

Land Use and Wildlife Hazard Management

Sacramento International Airport (SMF)
November 2016



Overview

- Land Use Compatibility Around SMF
 - Off Airport Land Use Compatibility Considerations
 - Airport Land Use and Management
- Wildlife Management Program at SMF
 - Regulatory Environment
 - Hazardous Wildlife and Attractants
 - Management Strategies



Land Use Control in the US

Government	Agency	Roles and Functions
Federal	Federal Aviation Administration (FAA)	<ul style="list-style-type: none"> • Manage airspace and air traffic • Airport safety and capacity • Financial assistance to airports • Environmental review
	Department of Defense	<ul style="list-style-type: none"> • Military Installation Protection
State	State legislatures	<ul style="list-style-type: none"> • Establish levels of local authority for land use control; e.g. zoning, land development permitting
Local	Counties Cities Independent authorities	<ul style="list-style-type: none"> • Establish and enforce actual land use and development rules: Zoning laws, site and building permitting



CA Airport Land Use Compatibility

- Public Utilities Code 21670
 - Airport Land Use Commissions
 - SACOG serves as ALUC for SMF
 - Airport Land Use Compatibility Plans
 - Purpose: To protect airports against encroachment by incompatible new land uses
 - Local General Plans
 - PUC requires they be amended to reflect policies consistent with adopted and applicable Airport Land Use Compatibility plans



Land Use Basics

- Airport Compatible Land Uses:
 - Complies with location, height, and activity conditions/restrictions
 - Provides for safe aircraft movement and airport operations
 - Preserves public health, safety and welfare for people located in proximity of airport.



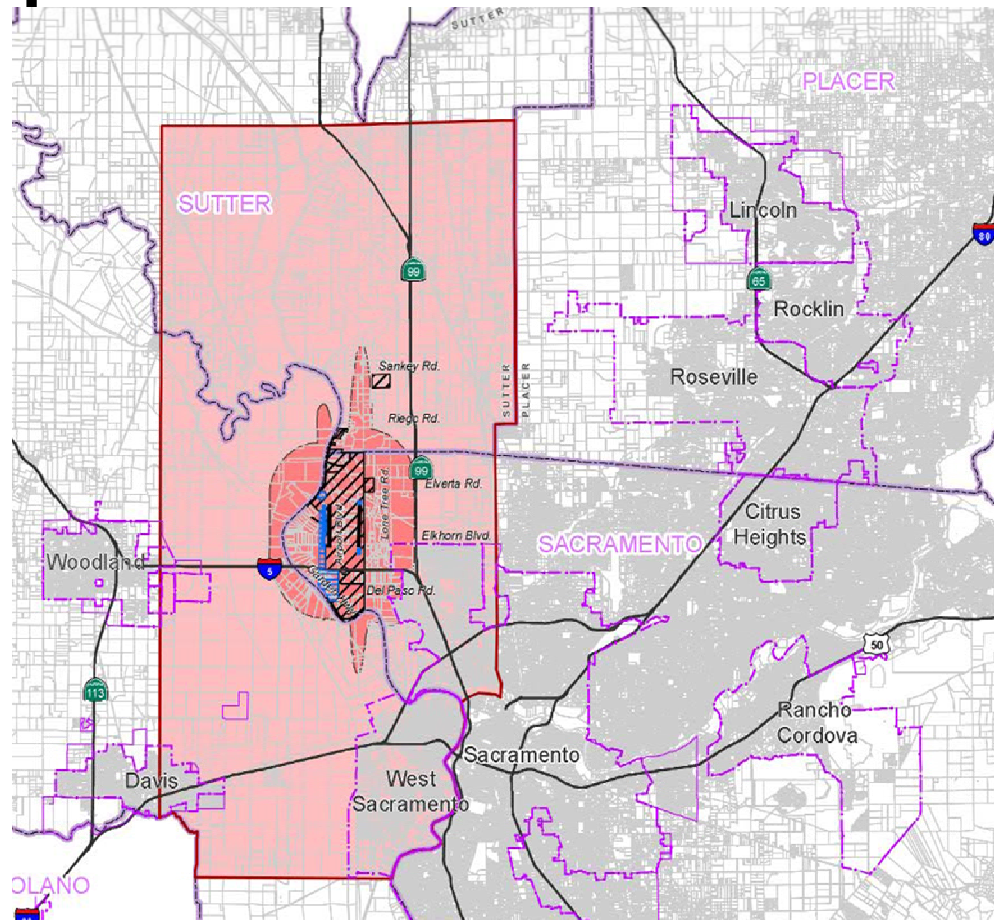
SMF Airport Land use Compatibility Plan

- Adopted by SACOG 2014
- Established Safety, Noise, Airspace Protection and Wildlife Hazard Compatibility Policies For Future Land Uses Near SMF



Airport Influence Area

- Area within which land use actions are subject to ALUC review



Legend

- Sacramento International Airport (SMF)
- Future Property Acquisition
- Existing Runway
- Future Runway
- County Boundary
- City Boundary
- City Sphere of Influence

ALUC Policy Boundaries

- Airport Influence Area
- Referral Area 1
- Referral Area 2

Notes

1. See Section 1.5 for land use actions subject to ALUC review in each referral area.



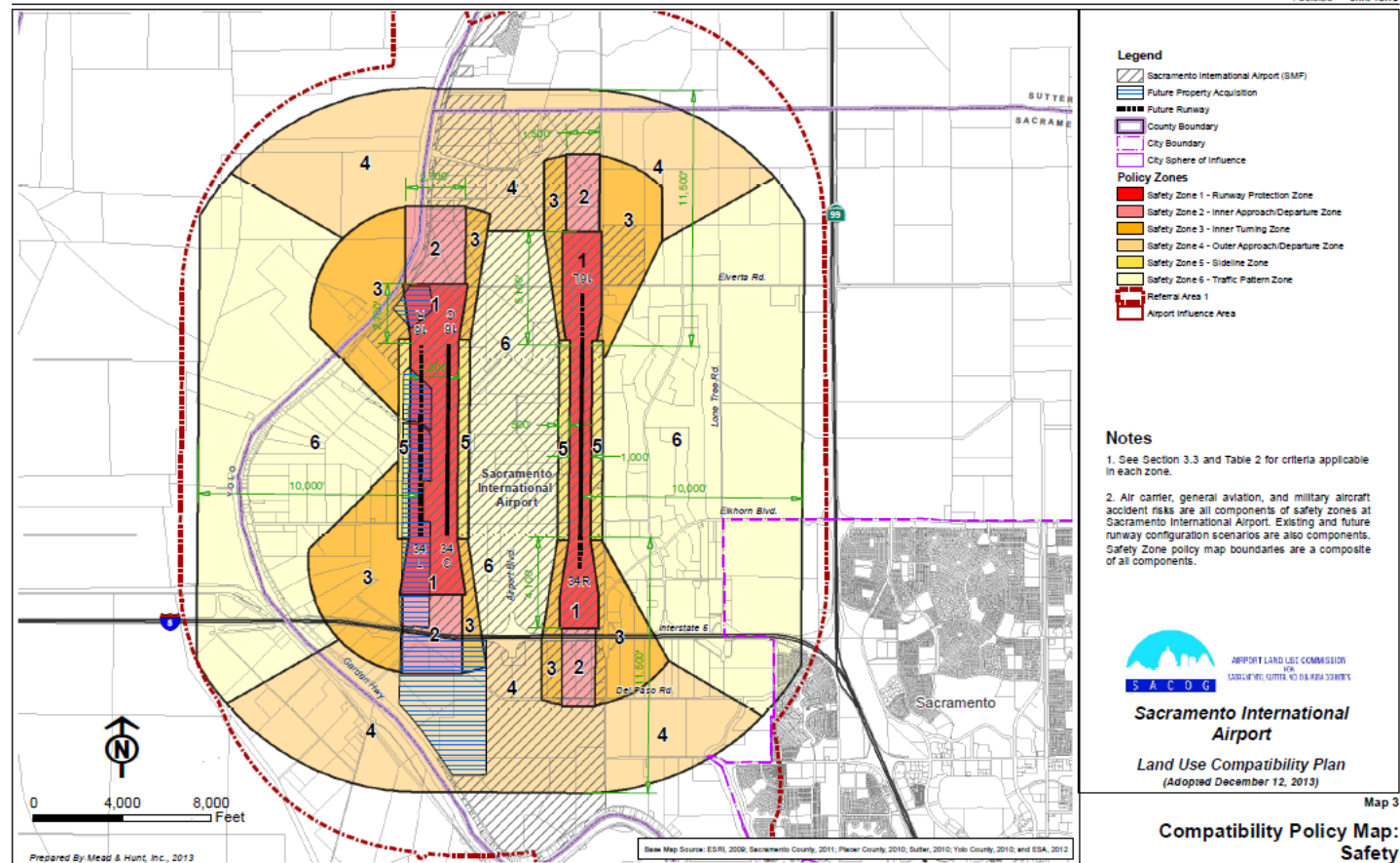
AIRPORT LAND USE COMMISSION
FOR
SACRAMENTO, SUTTER, YUBA & YUBA COUNTIES

Sacramento International Airport
Land Use Compatibility Plan
(Adopted December 12, 2013)



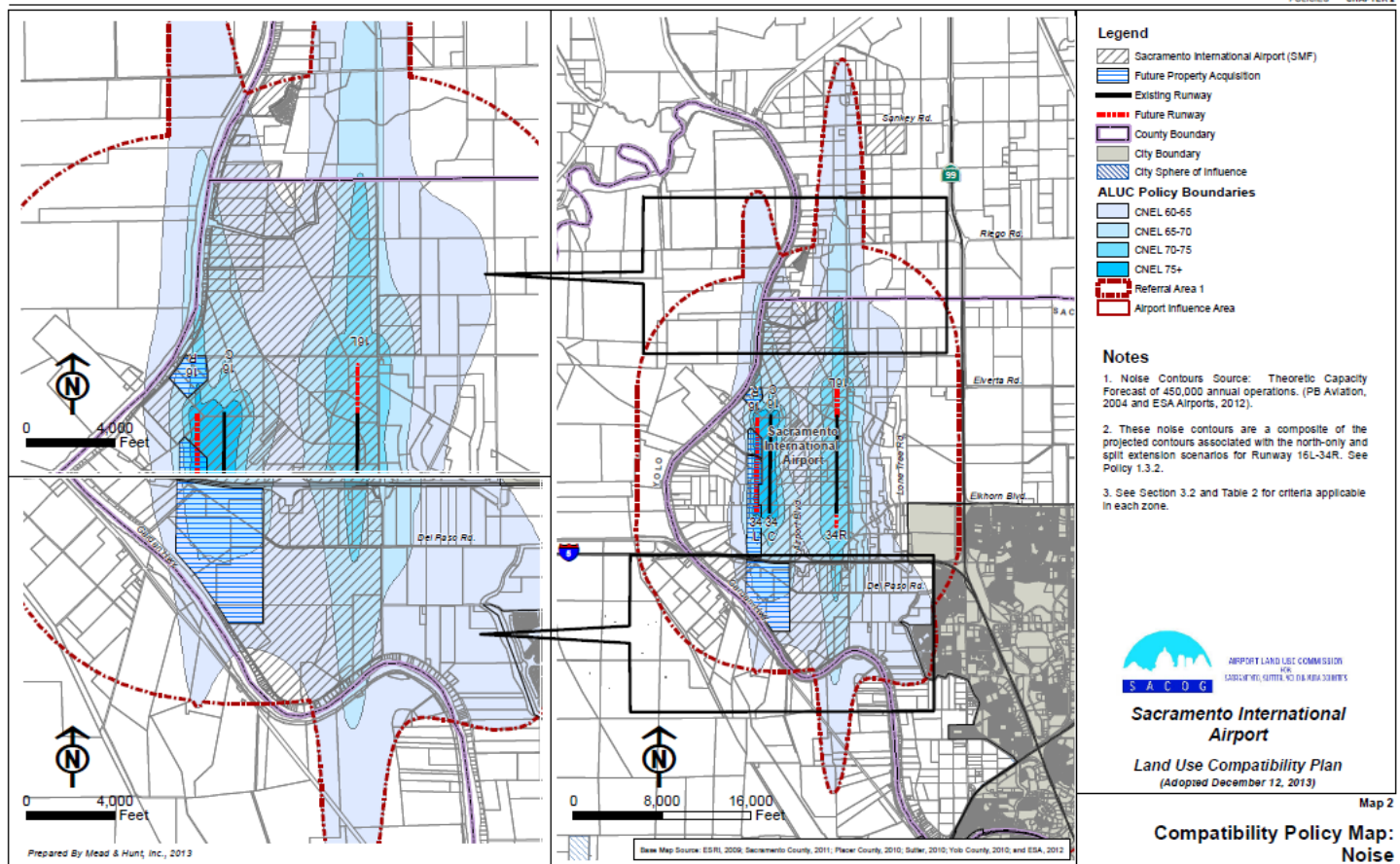
Airport Safety Compatibility Map

Area where airport safety considerations may represent a land use compatibility concern for persons and property onboard aircraft and on the ground.



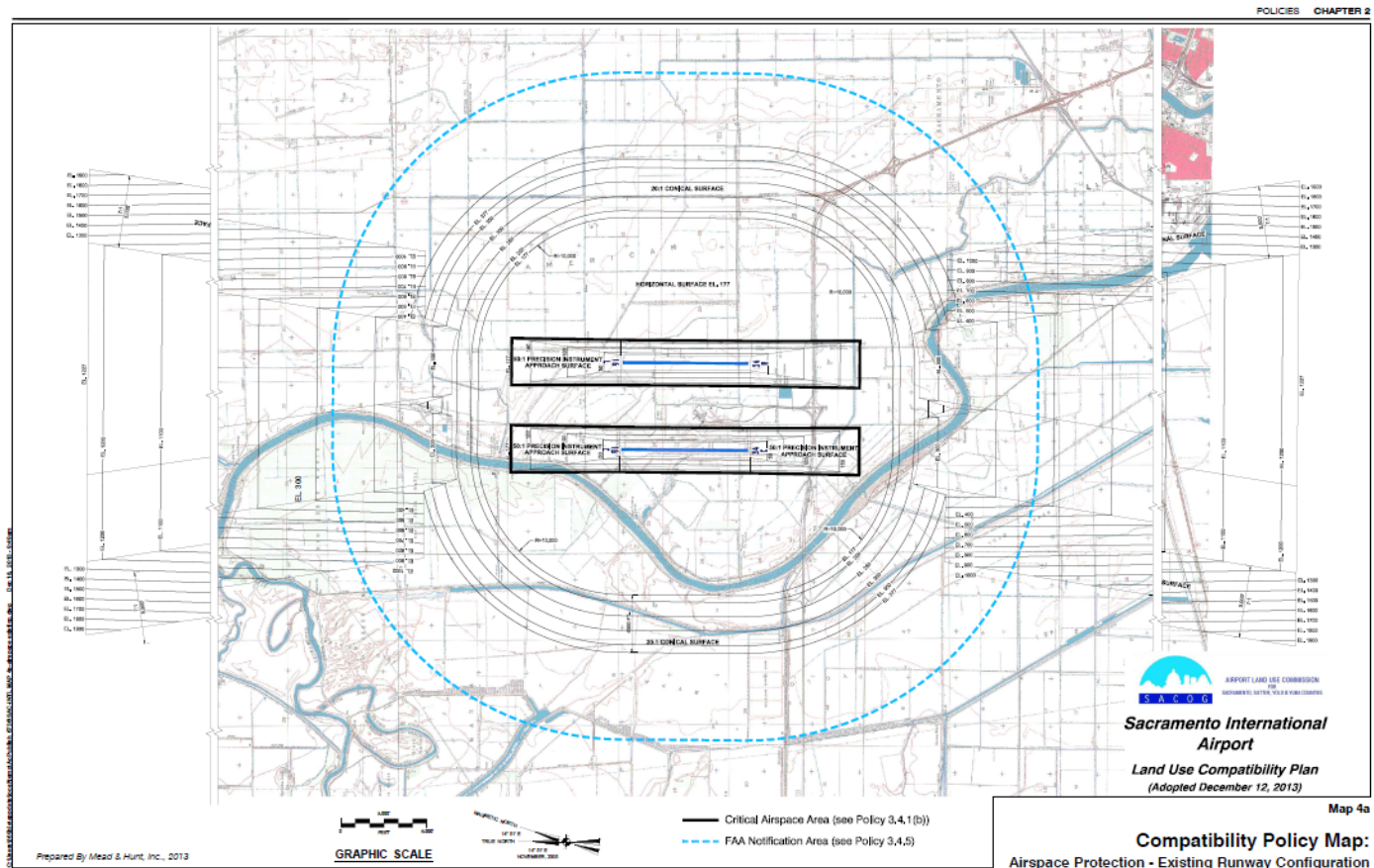
Airport Noise Compatibility Map

Area where airport noise impacts may represent a land use compatibility concern.



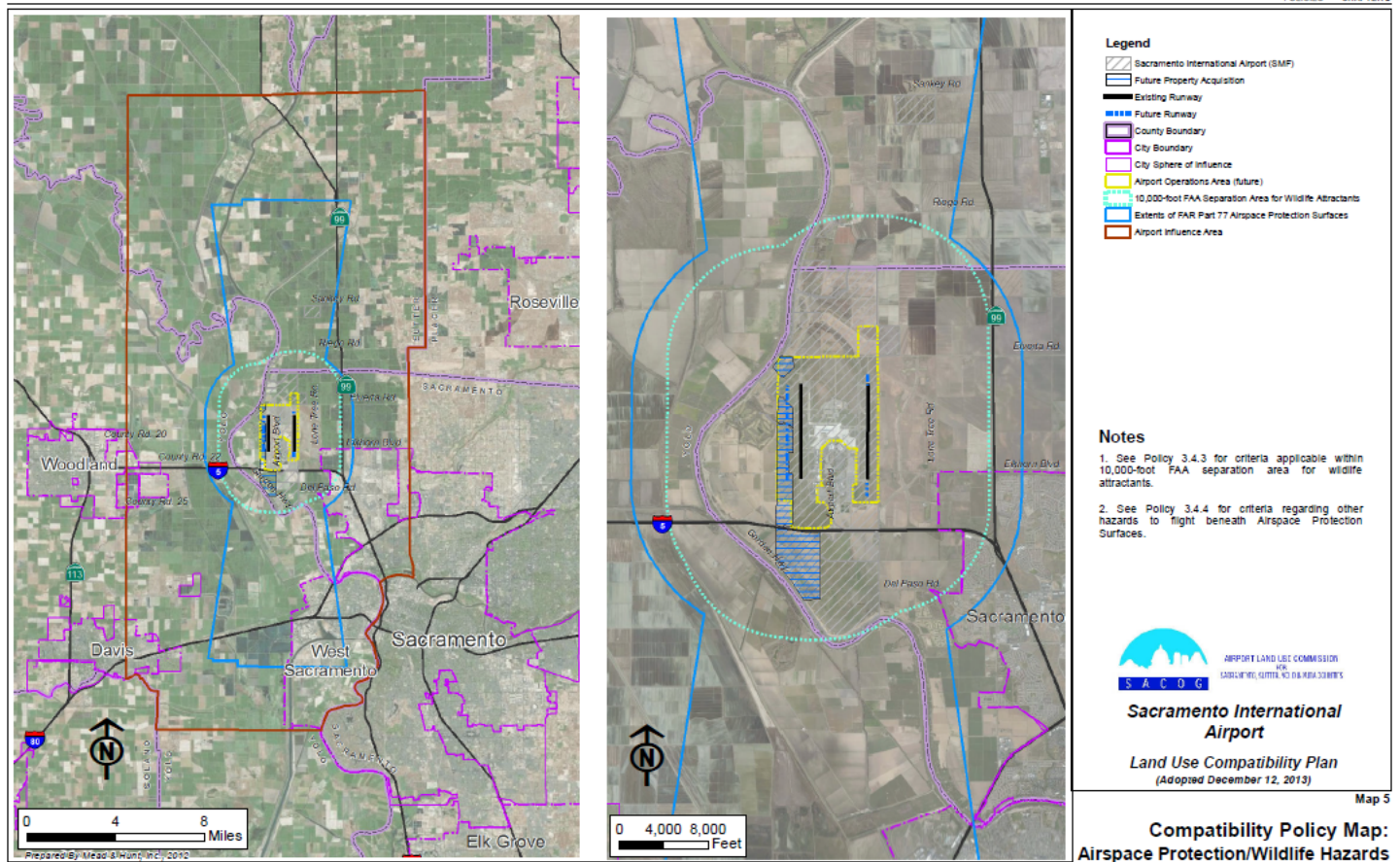
Airspace Protection Maps

Airspace protection for existing and future airfield configurations.



Airspace Protection Wildlife Hazards Map

Area where wildlife attractants may present a land use compatibility concern.



Airport Land Use Commission

- Reviews proposed land uses within the airport influence area for consistency with airport land use compatibility plan
 - If determined to be inconsistent, proponent can:
 - - amend proposed land use to make it consistent
 - Seek 4/5 override of ALUC inconsistency determination by local governing authority to proceed



Compatibility Policies

- In specified areas, some land uses may be:
 - Prohibited
 - Usually on or very close to airport
 - Conditioned through mitigation
 - Density Restrictions
 - Interior Sound Insulation Requirements
 - Avigation Easements
 - Height/Visibility Restrictions
 - Landscape Design Conditions/Restrictions

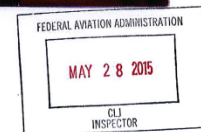


Wildlife Management at SMF

- Regulatory Environment
- Hazardous Wildlife and Attractants
- Management Strategies

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Federal Aviation Administration
Western-Pacific Region
Airports Division - AWP-600

Sacramento International Airport
Wildlife Hazard Management Plan
Approved April 2013
Updated April 2015



FAA Authority

- Federal Code of Regulations, Title 14, Part 139 (14 CFR Part 139)
 - Certification of Airports
 - Section 139.337 Wildlife Hazard Management
- Advisory Circulars (ACs)
 - Mandatory for Part 139 airports
- CertAlerts



Migratory Bird Treaty Act of 1918

- Protects birds throughout their migration route
- Treaty between United States and
 - Great Britain (representing Canada)
 - Mexico
 - Japan
 - Russia
- 3 Species not protected
 - Rock pigeon
 - European starling
 - House sparrow



Endangered Species Acts

- Federal Endangered Species Act (FESA)
 - Endangered
 - Threatened
 - Candidate
- California Endangered Species Act (CESA)
 - Endangered
 - Threatened
 - Candidate
 - Species of Special Concern



Agencies Involved

- Federal Aviation Administration
- U.S. Fish and Wildlife Service
 - Depredation Permit
 - Migratory Bird Treaty Act
 - Endangered Species Act
 - Bald Eagle Protection Act
- Environmental Protection Agency
 - National Environmental Policy Act (NEPA)



Agencies Involved

- U.S. Army Corps of Engineers
 - Section 404 of Clean Water Act
- U.S. Department of Agriculture, Animal & Plant Health Inspection Service, Wildlife Services



Agencies Involved

- California Dept. of Fish and Wildlife
 - California Endangered Species Act
 - State Fish and Game (F&G) Code
 - SB 481 – Enacted October 2009
 - Amended F&G Code to recognize airport hazardous wildlife removal carried out under federal permit
- County of Sacramento
 - Heritage Oak Tree Ordinance
 - Swainson's Hawk Ordinance



Wildlife Attractants

- Food Sources
 - Agricultural land, grassland, trees
 - Plowing/disking exposes bugs, worms, seeds, etc.
 - Harvest remnants
- Water and Wetlands
 - Sacramento River, habitat preserves, airfield ditches, storm water retention basins
- Shelter
 - Terminal buildings, boarding bridges, tall grass



Surrounding Land Uses

- Most Significant Wildlife Attractant
- Outside of Airport control
 - Preserves, agriculture, and development (some have lakes)



Wildlife Program

- Annual training required:
- 14 CFR Part 139.337, Wildlife Hazard Management, requires annual training for anyone actively involved in implementing a Wildlife Hazard Management Plan



Wildlife Hazard Assessment (WHA)

- Required per 14 CFR Part 139.337 if:
 - Multiple wildlife strikes
 - Substantial damage occurs
 - Engine ingestion
 - Wildlife in size and numbers capable of causing any of above
- FAA uses to determine if Wildlife Hazard Management Plan (WHMP) is needed



SMF WHA Findings

- FAA approved February 2012
- 2010 - 2011 study period:
 - Season and time of day species observed
 - Most activity at dawn and dusk
 - Greatest number of species observed in fall (winter 2nd, summer 3rd, spring 4th)
 - Blackbirds, pigeons, and starlings top three most prevalent species
 - 60,000+, 20,000+, and 11,000+, respectively

SACRAMENTO INTERNATIONAL AIRPORT
WILDLIFE HAZARD ASSESSMENT
Federal Aviation Regulation Part 139 WHA

Prepared for
Sacramento County Airports System

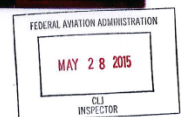
December 2011



SMF Wildlife Hazard Management Plan

- Document includes:
 - Laws and Regulations
 - Roles & Responsibilities
 - Wildlife Hazard Overview
 - Management Techniques & Procedures
 - Habitat/Land Management Practices
- FAA approves annual updates
- Incorporated into Airport Certification Manual

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Wildlife Hazard Management Group

- FAA Airport Certification/Safety Inspector
 - Western Pacific Region
- FAA Manager, SMF Air Traffic Control Tower
- Sacramento County Airport System
 - **Airport Wildlife Biologists**
 - Maintenance Division
 - Operations
 - Design and Development
 - Safety and Security
 - Properties & Business Development
 - General Services



SMF Wildlife Hazard Management Techniques

- Habitat Modification
 - Manage the land to reduce attractants
 - Basis of Airports' Wildlife Program
- Harassment
 - Make the individual's experience unpleasant
- Removal
 - Option of last resort when threat to public safety is imminent



Passive Management

- Habitat Modification
 - Main tenet of Airports' Wildlife Program
 - Maintain grasslands to discourage use by hazardous wildlife
 - Reduce aquatic and foraging habitat for hazardous wildlife
 - Reduce accessibility for terrestrial wildlife (e.g. coyote, raccoon)



Maintenance Practices

- Maintenance prepares an Annual Work Plan
 - Identifies location and time of work
- Biological Assessment Requests (BARs)
 - Submitted to Wildlife Team to avoid impacts to sensitive species
 - Field surveys required prior to activity
 - Per agreement with USFWS



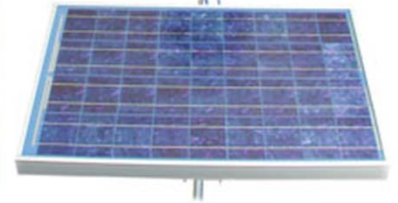
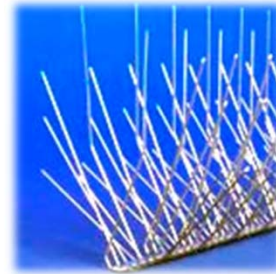
Maintenance Practices

- Airfield Maintenance
 - Mowing airfield and bufferlands, disking, and vegetation removal
 - Grass height 6"-12"
 - Mowing landside, herbicide spraying, and pruning of ornamental vegetation



Active Management: Harassment

- Visual Scare Devices
- Repellents
- Auditory Scaring Devices
 - Propane cannons
 - Pyrotechnics
 - Distress Calls
- Physical Exclusion Devices



Federal Depredation Permit

- Issued by U.S. Fish and Wildlife Service
- Authorizes take of migratory birds
 - Except eagles and threatened/endangered species
- Use lethal method as last resort
- Bird must pose a “direct threat to human safety”, not just a nuisance



SMF Protected Species

- Giant Garter Snake
- Swainson's Hawk
- Valley Elderberry Longhorn Beetle
- Tricolored Blackbird



What About...?

- Falconry & Dogs
 - Requires trainer
 - No control over where falcon/dog or harassed wildlife goes
 - Essentially an added wildlife risk on airfield



Avian Radar

- On-site test
 - Dec. 2011 – Feb. 2012
 - Useful research tool
 - No real time use
- New radar developments
 - Monitor latest technology for compatibility with Airport's wildlife program



SMF Ongoing Issues



- Waterfowl Migration
 - Drought causing longer flights between food and roost, new flooding fields of concern
 - Geese and ducks
 - Large birds; strikes often result in damage
 - Utilizing lands north and south of airport



SMF Ongoing Issues

- Swallows
- Pigeons
- Blackbirds
- Hawks
- Owls
- Ducks
- Geese



SMF Ongoing Issues

- Mammals
 - Coyote, Jackrabbit, Skunk, Squirrels
- Tenants/passengers feeding wildlife



FAA Wildlife Strike Database

January 1, 1990 – December 31, 2015

- Total Reported Wildlife Strikes in US = 170,607
- Total Wildlife Strikes in CA = 13,478
- Total Wildlife Strikes for SMF = 2,659
- 7.9% of reported wildlife strikes in US in CA
- 1.6% of reported wildlife strikes in US at SMF
- 19.7% of reported strikes in CA at SMF

Database accessed on 11/16/2015



SMF 2015 Strike Species Data

<u>Species</u>	<u>Total</u>
Unknown*	69
Swallows & Swifts	47
Songbirds/Misc	21
Hawks & Owls	17
Ducks & Geese	10
Bats	9
Sparrows & Larks	7
Shorebird/Gull	5
Blackbirds/Pigeons	3
Mammals	0
FAA database Jan-Dec 2015	

* No sample collected



Sacramento International Airport

Reported Strikes								
2008	2009	2010	2011	2012	2013	2014	July 2015	
155	186	204	139	150	169	134	191	
Reported Damage								
13	12	23	15	13	15	9	7	

- #1 FAA Western Pacific Region
- United States Top 10
- Strong strike reporting = higher numbers





3.5 miles north of Runway 16L.



Miracle on the Hudson - US Airways Flight 1549 – January 15, 2009

- LaGuardia Airport, New York
- At 3,000 feet (3 minutes after takeoff) struck flock of Canada Geese
- Dual engine ingestion and failure
- Landed in river 6 minutes after takeoff
- 155 passengers & crew survived

