

Minimize Environmental Effects of Avian Pests in Aircraft Hangars

0817 Pollution Abatement Ashore Program

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Technical POC

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Objective & Navy EQ Requirements



Objective: Identify, demonstrate and validate innovative bird control devices to deter birds in aircraft hangars

EQ Requirement: Bird droppings are the number 1 complaint from all NAS FASTT Team reports.

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Problem Statement/Drivers



- **Bird infestations result in fecal contamination of aircraft, industrial equipment and hangar floors.**
- **Droppings are acidic, carry disease and are a nuisance to workers.**
- **Many activities use extreme methods such as depredation permits to eliminate birds in hangars.**

Technology Description



Currently Available Bird Control Devices and Techniques

- **Exclusionary devices: netting, spikes, coils, wires**
- **Sonic/Ultrasonic devices**
- **Visual Scare devices: balloons, flash tape, decoys**
- **Percussion devices: propane cannons, bird bombs**
- **Chemical controls: aviacide, gels, caulking**
- **Depredation techniques: shooting, trapping/euthanasia**

Approach



The Avian Systems Technology is a commercially available “smart” bird relocation system.

- **Non-lethal**
- **Uses parabolic and omnidirectional microphones that trigger the system only when targeted birds are present.**
- **Equipped with programmable timers to assure the system only activates at desired time periods to maintain long term effectiveness.**
- **Delivers specific distress sounds to target specific problem bird species (18-24KHz)**
- **System can also be configured with optional motion detectors**

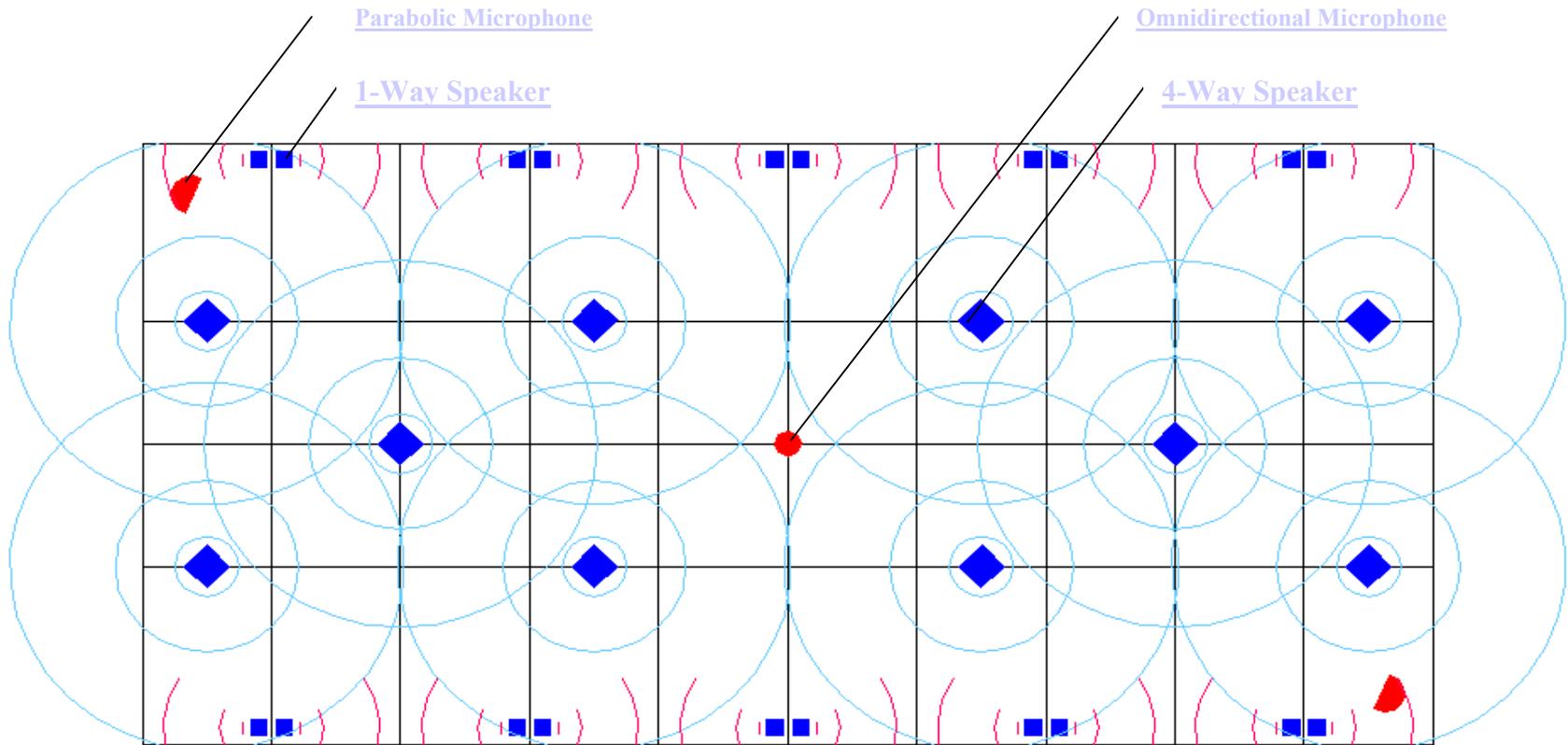
Success will be measured by evaluating the effectiveness of preventing birds from entering the hangar and building nests during the nesting season.

Technology Description



Avian Systems ASC 4000

Technology Description



System configuration in Hangar 1

Avian Systems ASC 4000



Projector3.exe

Benefits



- **Non-lethal bird control**
- **Minimize contamination of aircraft, ground support equipment and tool caused by fecal material**
- **Reduce building maintenance**
- **Cleaner healthier work environment**
- **Increased worker morale**

Before/After Comparison



Before	After
Fecal Contamination of Aircraft, Hangar Floor, Tools, and Equipment	No Fecal Contamination
Unhealthy Work Environment Resulting from Fecal Contamination	Cleaner Healthier Work Environment
Reduced Worker Morale	Increased Worker Morale

Benefits: ROI

Avian Systems Bird Relocation System	Cost (\$K/yr)
Annual System Maintenance	\$2
Total Annual Costs	\$2
Annual Cost Savings	\$7
Assuming 5 Implementation Sites	
Total Savings (10yrs)	\$332
R&D Investment (\$K)	\$275
ROI	1

Assumptions: ROI is based on 5 implementation sites. Assumes: hangar floor is cleaned once per month for a 4 month nesting season, each cleaning requires 2 people 8 hours. Also assumes 5 mechanics per hangar, that tools and equipment cleaning requires 1 hour per week per person, and an hourly rate of \$60 per hour.

Milestones and Major Deliverables of Task



MILESTONE	FY02				FY03				FY04			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Perform Technology Review of Commercially Available Bird Control Devices												
2. Prepare Initiation Decision Report												
3. Procure Bird Control Device Hardware, Remove Existing Bird Populations, and Install System Hardware												
4. Perform Hardware Demonstration and Validation Over Two Nesting Seasons												
5. Prepare Final Report and Technology Transfer												

Project Coordination



- **NFESC is working closely with:**

NAVFAC BASH PM (Mr. Matt Klope) Naval Air Station Whidbey Island, WA

Task 1: Perform Technology Review of Commercially Available Bird Control Devices

- Surveyed Current Bird Control Technologies for Hangar Environment
 - » Web Search
 - » Product Literature
 - » Current/Past Navy Experience

Task 1: Perform Technology Review of Commercially Available Bird Control Devices

— Results

» Identified a Wide Range of Bird Control Methods, Devices, and Manufacturers

- **Exclusionary devices: netting, spikes, coils, wires**
- **Sonic/Ultrasonic devices**
- **Visual scare devices: balloons, flash tape, decoys**
- **Percussion devices: propane cannons, bird bombs**
- **Chemical controls: aviacide, gels, caulking**
- **Depredation techniques: shooting, trapping/euthanasia**

Task 2: Prepare Initiation Decision Report

— Results

- » Documented Commercially Available Bird Control Technologies
- » Identified “Smart” Sonic Bird Relocation System for Hangar Application
Manufactured by *Avian Systems, Corp.*

Task 3: Procure and Install Bird Control Device Hardware in Navy Hangar

— Results

- » The “Smart” Bird Relocation System was Selected for Installation in Hangar1 at NAS Whidbey Island
- » A System Specifically Configured for *Starlings* (Target Bird) has Been Procured and Installed in Hangar 1

Hanger 1 – NAS Whidbey Island, WA



Hanger 1 – NAS Whidbey Island, WA



Hanger 1 – NAS Whidbey Island, WA



Task 4: Perform Hardware Demonstration and Validation Over Two Nesting Seasons

— Season One Results

- » System was installed however nesting activities were already present.
- » System seemed to deter “Newly Arriving” Target Birds but had little effect on currently nesting birds
- » A Preliminary Report was prepared
“Installation of Avian Systems Corporation Model ASC-4000 Smart Bird Relocation System In Hangar 1 At Naval Air Station Whidbey Island”

Task 4: Perform Hardware Demonstration and Validation Over Two Nesting Seasons

— Season Two Results (to be determined)

- » System has been upgraded with new audio tapes that include many specific Starling predator sounds including adult and baby Starling distress sounds.
- » System is currently active and ready for the new nesting season.

Implementation Plan and Progress



Plan: Technology transition will be accomplished through:

- **Coordination with Matt Klope, NAVFAC BASH PM**
- **Coordination with ESC implementation team**
- **Coordination with Joint Service FASTT Team members**
- **Joint Service P2 Technical Library**

Logic Model for Minimizing Environmental Effects of Avian Pests in Hangars



Navy Benefits	Minimize contamination of aircraft and GSE. Reduce building maintenance. Cleaner working environment and increased worker morale
Customer Capability	Navy will have technology to allow them to control pest birds in aircraft hangars
Products	Bird relocation system for use in Navy aircraft hangars
Project Milestones	MS 4 (Q3,FY04). Bird relocation hardware demonstration must be successful if the system is to benefit the Navy

Summary



- **Performed technology review of commercially available bird control devices**
- **Selected bird control device for hangar environment and identified NAS Whidbey Island as host activity for demonstration and validation**
- **Procured and installed system hardware**
- **System demonstration and validation in progress**

