal take of a migratory bird is needed, thus minimizing delays that may arise through the utilization of on-call services currently in place with the United States Department of Agriculture (USDA) Wildlife Services.

**Implementation Timeline** – Pursue migratory bird depredation permit within six (6) months of the approval of the WHMP. Upon acquiring the permit, MRY will maintain the permit annually.

## **EFFECTIVELY REPEL/HAZE WILDLIFE FROM THE AOA WITH USE OF PROPER EQUIPMENT**

### **Wildlife Control**

**Action** – Actively repel and haze wildlife hazards, mainly in the form of birds, from using the AOA through the use of audio repellents such as electronic distress calls and sirens. These audio repellents have proved successful for dispersing bird species such as crows, gulls, and blackbirds/starlings which are common at MRY. MRY personnel who have access to the AOA should be capable of repelling birds as necessary. Because of sensitive land uses, including residential development adjacent to the airport, it is recommended that the use of pyrotechnics not be utilized. **Exhibit 4A** depicts the area on the airfield where active repelling techniques should occur. Coordination with ATCT personnel is necessary prior to carrying out hazing techniques to ensure the highest degree of aircraft safety.

**Implementation Timeline** – Ongoing through daily patrols and active monitoring of wildlife.

## **PURSUE THE IMPLEMENTATION OF PERIMETER FENCE MODIFICATIONS AND IMPROVEMENTS**

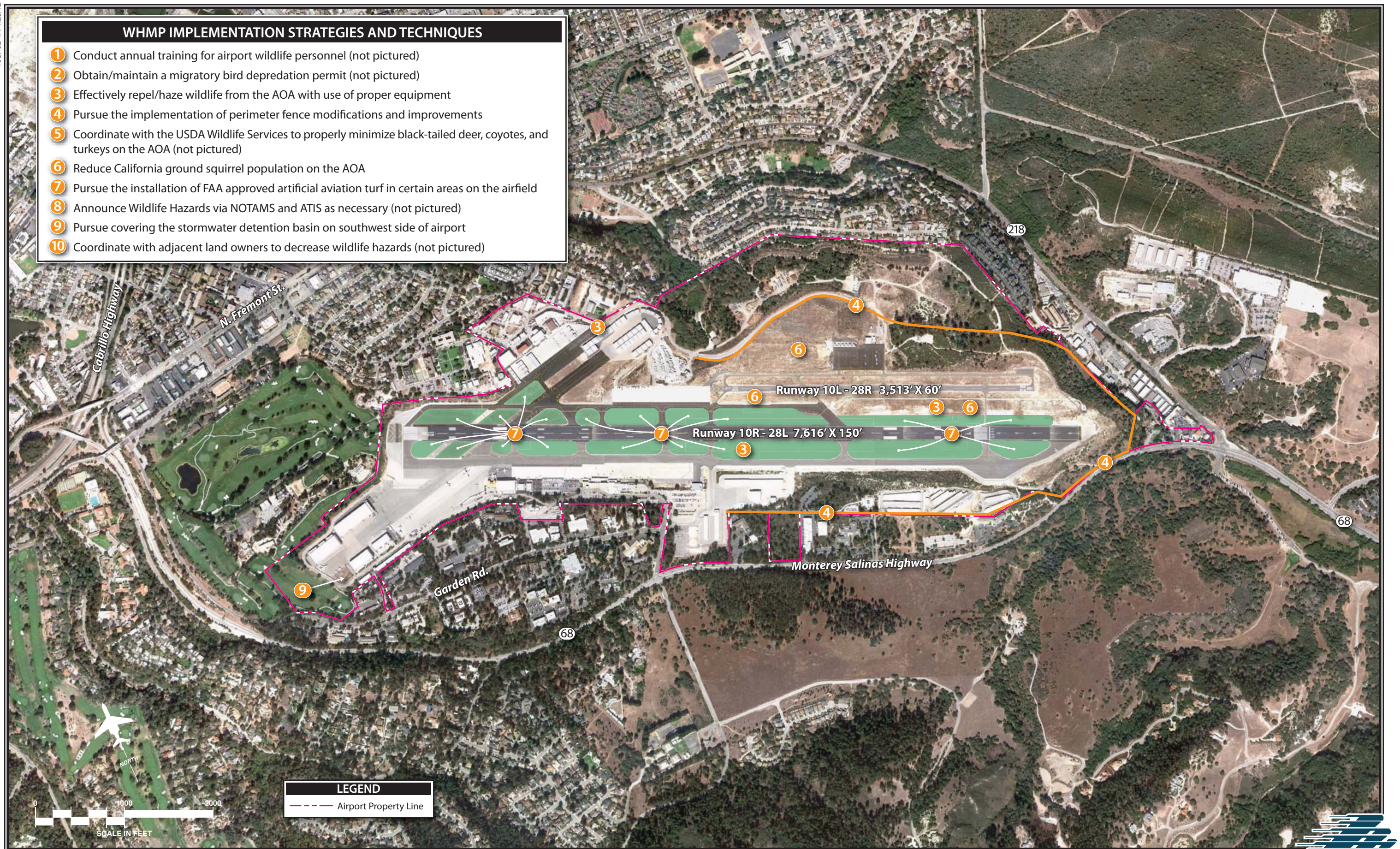
### **Habitat/Facilities Modification**

**Action** – Plan and coordinate the replacement of certain portions of existing six-foot perimeter fencing with a 12-foot fence with three-strand barbed wire outriggers to exclude black-tailed deer from jumping the fence and entering the AOA. Furthermore, a four-foot skirt of chain-link fence material, attached to the bottom of the fence and buried at a 45-degree angle on the outside of the fence, should be planned to discourage coyotes and other mammals from digging under the fence and to reduce the chance of washouts from rain events. **Exhibit 4A** highlights the portions of perimeter fencing that should be modified and includes the northern, eastern, and southern portions of the fencing. Black-tailed deer and coyote movements and breaches were observed in locations adjacent to these areas during the WHA.

**Implementation Timeline** – Continue to coordinate with the FAA on the necessary perimeter fence improvements and modifications which, based on the current 2013-2019 cycle airport capital improvement (ACIP) program, may begin in FAA fiscal year 2019 at the earliest.

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## **COORDINATE WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) WILDLIFE SERVICES TO PROPERLY MINIMIZE BLACK-TAILED DEER, COYOTES, AND TURKEYS ON THE AOA Wildlife Control**

**Action** – Adopt a policy of minimizing black-tailed deer, coyotes, and turkeys on the airfield. It is expected that the implementation of perimeter fencing modifications and improvements will be completed over the course of the next several years; therefore, black-tailed deer and coyotes that breach the existing fencing should be removed immediately.

**Implementation Timeline** – Ongoing through proper coordination with the USDA Wildlife Services on an as-needed basis.

## **REDUCE CALIFORNIA GROUND SQUIRREL POPULATION ON THE AOA Wildlife Control**

**Action** – Implement lethal methods to reduce the California ground squirrel population through the use of fumigation (gas cartridges). Reducing the number of ground squirrels in the AOA may decrease the presence of red-tailed hawks and other raptors from soaring above the airport approach and departure paths of aircraft. California ground squirrels are classified as nongame mammals according to the California Fish and Game Code; therefore, special permits to control the ground squirrel population are not needed. **Exhibit 4A** depicts areas where efforts to reduce the ground squirrel population are to be focused.

**Implementation Timeline** – Coordinate with the USDA within six (6) months of the approval of the WHMP to obtain proper equipment and supplies to begin implementing fumigation methods. Implementation will be dependent on necessary funding, approvals, and USDA staff availability.

## **PURSUE THE INSTALLATION OF FAA APPROVED ARTIFICIAL AVIATION TURF IN CERTAIN AREAS ON THE AIRFIELD**

### **Habitat/Facilities Modification**

**Action** – Pursue the installation of FAA approved artificial aviation turf in certain areas adjacent to the runway and taxiway system at MRY. This artificial turf is synthetic and does not produce seed or allow shelter for birds and mammals. Furthermore, it is difficult for burrowing mammals such as the California ground squirrel to penetrate and create dens and should discourage their movement in these areas. As previously discussed, reducing the number of ground squirrels may decrease the presence of raptors soaring above the airport. Examples of synthetic artificial turf brands approved by the FAA include AvTurf, Aviation Turf, and Av FieldTurf. In addition to reducing the potential for wildlife hazards, other benefits of aviation turf include increased stabilization of runway and taxiway shoulders and reduced foreign object debris (FOD). **Exhibit 4A** shows the areas on the AOA planned to support the installation of artificial aviation turf.

**Implementation Timeline** – MRY has planned and coordinated a three-phase approach to installing the aviation turf with the FAA per MRY's current ACIP (see Appendix E). The implemen-

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tation of aviation turf will be dependent on necessary funding, which is subject to annual review and modification by the FAA. At this time, the ACIP program projects the phased implementation of aviation turf to begin during FAA fiscal year 2015.

#### **ANNOUNCE WILDLIFE HAZARDS VIA NOTICES TO AIRMEN (NOTAMs) AND AUTOMATED TERMINAL INFORMATION SERVICE (ATIS) AS NECESSARY**

##### **Administrative Action**

**Action** – Utilize existing communication outlets to inform pilots of existing and potential wildlife hazards on and in the vicinity of MRY through the issuance of NOTAMs and via ATIS as necessary. During the WHA, certain wildlife movements were routinely observed and tied to certain times of day and certain weather/wind conditions. Airport operations, maintenance, law enforcement, and ATCT personnel should continue to remain vigilant of predictable and/or unforeseen wildlife activities and disseminate information related to wildlife hazards to pilots.

**Implementation Timeline** – Ongoing through coordination between MRY staff and ATCT personnel.

#### **PURSUE COVERING THE STORMWATER DETENTION BASIN ON SOUTHWEST SIDE OF AIRPORT** **Habitat/Facilities Modification**

**Action** – Install netting or other appropriate covering mechanism over the stormwater detention basin on the southwest side of the airport to exclude birds from utilizing the facility for foraging. Weedy vegetation and occasional standing water within the facility serve as an attractant to many bird species at MRY. The detention area is fenced, which excludes terrestrial mammals from gaining access. The detention basin encompasses approximately 5,500 square feet of open space for birds to have access to, as presented on **Exhibit 4A**.

**Implementation Timeline** – The southwest area stormwater detention basin is within the leasehold of an airport tenant (Monterey Jet Center) and modifications to the basin are subject to control by the tenant subject to the terms of the lease. As the opportunity to modify the lease arises, MRY will work with the tenant to plan and construct appropriate wildlife exclusion netting.

#### **COORDINATE WITH ADJACENT LAND OWNERS TO DECREASE WILDLIFE HAZARDS**

##### **Administrative Action**

**Action** – MRY is bordered to the west by Monterey Pines Golf Course, which can be attractive to wildlife species of concern because of vegetation, water, and trees. MRY staff has historically maintained an open line of communication with managers of the golf course to discuss proposed improvements and management techniques on the golf course and their potential impacts on wildlife activities. Monterey Pines Golf Course does not currently have an aggressive wildlife management program in place to control wildlife hazards. The golf course managers have previously provided access to wildlife staff conducting the WHA for surveying wildlife

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movements and activities. There are also other privately owned commercial and residential properties adjacent to MRY. To date, no significant wildlife issues have arisen with respect to the use of these private properties. Should an issue arise, the Wildlife Management Coordinator would approach the land owner and explain the association between the wildlife issue on their land and the impacts it has on the implementation of the MRY WHMP. If needed, guidance in FAA AC 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports* could be used and support from the FAA could be administered to encourage the land owner to modify any land use or practice that poses an unacceptable risk to aircraft operations. FAA AC 150/5200-33B provides guidance to public-use airports regarding certain land uses that may attract hazardous wildlife. This document also discusses airport development projects that can affect aircraft movement areas that attract wildlife in addition to land uses that are incompatible with safe aircraft operations. At airports serving turbine-powered aircraft, such as MRY, the FAA recommends a separation distance of 10,000 feet be maintained between the AOA and new land uses deemed incompatible with safe airport operations. Examples of incompatible land uses include landfills, wastewater treatment facilities, and wetland mitigation areas.

**Implementation Timeline** – Ongoing through coordination between MRY staff and adjacent landowners.

**Table 4A** further outlines the wildlife management implementation strategies and techniques for MRY based upon the findings and recommendations within the WHA. Further coordination with the MRY WHWG is needed prior to actual implementation of these measures.

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**TABLE 4A****Wildlife Hazard Management Plan Implementation Measures  
Monterey Peninsula Airport**

Implementation Measure	Management Type	Action	Implementation Timeline
Conduct Annual Training for Airport Wildlife Personnel	Administrative	Conduct annual training program(s) focused on safe and effective applications of wildlife hazard management measures.	Ongoing training.
Obtain/Maintain a Migratory Bird Depredation Permit	Administrative	Obtain and maintain a Migratory Bird Depredation Permit from the USFWS.	Pursue migratory bird depredation permit within six (6) months of WHMP approval.
Effectively Repel/Haze Wildlife From AOA	Wildlife Control	Actively utilize electronic distress calls and sirens to repel birds from the AOA.	Ongoing/Monitor.
Pursue the Implementation of Perimeter Fence Modifications and Improvements	Habitat/Facilities Modification	Pursue funding and coordinate the installation of 12-foot perimeter fencing with proper skirting material in certain areas on the airport.	Continue to coordinate with FAA to plan for improvements.*
Coordinate with the USDA Wildlife Services to Properly Minimize Black-tailed Deer, Coyotes, and Turkeys on the AOA	Wildlife Control	Coordinate with USDA Wildlife Services to provide ongoing services to remove deer, coyotes, and turkeys on the AOA.	Ongoing coordination.
Reduce California Ground Squirrel Population on the AOA	Wildlife Control	Coordinate with the USDA Wildlife Services to implement lethal take through fumigation.	Coordinate with USDA within six (6) months of WHMP approval to implement lethal take through fumigation.*
Pursue the Installation of FAA Approved Artificial Aviation Turf in Certain Areas on the Airfield	Primary	Pursue the installation of FAA-approved aviation turf in areas adjacent to Runway 10R-28L dependent on necessary FAA funding levels.	Continued coordination with FAA on programming improvements. See Appendix E.*
Announce Wildlife Hazards via NOTAMs and ATIS As Necessary	Administrative	Utilize NOTAM and ATIS services to make pilots aware of wildlife hazards on and in the vicinity of the airport.	Ongoing.
Pursue Covering the Stormwater Detention Basin on Southwest Side of Airport	Habitat/Facilities Modification	Install netting or other appropriate covering over stormwater detention basin to exclude birds from foraging.	Coordinate with leaseholder to plan and construct wildlife covering based upon terms of lease.*
Coordinate with Adjacent Land Owners to Decrease Wildlife Hazards	Administrative	Coordinate with Monterey Pines Golf Course and private land owners to discourage wildlife attractants and activities near the airport.	Ongoing coordination.

\*Improvements dependent on necessary funding, approvals, and proper permitting.

AOA - Airport Operations Area

USFWS - United States Fish and Wildlife Services

USDA - United States Department of Agriculture

FAA - Federal Aviation Administration

NOTAM – Notice to Airmen

ATIS – Automated Terminal Information Service

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## **WILDLIFE TRAINING REQUIREMENTS**

There are many training requirements that should be conducted in order to successfully implement the MRY WHMP. All personnel involved with wildlife management at MRY receive training in mitigating wildlife hazards at airports. Training will include an overview of laws associated with wildlife control, types of wildlife management strategies and techniques, and safety, including hands-on training of certain wildlife management techniques. Training in airport communications and driving on the AOA is provided. The following provides a list of training requirements that will be administered to wildlife management personnel, whether it is by the Wildlife Management Coordinator or other airport personnel or wildlife technician/biologist.

- Wildlife regulations and law
- Airfield familiarization and safety
- Airfield movement areas
- Coordination with ATCT
- Communication protocol
- Handling and transporting injured wildlife
- Wildlife control equipment and procedures
- FAA rules and regulations governing wildlife control at airports
- Wildlife management strategies and techniques
- Wildlife species identification
- Overview of wildlife hazards specific to MRY
- Aircraft identification
- Reporting bird/other wildlife strikes

Training is essential for all personnel involved in the WHMP. This training will provide airport personnel with the knowledge and skills needed to implement the WHMP. The Wildlife Management Coordinator maintains training records as required by Title 14 CFR Part 139 and submits them to the FAA during the annual certification inspections. In addition, the Wildlife Management Coordinator will be required to meet the educational and experience qualifications set forth by FAA AC 150/5200-36, *Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports*.

The Wildlife Management Coordinator will provide general awareness training of wildlife issues to airport tenants and users as appropriate. This training will include identifying wildlife hazards and reporting them to MRY staff.

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## ***WILDLIFE MANAGEMENT EQUIPMENT, SUPPLIES, AND RESOURCES***

An adequate supply of equipment for wildlife management and control should be maintained at MRY for use by trained personnel. The following is a list of equipment, supplies, and resources needed to properly implement the WHMP. As previously stated, the degree of implementing the strategies and techniques described previously will be dependent upon FAA funding levels and, as such, could alter the required equipment, supplies, and resources below.

- Personal protective equipment (safety glasses and hearing protection)
- Binoculars
- Flashlights
- Spotlight
- Electronic distress calls and sirens
- Fumigants (i.e., gas cartridges)
- FAA-approved aviation turf (dependent upon FAA funding levels)
- Migratory Bird Depredation Permit
- *Wildlife Hazard Management at Airports*, FAA and USDA Wildlife Services manual
- *Guidebook for Addressing Aircraft/Wildlife Hazards at Airports*, Airport Cooperative Research Program Report 32
- *Prevention and Control of Wildlife Damage* manual

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**Element 5**

## **Evaluation and Update Process**





## Element Five

### EVALUATION AND UPDATE PROCESS

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Potential wildlife hazards at Monterey Peninsula Airport (MRY) are monitored daily. Title 14 Code of Federal Regulations (CFR) Part 139.337(f) (6) states that the Wildlife Hazard Management Plan (WHMP) should be evaluated and reviewed periodically for:

- The plan's effectiveness in dealing with known wildlife hazards on and in the airport's vicinity; and
- Aspects of the wildlife hazards described in the Wildlife Hazard Assessment (WHA) that should be reevaluated.

An annual status report and confirmation of WHMP review will provide the FAA certification inspector with the status of current programs, a summary of the year's accomplishments, and a list of the issues and concerns that can be addressed at the annual certification inspection. **Appendix E** provides the current status for wildlife management techniques being implemented at MRY.

The MRY WHMP will be reviewed by the Wildlife Management Coordinator and appropriate airport personnel at least annually or whenever an air carrier aircraft experiences a multiple wildlife strike, a damaging collision with wildlife, or an engine ingestion of wildlife. The WHMP will be revised as necessary, when either the program or the hazards and issues at MRY change

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significantly. The intent is to maintain the WHMP as an evolving, program-level plan that will continue to support MRY and FAA safety requirements.

### ***TITLE 14 CFR PART 139.337 CHECKLIST***

This WHMP meets regulation requirements concerning wildlife hazard management on and around MRY. Title 14 CFR Part 139.337(f) provides specific direction on what shall be included in the WHMP. The specific requirements outlined in Title 14 CFR Part 139.337(f) are presented below, along with the corresponding element of the WHMP that addresses each requirement.

- (1) A list of the entities having authority and responsibility for implementing each aspect of the plan (**Element 4 – Page 4-2, first paragraph**).
- (2) A list prioritizing the following actions identified in the WHA and status for their initiation and completion (**Element 4 – Pages 4-2 through 4-7 and Appendix E**).
- (3) Requirements for and, where applicable, copies of local, state, and federal wildlife control permits (**Elements 3 and 4, Appendix B, and Appendix D**).
- (4) Identification of resources that MRY will provide to implement the plan (**Element 4**).
- (5) Procedures to be followed during air carrier operations that, at a minimum, includes:
  - (i) Designation of personnel responsible for implementing the procedures (**Element 4**);
  - (ii) Provisions to conduct physical inspections of the aircraft movement areas and other areas critical to successfully manage known wildlife hazards before air carrier operations begin (**Elements 3 and 4**);
  - (iii) Wildlife hazard control measures specific to MRY (**Element 4**); and
  - (iv) Ways to communicate effectively between personnel conducting wildlife control or observing wildlife hazards and the air traffic control tower (**Element 3 – Pages 3-12 through 3-13 and Element 4**).
- (6) Periodic evaluation and review of the WHMP (**Elements 4 and 5**).
- (7) A training program to provide airport personnel with the knowledge and skills needed to carry out the WHMP (**Element 4 – Page 4-7 through 4-8**).

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Appendix A

# Wildlife Hazard Work Group



## **MONTEREY PENINSULA AIRPORT DISTRICT**

### **MONTEREY PENINSULA AIRPORT WILDLIFE HAZARD MANAGEMENT PLAN**

#### **WILDLIFE HAZARD WORKING GROUP (WHWG)**

- |                                      |                               |
|--------------------------------------|-------------------------------|
| 1. Airport Operations:               | Ken Griggs / Dan Johanson     |
| 2. ARFF:                             | John Trenner                  |
| 3. Airport Police:                   | Henry Hoshii                  |
| 4. Airport Maintenance:              | Greg Rimberg                  |
| 5. Airport Engineer:                 | Sherman Low                   |
| 6. Airport Planning and Development: | Mark Bautista / Chris Morello |
| 7. Airport ATCT:                     | Bill Fleischer                |
| 8. Airport FBOs:                     |                               |
| Monterey Jet Center -                | Nate Young                    |
| Del Monte Aviation -                 | Charlie Brown                 |
| 9. Airline Operators:                | Paula Firth / Mike Ragan      |
| 10. Pilot Association:               | John Pfeifer                  |
| 11. FAA Representative:              | Doug Pomeroy                  |
| 12. USDA – Wildlife Services:        | Dennis Orthmeyer              |
| 13. U.S. Fish & Wildlife Services:   | Diane Noda                    |
| 14. Coffman Associates:              | Jim Harris                    |
|                                      | Dave Fitz                     |
|                                      | Matt Quick                    |



# WILDLIFE HAZARD WORKING GROUP MEETING ATTENDANCE RECORD

Meeting: Coordination Meeting #1Date: September 22, 2011 Time: 1:30 p.m.Place: Airport Terminal Building

Please Print Neatly

NAME	ADDRESS	PHONE # / E-MAIL
1. BENNY STUTH	200 FRED KANE DR, #200 MONTEREY, CA 93940	Phone #: 831 648 7000 x209 E-mail: bstuth@montereyairport.com
2. Sherman Low	P.O. BOX 11 Carmel, CA 93921	Phone #: (831) 624-2110 E-mail: sherman@neilcorp.com
3. DAN JOHANSON	200 FRED KANE DR #200 MONTEREY, CA 93940	Phone #: 831-760-0712 E-mail: dJohanson@montereyairport.com
4. Henry Hoshii	" "	Phone #: 831 648 7000 ext 502 E-mail: hhoshii@montereyairport.com
5. Ken Griggs	" "	Phone #: (831) 333-2321 E-mail: Kgriggs@montereyairport.com
6. MARK BAUTISTA	" "	Phone #: 831-915-5444 E-mail: mbautista@montereyairport.com
7. Chris Morello	" "	Phone #: 831 402 9444 E-mail: Cmorello@montereyairport.com
8. MIKE ANSWORTH	300 SKY PARK DR. MONTEREY, CA 93940	Phone #: 831-313-0100 E-mail: MIKEA@MONTEREYJESCENTER.COM
9. JIM HARRIS	COFFMAN ASSOCIATES SCOTTSDALE AZ	Phone #: 602-993-6999 E-mail: jmharris@coffmanassociates.com
10. Matt Quick	Coffman Associates Lee's Summit, MO	Phone #: (816) 524-3500 E-mail: mquick@coffmanassociates.com
11. DAVID FITZ	" "	Phone #: " " " E-mail: dfitz@coffmanassociates.com
12.		Phone #: _____ E-mail: _____
13.		Phone #: _____ E-mail: _____
14.		Phone #: _____ E-mail: _____
15.		Phone #: _____ E-mail: _____
16.		Phone #: _____ E-mail: _____
17.		Phone #: _____ E-mail: _____
18.		Phone #: _____ E-mail: _____
19.		Phone #: _____ E-mail: _____
20.		Phone #: _____ E-mail: _____

# WILDLIFE HAZARD WORKING GROUP MEETING ATTENDANCE RECORD

Meeting: Coordination Meeting #2Date: February 1, 2012 Time: 10:30 a.m.Place: Airport Terminal Building

Please Print Neatly

NAME	ADDRESS	PHONE # / E-MAIL
1. Mike Ragan	200 FRED KANE #100	Phone #: 831-655-2190 E-mail: MICHAEL.RAGAN@SKIWEST.COM
2. Chris Morello		Phone #: _____ E-mail: _____
3. Mark Bautista	" " " #200	Phone #: 831-648-7600 ext 222 E-mail: mbautista@montgomeryairport.com
4. Jim Harris	COFFMAN ASSOCIATES	Phone #: 602-993-6944 E-mail: jharris@coffmanassociates.com
5. Michael Heilpern	300 Sky Park Drive	Phone #: 831-373-0100 E-mail: michael@montgomeryairport.com
6. John Trenwen	200 FRED KANE #200	Phone #: 831-648-7008 E-mail: JTrenwen@MontgomeryAirport.com
7. Ken Griggs	" "	Phone #: 831-333-2321 E-mail: Kgriggs@montgomeryairport.com
8. Bill Fleischer	2415 Henderson Way	Phone #: 831-375-1211 E-mail: Willam.Fleischer@FAA.GOV
9. DAN JOHANSON	200 FRED KANE DR	Phone #: 831-760-0728 E-mail: d.johanson@montgomeryairport.com
10. Henry Hoshii	" "	Phone #: 831-648-7000 cx 502 E-mail: hhoshii@montgomeryairport.com
11. Greg Rimberg	200 Fred Kane Dr	Phone #: 831-648-7000 (218) E-mail: grimborg@montgomeryairport.com
12. Sherman Low	P.O. Box 11, CARMEL, CA	Phone #: 831-624-2110 E-mail: sherman@neillcorp.com
13. Matt Quick	Coffman Associates	Phone #: 818-524-3500 E-mail: mquick@coffmanassociates.com
14.		Phone #: _____ E-mail: _____
15.		Phone #: _____ E-mail: _____
16.		Phone #: _____ E-mail: _____
17.		Phone #: _____ E-mail: _____
18.		Phone #: _____ E-mail: _____
19.		Phone #: _____ E-mail: _____
20.		Phone #: _____ E-mail: _____

**Appendix B**

# **Applicable Laws and Regulations**



## **Appendix B**

### **APPLICABLE LAWS AND REGULATIONS**

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A number of federal, state, and local regulations affect wildlife control activities at airports. Wildlife management personnel are educated on the regulations pertinent to Monterey Peninsula Airport (MRY) to ensure compliance. Most wildlife management agencies issue permits to allow the harassment and/or take of certain wildlife species when required. Permits necessary for successful implementation of the MRY Wildlife Hazard Management Plan (WHMP) will be obtained, as required, by the Wildlife Management Coordinator. Many of the regulatory requirements are interrelated, and MRY personnel will continue to work with the regulatory agencies in evaluating the WHMP implementation and ongoing compliance strategies.

The following sections evaluate the various federal, state, and local laws and regulations that most airports must consider when implementing projects.

#### ***FEDERAL AVIATION ADMINISTRATION REGULATIONS***

The Federal Aviation Administration (FAA) is responsible for regulating air transportation. Regulations are published in Federal Aviation Regulations (FARs) and Advisory Circulars (ACs) that provide rules and guidelines on specific issues for airport personnel and certification inspectors.



## **TITLE 14 CFR PART 139.337**

Title 14 Code of Federal Regulations (CFR) Part 139.337 requires airports that service regularly scheduled commercial aircraft (carrying ten or more passengers) to complete a Wildlife Hazard Assessment (WHA) if any of the following events occur on or near the airport:

- An air carrier aircraft experiences multiple wildlife strikes;
- An air carrier aircraft experiences substantial damage from striking wildlife;
- An air carrier aircraft experiences an engine ingestion of wildlife; or
- Wildlife of a size, or in numbers, capable of causing any of the previous events, is observed to have access to any airport flight pattern or aircraft movement area.

Information collected during the WHA was incorporated into this WHMP as required under Title 14 CFR Part 139.337. The WHMP, which is submitted to and approved by the FAA prior to implementation, provides measures to alleviate or eliminate wildlife hazards to air carrier operations by identifying necessary habitat modifications and wildlife control measures, as well as the parties responsible for implementing identified actions.

### ***AC 150/5200-33B, Hazardous Wildlife Attractants On or Near Airports***

This AC provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants.

### ***AC 150/5200-32A, Reporting Wildlife Aircraft Strikes***

This AC explains the importance of reporting collisions between aircraft and wildlife, more commonly referred to as wildlife strikes. It also examines recent improvements in the FAA Bird/Other Wildlife Strike Reporting System, how to report a wildlife strike, what happens to the wildlife strike report data, how to access the FAA National Wildlife Aircraft Strike Database, and the FAA's Feather Identification program.

## ***OTHER FEDERAL LAWS AND REGULATIONS***

### **NATIONAL ENVIRONMENTAL POLICY ACT**

The National Environmental Policy Act (NEPA) requires that federal agencies study and disclose the effects of their proposed actions and encourages federal agencies to make environmentally responsible decisions. Specifically, NEPA is triggered when an action requires a permit, entitlement, or funding from a federal agency; when an action is jointly undertaken with a federal agency; or when an action is proposed on federal land. Typically, federal agencies adopt guidance specific to actions that they undertake requiring NEPA compliance.

## **FEDERAL ENDANGERED SPECIES ACT**

Section 9 of the Endangered Species Act (ESA) prohibits the “take” of any federally listed endangered species. The ESA defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” If it is not possible to design an otherwise lawful land use activity in a manner that avoids take of a listed species, either directly or through habitat modification, Section 10 of the ESA authorizes the United States Fish and Wildlife Services (USFWS) to issue a permit allowing take that is “incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”

## **MIGRATORY BIRD TREATY ACT**

The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the USFWS. Take does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. Even though the MBTA does not have provisions for allowing unauthorized take, the MBTA recognizes that some migratory birds may be killed by aircraft despite implementing measures to avoid take of birds. Acknowledging that large populations of certain bird species can cause damage to aircraft and threaten human safety, the USFWS by regulation and permit has provided for controlled take of certain species in specific areas and specified times.

## **SECTION 404 OF THE CLEAN WATER ACT**

Activities that result in a discharge of dredged or fill material into waters of the United States are regulated by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corp of Engineers (USACE) under Section 404 of the Clean Water Act. Discharges of dredged or fill material into waters of the United States, including wetlands, generally require a permit from the USACE. Waters of the United States include navigable waters, interstate waters, and all other waters where the use of degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries.

## **ANIMAL CONTROL ACT OF 1931**

Under this act, the United States Department of Agriculture (USDA) can manage wildlife injurious to agricultural interests, other wildlife, or human health and safety, including wildlife hazards to aircraft. This act permits the USDA to manage wildlife at MRY if airport personnel retain USDA to perform these services.

## **FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT**

The U.S. EPA oversees the registration, labeling, classification, and use of pesticides, as stated in this act. Key provisions of the laws include prohibiting use of a pesticide inconsistent with the

label, classifying pesticides as general or restricted use, allowing states to license and certify applicators and to enforce the law, and requiring all products to be registered with EPA.

### **BALD AND GOLDEN EAGLE PROTECTION ACT**

The Bald and Golden Eagle Protection Act of 1940 provides for the protection of bald and golden eagles by prohibiting, except under certain specified conditions, the taking, possession, and commerce of such birds. The act also allows the take, possession, and transportation of bald and golden eagles for scientific, education, and Native American religious purposes, or in circumstances when take may be necessary to ensure the protection of wildlife, agriculture, or other interests particular to a specific locality. The act also allows for take of eagle nests that interfere with resource development or recovery operations. Prior to taking, possessing, or transporting any bald or golden eagle or nest, a permit must be obtained from the USFWS.

## ***STATE LAWS AND REGULATIONS***

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

The goal of the California Environmental Quality Act (CEQA) is to maintain a high-quality environment now and in the future. CEQA applies to projects proposed to be undertaken or requiring approval by state and local government agencies. Projects are defined as public agency actions with potential to have a physical impact on the environment. After an activity is determined to be a project under CEQA, the lead agency must decide whether or not it is exempt. If it is not exempt, the lead agency must assess the potential for significant environmental effects before the approval of the project.

### **CALIFORNIA ENDANGERED SPECIES ACT**

The California Endangered Species Act (CESA) ensures legal protection for species listed as rare or endangered, as well as wildlife species formally listed as endangered or threatened. Pursuant to CESA and Section 2081 of the Fish and Game Code, a permit from the California Department of Fish and Game (DFG) is required for projects that could result in the take of a state-listed threatened or endangered species. Under CESA, the definition of take applies to an activity that would directly or indirectly kill an individual of a species. The definition does not include “harm” or “harass,” as does the federal act. The state also maintains a list of Species of Special Concern (SSC). SSC status is assigned to species that have limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. If a project is likely to affect species protected under CESA and ESA, California legislation encourages cooperative and simultaneous consultation between USFWS and DFG to coordinate the federal ESA Section 7 process so that consistent and compatible findings result.

Appendix C

# Logs and Reports





Wildlife Log					
Date	Time	Type of Animal	Location	Direction of Travel	Type of Activity
5/30/2009	513	COYOTE	BTWN 28R AND C	N	RUNNING
6/20/2009	405	BABY COYOTE	east end taxiway C	N	RUNNING
6/25/2009	405	buck/deer	east end taxiway C	n	RUNNING
7/2/2009	345	baby coyote	east end taxiway C	n/a	resting
7/3/2009	400	baby coyote	east end taxiway C	e	walking
7/6/2009	400	buck/deer	west end taxiway c	n/a	standing
10/5/2009	655	DEER	WINDSOCK/NSSI	EAST	WALKING
10/8/2009	740	buck/deer	NORTHWEST NFC	EAST	RUNNING
10/11/2009	548	buck/deer	MBA	EAST	WALKING
10/24/2009	550	DEER	FIELD W OF NFC	N/A	STANDING
10/25/2009	705	DEER	FIELD W OF NFC	NA	STANDING
11/9/2009	550	DEER	FIELD W OF NFC	NA	standing
11/21/2009	505	DEER	FIELD W OF NFC	NA	RUNNING
11/23/2009	507	DEER	FIELD W OF NFC	NA	standing
12/5/2009	508	DEER	FIELD W OF NFC	NA	standing
12/20/2009	504	COYOTE	NSSI	NA	WALKING
1/4/2010	511	DEER	BTWN 28R AND C	NE	RUNNING
4/24/2010	528	DEER	BTWN 28R AND C	N	standing
4/24/2010	550	COYOTE	THRESHOLD 28R	W	RUNNING
4/25/2010	508	DEER	BTWN 28R AND C	N	standing
3/27/2011	1042	COYOTE	Crossed RWY 28L	S	RUNNING
5/24/2011	1330	SQUIRREL STRIKE	28L BWTN G&H	NA	DEAD
6/5/2011	510	Coyote pup	C btwn M&N	N	Running
9/10/2011	0508	DEER	28R @ N	E	walking
9/25/2011	0805	25 BLACK BIRDS	SAFETY AREA E OF BTWN B & G N OF 28L	NA	FEEDING
9/25/2011	1045	15-20 SANDPIPERS	TAXIWAY C @MIKE	E	RUNNING
10/1/2011	0658	Deer	N of NFC Grassy area	NA	Feeding
10/5/2011	0845	Black-bellied Plover	RWY 28L & TWY L	N/A	DEAD
10/9/2011	0710	deer	N of NFC Grassy area	E	Walking
10/15/2011	0415	deer and coyote	east end 28r	N	running
10/15/2011	0654	Deer	Nof NFC grassy area	E	Walking
10/24/2011	1005	flock of black birds	SAFETY AREA E OF BTWN B & H N OF 28L	NE	feeding
11/25/2011	0303	Coyote	Crossing TWY C @ M	N	Walking
3/27/2012	1000	small flock of turkeys	habitat restore area S of 28L Run-up	E	foraging
3/30/2012	1200	small flock of turkeys	Maint. Shed (Bldg 99)	S	foraging
4/3/2012	1400	small flock of turkeys	NE, by Dei Rey Oaks	W	foraging
4/6/2012	1600	small flock of turkeys	habitat restore area S of 28L Run-up	S	foraging

Appendix D

## Records and Permits



Appendix E

# Implementation Status/Update



Appendix E Implementation Status/Update Monterey Peninsula Airport		
Implementation Measure	Date	Status/Update
Conduct Annual Training for Airport Wildlife Personnel		
Implementation Measure	Date	Status/Update
Obtain/Maintain a Migratory Bird Depredation Permit		
Implementation Measure	Date	Status/Update
Effectively Repel/Haze Wildlife from the AOA with Use of Proper Equipment		
Implementation Measure	Date	Status/Update
Pursue the Implementation of Perimeter Fence Modifications and Improvements		
Implementation Measure	Date	Status/Update
Coordinate with the USDA Wildlife Services to Properly Minimize Black-Tailed Deer, Coyotes, and Turkeys on the AOA		



Implementation Measure	Date	Status/Update
Reduce California Ground Squirrel Population on the AOA		
Implementation Measure	Date	Status/Update
Pursue the Installation of FAA Approved Artificial Aviation Turf in Certain Areas on the Airfield		
Implementation Measure	Date	Status/Update
Announce Wildlife Hazards via NOTAMs and ATIS as Necessary		
Implementation Measure	Date	Status/Update
Pursue Covering the Stormwater Detention Basin on Southwest Side of Airport		
Implementation Measure	Date	Status/Update
Coordinate with Adjacent Land Owners to Decrease Wildlife Hazards		

MPAD - Airport Capital Improvement Program 2013-2019			
PROJECT	FUNDING SOURCE(S)		
	FAA FY	AIP	PFC
Runway Safety Area Construction Phase 2	2013	x	x
Runway Safety Area Construction Phase 3	2014	x	x
Pavement Phase 4 Infield Rehabilitation Part A	2015	x	x
Replacement ARFF Vehicle	2015	x	x
Pavement Phase 5 Infield Rehabilitation Part B	2016	x	x
Terminal and ARFF Environmental	2016	x	x
Pavement Phase 6 Infield Rehabilitation Part C	2017	x	x
Terminal and ARFF Design	2018	x	x
Terminal and ARFF Construction	2019	x	x
Airport Perimeter Fence (WHMP requirement)	2019	x	x