COMPONENT PLAN C

BIRD AIRCRAFT STRIKE HAZARD (BASH) REDUCTION PLAN FOR

WAKE ISLAND
The following recommendation is provided for the 20 September 2013 Bird Aircraft Strike Hazard (BASH) Reduction Plan for Wake Island:

- The BASH Plan should be reviewed and periodic amendments made as necessary in order to ensure that it reflects actual requirements. Prior to implementation any amendments need to be submitted to the office of primary responsibility (OPR) for approval.

- Throughout the document: Spell out acronyms when they are first used in the text.

- In Section 7.2, change:

  Conducts periodic airfield BASH surveys and provides information on numbers, types, activities and location of bird activities and/or populations on WIA to the U.S. Fish and Wildlife Service (USFWS). Also provides migratory bird activity and nesting information.

To:

Conducts annual airfield BASH surveys and provides information on numbers, types, activities and location of bird activities and/or populations on WIA, and submits the data with adequate time for submission with the annual BASH report to the USFWS in January. Also provides migratory bird activity and nesting information.
CHUGACH FEDERAL SOLUTIONS, INC

INSTALLATION SUPPORT SERVICES FOR GEOGRAPHICALLY SEPARATED LOCATIONS (ISS for GSL)

CONTRACT NUMBER: FA5000-13-C-0005

Bird Aircraft Strike Hazard (BASH) Reduction Plan for Wake Island

Plan Date: September 20, 2013

Donald A. Davis
Site Manager, Wake Island
Wake Island Airfield

FOR OFFICIAL USE ONLY
Contents
RECORD OF AMENDMENTS .......................................................................................................................... 3
   Amendment Procedures ............................................................................................................................ 3
1. PLAN OVERVIEW ................................................................................................................................... 4
2. PLAN INTRODUCTION ........................................................................................................................... 5
3. LOCAL CONDITIONS .............................................................................................................................. 7
4. BASIC PLAN ............................................................................................................................................ 8
5. WIA BIRD WATCH CONDITION (BWC) GUIDE ..................................................................................... 18
ANNEX A TO WAKE ISLAND BASH PLAN .................................................................................................. 19
ANNEX B TO WAKE ISLAND BASH PLAN ................................................................................................. 27
ANNEX C TO WAKE ISLAND BASH PLAN ................................................................................................. 30
ANNEX D TO WAKE ISLAND BASH PLAN ................................................................................................. 33
Amendment Procedures

1. This plan will be subject to review and periodic amendments in order to ensure that the Bird Aircraft Strike Hazard (BASH) Reduction Plan reflects actual requirements. Prior to its implementation, and any amendment thereafter, it will be submitted for approval.

2. No “pen and ink” amendments will be made to this plan. Changes will be made by replacement of the applicable page(s). A change number and the issue date will identify each change in the plan. The first amendment will begin with number one (1).

3. The Record of Amendments will be updated by placing the change number and date in the amendment date column. The person entering the change will print and sign the Signature block. The date the change was carried out will be put in the date-entered block.

4. Any amendments to this plan will be submitted to the office of primary responsibility (OPR), Chugach Federal Solutions, Inc.
1. PLAN OVERVIEW

1.1. PURPOSE: To minimize aircraft and pilot exposure to potentially dangerous bird/animal wildlife strikes in the local flying area of Wake Island Airfield (WIA). The program is developed using guidance from Air Force Instructions (AFI’s) 91-202, 91-204, Air Force Pamphlet (AFPAM) 91-212, Federal Aviation Administration (FAA) Advisory Curricular (AC’s). Additional guidance, information and/or technical assistance may be obtained through the USAF BASH Team, HQ AFSC/SEFW, the U.S. Department of Agriculture (USDA) and/or U.S. Fish & Wildlife Service (USFWS) publications.

1.2. CONDITIONS FOR EXECUTION: This plan is based on hazards encountered at WIA from resident and seasonal bird populations, and other animals. This plan is a living document, therefore implementation of some portions of this plan are designed to evolve over time, while other portions will be implemented as required, based on measurable (observed/recorded) bird/animal activity at WIA, for lessons learned and continued process improvement.

1.3. OPERATIONS TO BE CONDUCTED:

1.3.1. Operations specific to the BASH Plan include:

1.3.2. Establish and sustain a local Bird Hazard Working Group.

1.3.3. Report and disseminate information regarding increased potential for aircraft/wildlife strikes to all base assigned and transient personnel affected.

1.3.4. Eliminate or reduce environmental conditions that attract birds to the airfield through habitat alterations.

1.3.5. Act to harass or depredate birds and other animals to reduce potential for aircraft/wildlife strikes.

1.3.6. Perform airfield/runway checks for bird/animal remains after a reported strike
BIRD AIRCRAFT STRIKE HAZARD (BASH) REDUCTION PLAN

2. PLAN INTRODUCTION

2.1. To maintain overall situational awareness, Wake Island Airfield (WIA) incorporates standardized Operational Risk Management (ORM) principles IAW Department of Defense (DoD) Instruction 6055.1 and FAA Safety System Handbook (chapter 15) to conduct/evaluate risk assessment according to a Five (5) step process:

2.1.1. Identify the Hazard
2.1.2. Assess the Hazard (severity)
2.1.3. Make Risk Decision (time critical)
2.1.4. Implement Controls
2.1.5. Supervise Effectiveness

2.2. This process allows WIA management to properly identifying existing hazards, as they occur, based on operational need, to assess associated risks, identify “best practices” to minimize/control those risks and coordinate/advise local decision authorities and/or transient aircrews of current, real time bird/wildlife threats to aircraft operations, as well as any recommended actions (advisories/restrictions) to enhance overall flight safety and mission support.

2.3. The WIA BASH Reduction Program has also adopted an integrated multi-discipline ORM preventive maintenance approach which involves four primary components:

2.3.1. Aircraft Avoidance
2.3.2. Hazard Response
2.3.3. Habitat Management
2.3.4. Monitoring and Research

2.4. The WIA Airfield Operations Manager (AOM) is the primary OPR for this program. Any proposed changes to this plan are provided to the AOM as Subject Matter Expert (SME) for review, concur/non-concur and incorporation, as deemed necessary. The Project Manager (PM) is responsible for ensuring cooperation of this plan by all departments and all parts of this BASH Reduction Program. The Public Works Manager, Environmental Manager and QC Safety Manager all have specific responsibilities within this plan to effect proper implementation, continuous compliance and safety of flight on WIA and surrounding areas.

2.5. WIA Windshield BDT Reference (Continuity Binder) is located in Base Operations. This Field Guide provides reference to associated reference materials (publications, web sites, etc.), tools and available resources, along with general information about different bird/animal species that frequent, or reside here at WIA, for use in conducting field observations, active/passive methods for bird/animal dispersal and options for making WIA less attractive to wildlife. Additionally, this Field Guide is designed to be used as an orientation guide and local training tool for local Bird Dispersal Team (BDT) members. The local Bird Hazard Working Group (BHWG) may recommend changes to
this Field Guide as new information, dispersal techniques and training resources become available.
3. **LOCAL CONDITIONS**

3.1. Wake Atoll is one of the most isolated islands in the world. The total land area of Wake Atoll is approximately 2.85 square miles with 12 miles of coastline. Its three islands, Wilkes, Wake and Peale, form a “V” shaped atoll, open on the northwest side and surrounded by a barrier reef. A 9,844’ X 150’ runway, with associated taxiways and aircraft parking aprons covers much of Wake Island at the head of the lagoon. The runway is adjacent to freshwater ponds in a few low-lying, wetland areas.

3.2. Extensive sand flats at the head of the lagoon also provide shorebird habitat. Due to the limited animal species currently on Wake Island, the threat of wildlife aircraft strikes is primarily associated with bird species. However, a recent scientific study (see field guide) provides evidence of a diverse, dynamic and ever increasing bird/animal population which must be monitored and managed closely.

3.3. Bird species on Wake Island (except for Rock Doves and Feral Pigeons) are protected by the Endangered Species Act and Migratory Bird Treaty Act. To control the existing threat of bird/wildlife species that frequent WIA, the U.S. Fish and Wildlife Service (USFWS) has issued Wake Island Airfield Depredation Permit # MB077566-0, IAW 50 CFR 13 and 50 CFR 21.41. For specific instructions IAW this permit, see the permit, which is maintained in Base Operations and the Wake Environmental Office.
4. BASIC PLAN

4.1. SITUATION:

4.1.1. GENERAL: Bird Aircraft Strike Hazards (BASH) exist at Wake Island Airfield (WIA) and the surrounding area due to resident and migratory birds. This plan establishes procedures to minimize these hazards. No single solution exists to these BASH problems, so a variety of techniques are used and several organizations are tasked with execution of this program. This plan is designed to:

4.1.1.1. Establish a local Bird Hazard Working Group (BHWG) and designate responsibilities.

4.1.1.2. Establish Bird Watch Condition (BWC) codes to communicate bird activity, number and location to aircrew. These condition codes are established based on visual observations of bird activity in the vicinity of the airfield (BWC Guide, page 18).

4.1.1.3. Provide information to all aircrews, on bird hazards and procedures for bird avoidance.

4.1.1.4. Establish guidelines to decrease airfield attractiveness to birds.

4.1.1.5. Provide guidance and training for dispersing birds when they congregate on the airfield.

4.2. BIRD HAZARD WORKING GROUP

4.2.1. CONCEPT OF OPERATION: Reducing the bird strike hazard potential at Wake Island Airfield requires a cooperative effort between several base organizations. The implementation of this plan is tasked to organizations under the direction of the Bird Hazard Working Group (BHWG).

4.2.1.1. Function: Collects data on bird occurrences and strikes to identify and recommend action to reduce the hazard. Recommends changes to local flying operations to reduce risk of bird strikes.

4.2.1.2. Authority: The Airfield Operations Manager (AOM) is the Office of Primary Responsibility (OPR) for this plan and the contents thereof. Implementation is through the CFSI IAW approved Performance Work Statement (PWS), in coordination with the PACAF Regional Support Center SG, Detachment One Commander (PRSC DET 1/CC).

4.2.1.3. Composition: The chairman of the BHWG is the PACAF Pacific Regional Support Center (PRSC DET 1/CC). As a minimum, the group will consist of the Project Manager, Airfield Operations Manager and/or Alternate, Logistics Manager, Safety Manager, Environmental Manager, Civil Engineering Manager and Enroute Services Supervisor.
4.2.1.4. BHWG Meeting Schedule: Semi-Annually, in March and September or as directed by the chairman of the BHWG.

4.2.1.5. TASKS: Annex A outlines the general and continuing tasks and responsibilities for each organization. Annex B outlines required bird/wildlife observation and reporting. Annex C provides local maps and diagrams used to implement this plan. Annex D provides general safety and operational guidelines for use of Pyrotechnics and Firearms use.

*Note: Technical assistance is available through the USAF BASH Team, HQ AFSC/SEFW, 9700 AVE G SE, Bldg. 24499, Kirkland AFB, NM 87117-5670. DSN: 312-246-5673/5674 or COMM: (505) 846-5673/5674.

4.3. OVERVIEW OF CURRENT WAKE ISLAND AIRFIELD BIRD HAZARDS

4.3.1. The following is a summary of specific bird groupings and associated bird species that are predominate to Wake Island Atoll, along with general recommendations for reduction of each bird group as an existing hazard (threat) to flight operations; see photo’s following summary descriptions. More detailed information is provided and within the National Oceanic and Atmospheric Administration (NOAA) publication, A Fisherman's Guide to Hawaii's Seabirds, which is excerpted in a Windshield BDT Reference and Recognition Tables, maintained in Base Operations.

4.3.2. Pelagic Birds (Albatross, Petrels, Shearwaters, etc.)

4.3.2.1. Control of this bird species is difficult since natural predators are rare and these birds exhibit little fear of man or aircraft. Avoid flying near nesting sites during the summer nesting season. These huge nesting colonies are located on steel, rocky coastlines or on islands where many thousands of birds may concentrate. Out at sea these large birds fly very close to the surface of the water gliding on small updrafts created by the ocean swells. Avoid flying low over the ocean or near low-lying wetland areas to minimize encounters with these soaring birds.

4.3.3. Seabirds (Great Frigate Birds, Brown Booby, Terns, etc.)

4.3.3.1. These are strictly fish eating birds common to coastal areas and along some major rivers and lakes. Avoid flying near areas where these birds may be active, such as nesting colonies or piers. Remove any localized nesting areas, eggs, food sources and/or fish-containment ponds to reduce their presence, which will significantly minimize this hazard.

4.3.4. Shorebirds (Sandpipers and Plovers)

4.3.4.1. The most significant hazard from these birds occurs when large migrating flocks traveling along the coastlines veer off and come into
coastal areas near the airfield. Controlling or directing these large flocks is very difficult since pyrotechnics, bioacoustics, and depredation have minimal impact as an effective bird deterrent. The best option is to employ an aggressive land (habitat) management program that makes airfields less attractive to migrating flocks as a food/water source, roosting place and/or nesting area. Otherwise, the best procedure (active measure) is to continually update local Air Traffic Control (ATC) agencies as to approximate size, location and activity of existing flocks for aircrew situational awareness to properly execute “see and avoid” operations. In addition, it is recommended that Military Aircraft Responsible for Separation of Aircraft (MARSA) operations be restricted when large flocks are observed since these flocks tend to take flight, and then return to the same location, thus presenting themselves as a hazard to remaining aircraft.

4.3.5. Photo Examples of Local Birds

![Shearwater](image1.jpg)

Shearwater

![White Fairy Tern](image2.jpg)

White Fairy Tern
Golden Plover

White Fairy Tern
White-tailed Tropicbird

Photo by Peter Osenton

White-tailed Tropicbird
Lasan Albatross

Masked Booby
Brown Booby with Chick

Red Footed Booby with Chick

Sooty Terns
Sooty Terns

Sooty Tern with Chick

Great Frigate bird
4.4. Bird/Aircraft Strike Avoidance

4.4.1. Several bird species that frequent WIA have been shown to utilize “predictable” flight patterns and/or flock movements, such as Shearwaters. In relation to these species, historical wildlife strike data reveals a majority bird/animal strikes occur during the hours of dusk and dawn, when bird activity is normally at its peak. As such, during periods of peak bird/animal movement, aircraft requesting a Prior Permission Required (PPR) Number should plan accordingly; schedule Estimated Times of Arrival or Departure (ETA/ETD) outside these key periods of activity, or operate over shorelines and designated bird sanctuaries (Wilkes Island) at altitudes sufficient to avoid contact with local bird populations and/or migrating shorebirds, which tend to fly low near the ground.

4.4.2. Published airfield operating hours for WIA are Tuesday – Saturday, 0800-1600L. When scheduling aircraft operations outside normal airfield hours, flying units
and/or aircrews should take local bird/animal behavior into consideration when planning to transit WIA. During peak wildlife movements, WIA employs a Bird Hazard Warning System, which is used to inform aircrews of any potential flight hazards due to increased bird activity in the local area.

4.4.3. Through continuous observation, WIA also updates the current Bird Watch Condition (BWC) as **LOW, MODERATE or SEVERE**, to correctly identify changes in bird/animal activity at or near the Aircraft Movement Area (AMA) and respond to effectively mitigate any potential threats in an appropriate and timely manner.

4.4.4. The WIA Airfield Operations Manager (AOM) and/or designated representative(s) serve as primary authority to declare BWC for Wake Island Airfield. Aircraft Ground Equipment (AGE) handlers, Barrier Maintenance, Safety, Environmental and any other personnel may observe activity and are encouraged to report findings to the AOM or Base Operations. If a transient aircrew member observes or encounters bird activity which could constitute a hazard, they should immediately report noted activity to Base Operations. The AOM or his/her alternate will activate the Bird Dispersal Team (BDT) as is deemed necessary. BWC code changes will be announced over the Land Mobile Radio (LMR) Ramp Net, Channel 8, then disseminated by Base Operations to base agencies IAW the BWC Quick Reaction Checklist (QRC) for notification. Field observations shall be recorded and tracked using **WIA BASH Form 1, Bird/Wildlife Activity & Response Log**, maintained in Base Operations.

4.4.5. BWC’s are provided to inbound/outbound aircraft by Base Operations through Local Advisories, along with information regarding seasonal Phase Designations associated with historical bird/wildlife activity here at Wake Island, as follows:

- **PHASE I:** 01Sep through 31 Jan
- **PHASE II:** 01Feb through 31Aug

4.4.6. Current BWC and Phase Designations are posted on the Airfield Status Board located in the Base Operations Flight Planning Room. Phase II represents heavy bird activity, normally associated with migratory season. The standard for declaring a BWC remains the same during Phase I and Phase II. The purpose of each phase is to raise awareness, yet it’s important to emphasize that BWC **MODERATE or SEVERE** are independent of Phase I and II.

4.4.7. Limitations:

4.4.7.1. WIA Base Operations cannot see birds/wildlife on the west end of the runway due to distance. Portions of the south ramp and the east end of the runway are also obscured due to the location of Base Operations in the air terminal.
5. WIA BIRD WATCH CONDITION (BWC) GUIDE

<table>
<thead>
<tr>
<th>MASS:</th>
<th>SMALL ( &lt; .5 lb)</th>
<th>MEDIUM ( .5 – 2 lbs)</th>
<th>LARGE ( &gt; 2 lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWC Noddy, Tern, Plover, Tattler</td>
<td>Tropicbird, Shearwater</td>
<td>Booby, Frigatebird, Albatross</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>LOW</th>
<th>MODERATE</th>
<th>SEVERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWC</td>
<td>&lt; 10 birds</td>
<td>10 – 19 birds</td>
<td>&gt; 19 birds</td>
</tr>
<tr>
<td></td>
<td>&lt; 5 birds</td>
<td>5 – 10 birds</td>
<td>&gt; 10 birds</td>
</tr>
<tr>
<td></td>
<td>1 bird</td>
<td>2 birds</td>
<td>3 + birds</td>
</tr>
</tbody>
</table>

BWC codes are defined as:

- **SEVERE**: Bird activity *on or immediately above* the active runway or other specific location representing a high potential for bird/animal strikes. *Supervisors and aircrews must thoroughly evaluate mission need before conducting operations in areas under condition SEVERE*

- **MODERATE**: Bird activity *near* the active runway or other specific location representing increased potential for strikes. *BWC MODERATE requires increased vigilance (caution) by all aircrews, as well as base agencies and supervisors*

- **LOW**: Bird activity on and around the airfield representing low potential for strikes.
ANNEX A TO WAKE ISLAND BASH PLAN

1. TASKS AND RESPONSIBILITIES

1.1. Bird Hazard Working Group (BHWG) OPR, Airfield Operations Manager (AOM)

1.1.1. The CFSI OPR ensures all tasked organizations comply with this plan.

- Operations
- Civil Engineering
- Logistics
- Environmental
- Quality Control/Safety

1.2. The CFSI OPR compiles all meeting minutes, and forwards BHWG recommendations to the PRSC, DET 1/CC, through the Project Manager, for approval.

2. Bird Hazard Working Group (BHWG)

2.1. Collects, compiles and reviews data on bird strikes and bird activity on Wake Island Airfield. The group identifies hazards, and recommends actions and/or procedures to reduce wildlife strike potential.

2.2. The AOM, through coordination with the BHWG, determines the composition of the Bird Dispersal Team (BDT). The BDT will normally consist of members from Airfield Operations, Traffic, Fire Department, Civil Engineering, Logistics, Safety and Environmental.

3. Wake Island Airfield Operations Manager (AOM):

3.1. As OPR, ensures base-wide compliance with the BASH Reduction Plan and reports all bird-aircraft hazards.

3.2. Through the QC Safety Officer, reports all bird strikes to USAF BASH, HQ AFSC/SEFW 9700 G Ave SE, Bldg. 24499, Kirkland AFB, NM 87117-5671. The web site is (http://safety.kirkland.af.mil/AFSC/BASH/home.html).

3.3. Monitors all tasked organizations and base activities for compliance with this plan.

3.4. Disseminates BASH data as required to the BHWG and flying units using base facilities.

3.5. Provides the BHWG with current BASH guidance from the Air Force, the USFWS and other agency records of confirmed bird/animal strikes on Wake Island Airfield.

3.6. Monitors bird activity and strikes statistics, advises the Project Manager and BHWG when a meeting is required or warranted, and schedules such meetings.
3.7. Coordinates with aircrews and maintenance for collection of non-fleshy remains after bird/animal strikes; Sends any salvaged material, feather fragments, etc., to the Environmental Manager, who will forward to the Smithsonian National Museum of Natural History, for identification.

3.8. Establishes and maintains a Continuity Binder in the Airfield Manager’s office with any pertinent BASH data and information to assure breadth of knowledge with local agencies and personnel turnover.

3.9. Encourages aircrews using WIA facilities to participate in the BASH Reduction Program by promptly reporting all bird strikes and hazardous conditions IAW this plan.

3.10. Ensures that an adequate supply of BASH report forms (AF Form 853) and bird activity maps, if necessary, are readily available to visiting aircrews.

3.11. Ensures aircrews operating from WIA are briefed on seasonal bird Hazards, Phase I and II, during local safety briefings provided by the CFSI QC Safety Technician.

3.12. Establishes a Bird Watch Condition (BWC) program to include information on local bird hazards and reporting procedures.

3.13. Initiates (declares) any change in the BWC as deemed necessary. In coordination with Base Operations and/or the AOM, the Enroute Services Supervisor, QC Safety Technician, Environmental Manager and/or Trusted Agents may also recommend changes to the local BWC.

3.13.1. Trusted Agents: IAW this plan, as defined, a “trusted agent” includes Air Operations supervisory personnel and BHWG members, however, local bird/wildlife activity can be observed and reported by anyone operating on or near WIA, which should be reported immediately to the AOM and/or Base Operations.

3.13.2. As reported, the BWC will be upgraded and/or downgraded based on updated information, effectiveness of bird/wildlife dispersal techniques applied and/or observed conditions. Only the AOM or Assistant Airfield Operations Manager (AAOM) can upgrade or downgrade the BWC.

3.14. The AOM disseminates the current BWC to Base Operations for coordination with local agencies and all aircrews using WIA IAW the prescribed checklist.

3.15. Appoints, in writing, a designated representative(s), who are given expressed authority to carry out the BASH Reduction Plan and all functions of the AOM during his/her absence, as required.

4. Assistant Airfield Operations Manager (AAOM):
4.1. Notifies the AOM whenever significant bird activity is observed, to include recommendations for use of BDT equipment (pyrotechnics, bioacoustics, etc.) as is deemed necessary to mitigate bird/animal activity.

4.2. Ensures Base Operations personnel disseminate BWC codes, phase conditions, bird strikes and any report of bird/wildlife activity observed on the airfield, to include actions taken, IAW this plan (WIA BASH Form 1), and locally produced checklists.

4.3. Ensures all BASH related activities and/or incidents that occur on the airfield are documented on AF Form 3616, Daily Events Log.

4.4. Assists the AOM with continued development, training and performance of ALL Bird Dispersal Team (BDT) members, to ensure 100% compliance with safe operating practices.

4.5. In his/her absence, assumes all BASH related duties, functions and responsibilities of the AOM as the Assistant Airfield Operations Manager (AAOM) IAW this plan.

5. Enroute Services Supervisor:

5.1. Notifies the AOM or AAOM whenever significant bird activity is observed, to include recommendations for change in BWC codes and use of BDT equipment (pyrotechnics, bioacoustics, etc.) as is deemed necessary to mitigate bird/animal activity.

5.2. Removes any dead or wounded birds/animals from the airfield and reports all findings to the AOM, AAOM and/or Base Operations.

5.3. As required, conducts a runway sweep after a noted bird/wildlife strike.

5.4. When conducting supervisory responsibilities on the flight line, monitors bird populations, grass height, drainage ditches, etc. and reports all findings to the AOM or AAOM for further evaluation and/or disposition.

6. Base Operations:

6.1. Collects and reports observed bird activity, disseminates BWC changes and forwards aircrew reports of bird/animal activity to the AOM and/or AAOM for further action.

6.2. Posts current bird activity data and BWC in the AF Form 3616, Events Log and Flight Planning Room so that it is properly documented and readily available to all aircrews.

6.3. Advises aircrews of BWC codes and/or local advisories.

6.4. Maintains bird activity logs.

6.5. Approves Bird Dispersal Team (BDT) member’s access to the Controlled Movement Area (CMA) as required.

7. Environmental Manager:
7.1. Provides advice to the BHWG regarding environmental impact analysis as it relates to habitat control, designation of endangered species, known wetland areas and recommendations regarding long-term land management (passive measures) that make Wake Island Airfield and surrounding areas less attractive to bird/animal species.

7.2. Conducts periodic airfield BASH surveys and provides information on numbers, types, activities and location of bird activities and/or populations on WIA to the U.S. Fish and Wildlife Service (USFWS). Also provides migratory bird activity and nesting information.

7.3. As a member of the BDT, assists the AOM and/or AAOM during bird dispersal activities, conducts BASH checks in and around the airfield to help provide a continuous presence, identify areas where there are increased bird/animal populations and provide SME to assist in development, procurement and/or application of initiatives designed to minimize or eliminate these threats.

8. Civil Engineer:

8.1. In coordination with the AOM, AAOM and Environmental, develops procedures for removal or control of bird attractants in and around the airfield within existing resources.

8.2. Corrects environmental conditions that increase BASH potential within the capabilities of the Contract Performance Work Statement (PWS) and available funding.

8.3. Uses prescribed land management practices that reduce BASH potential.

8.4. Modifies airfield habitat consistent within established airfield imaginary surfaces (runway lateral & primary surface, taxiways, aprons, clear zone, etc.) and approach zones IAW Unified Facilities Criteria (UFC) 3-260-01, Airfield & Heliport Planning & Design Criteria.

8.5. As a member of the BDT, assists the AOM and/or AAOM during bird dispersal activities, conducts BASH checks in and around the airfield to help provide a continuous presence and identify areas where there are increased bird/animal populations. Assists in efforts to minimize or eliminate these hazards.

8.6. Incorporates the following practices into the base Natural Resource Management Plan:

8.6.1. Airfield Grass Height Management: Maintain a uniform grass height between Seven to Fourteen (7-14) inches and establish a mowing frequency schedule to maintain standard height requirements. Coordinate mowing activities with the AOM (or AAM) and Base Operations during periods of low flying activity, cutting grasses before they go to seed to discourage seed-eating birds/animals from using the airfield as a food source. Airfields with a variety of grass species may have strains that grow faster than others, which should be monitored closely. As is deemed appropriate, assistance in selection of herbicides for weed control, grass seed selection, fertilization and erosion
control may be obtained from the U.S. Soil & Conservation Service and/or the Agricultural Extension Service.

8.6.2. **Broad-Leafed Weed Control:** Keep broad-leafed weeds to a minimum on the airfield. Apply herbicides as necessary to minimize growth or spread. Broad-leafed weeds attract a variety of birds, and may produce seeds or berries, limit natural grass growth and have the potential to damage airfield pavements (root growth).

8.6.3. **Dead Vegetation:** Brush piles and grass clippings should be removed as soon as possible to prevent provided cover for birds, nesting, etc.

8.6.4. **Dead Birds/Animals:** Must be removed from the airfield to avoid attracting carnivorous birds. Discovered remains that may have resulted from an aircraft collision will be delivered to the AOM (or AAOM) and/or Base Operations. Environmental Manager will forward to proper authorities for identification. Any other remains found, thought to be the cause of natural selection, shall be removed and properly disposed of (buried).

8.6.5. **Drainage Ditches:** Inspect ditches regularly. These are to be kept clear and obstacle-free. Maintain ditch sides as steeply as possible (5:1 minimum slope ratio) to discourage wading birds and emergent vegetation. Remove vegetation as often as necessary to maintain water flow and discourage use by birds/animals. Reference the Integrated Natural Resources Management Plan for further procedures.

8.6.6. **Standing Water:** Eliminate standing water on or near the prepared surfaces of Aircraft Movement Areas (AMA). Eliminate small ponds, pebbles, low lying areas and large bodies of standing water to reduce attractiveness to birds.

8.6.7. **Erosion Control:** Vegetation should be used which is appropriate for the site characteristics and supports BASH reduction philosophy, i.e., do not control erosion using plants which produce bird attracting seeds or foliage.

8.6.8. **Control Waste Disposal:** Landfills are the most significant attractant to hazardous bird species. Disposal sites should be operated IAW FAA Order 5200.5A, *Waste Disposal Sites On or Near Airports*, and must comply with Federal and State local laws. Solid waste dumpsters should be placed in hanger and/or terminal areas for aircrew use. Consider the following methods:

- Maintain a fence to minimize exposed wastes
- Operate landfill as a pit or trench to limit access to birds
- Cover waste material immediately
- Relocate putrefied waste
- In coordination with AOM (or AAOM) and Base Operations, use pyrotechnics to frighten birds away
- Keep dumpster sliding doors and top lids closed at all times when not in use
8.6.9. **Other Wildlife Hazards To Aircraft:** WIA currently has no other wildlife outside of birds, rats, amphibians, crabs and various insect species.

9. **Tenant Units:**

9.1. Responsibilities within the unit will mirror the responsibilities assigned by this plan.

9.2. Issues specific guidance to maintenance personnel for the reporting of all discovered bird strikes on aircraft to the AOM (or AAOM) and/or Base Operations.

9.3. Issues procedures for the preservation of non-fleshy bird remains if discovered on the aircraft. Even the smallest feather (or down) remains should be forwarded to the AOM, AAOM and/or Base Operations for disposition and proper identification.

10. **Bird Dispersal Team (BDT) Members:**

10.1. Will be familiar with this plan and understand the basics of reducing the risk of a bird strike. The BDT will be comprised of the AOM, AAOM and as a minimum, One (1) individual from Enroute Services, Civil Engineering, Fire Department, Logistics, Environmental and the QC Safety Officer. As is applicable, Managers/Supervisors from each section will designate member(s) from their respective organization to serve on the BDT.

10.2. As approved by the AOM, Project Manager and BHWG Chairman, members will be identified in writing.

10.3. Will be trained/certified by the AOM and/or AAOM in the use of firearms or pyrotechnic devices, as specified, before each BDT member is authorized to utilize this equipment. All training and certification will be documented in each BDT members training records and maintained by the AOM (master copy) and unit level Managers/Supervisors.

10.4. During normal or extended airfield operating hours, BDT members will monitor the Airfield Ramp Net (LMR, channel 7/8). When an immediate BASH threat is observed on the airfield (BWC is upgraded to MODERATE or SEVERE), the following BDT members will respond as follows:

10.4.1. Primary First Responders: AOM and/or AAOM

10.4.2. Secondary Responders: all other BDT members, as determined necessary by the AOM and/or AAOM, upon notification

10.5. For immediate response situations, the primary consideration is to drive birds/wildlife away from the direct path of an aircraft as quickly as possible. In so doing, BDT members will first employ use of “active” measures (non-lethal techniques & resources) to frighten birds/wildlife away from the airfield. Active measures include, but may not be limited to the following, as are available:
10.5.1. **Pyrotechnics:** Non-lethal dispersal cartridges launched from either a 15mm pyrotechnic pistol (RECORD Model Weinberg) or a 12-Gauge Shotgun. Scare cartridges from a 12-Gauge Shotgun produce a secondary explosion to scare the birds from the area. Pyrotechnics are effective for temporary dispersal of most bird/wildlife species.

10.5.2. **Bioacoustics:** Recordings (by species) of mating or bird distress calls designed to ward-off or attract birds to/from a given location.

10.5.3. **Vehicle Hazing:** As equipped on authorized Airfield Response Vehicles, use of a Public Address (PA) system (voice), vehicle horn, light bar and/or siren may be used to disperse birds/wildlife.

10.5.4. **Additional Methods:** Use of other prescribed resources, such as Propane Gas Cannons, bird/wildlife netting, bird balls, Falconry, etc., may be utilized as funding is available and considered value added.

10.6. When ALL non-lethal means have failed to mitigate the immediate BASH threat, consider use of lethal means (shotgun; live ammunition), as is deemed appropriate IAW approved USFWS Depredation Permit.

10.7. In addition to activation during immediate response situations, BDT members are also required to assist the AOM and/or AAOM in performance of “passive” measures in and around the airfield to help reduce the overall BASH threat. Passive measures include, but may not be limited to the following:

10.7.1. **Airfield BASH Checks:** Regular, periodic surveys of the Bird Exclusion Zone (BEZ) and surrounding areas, providing a constant presence to deter bird/wildlife activity (loafing, nesting, feeding, etc.) on or near the airfield.

10.7.2. **USFWS Depredation Permit Execution:** As directed, assist in the “taking” and/or “re-location” of migratory birds, nests and eggs that pose a direct threat to human (flight) safety.

10.7.3. **Other BASH Prevention Initiatives:** As required, provide the necessary manpower and/or assistance to effectively employ, observe and evaluate (record) on-going efforts to reduce overall BASH threats on the airfield.

11. **Communications Supervisor:**

11.1. Provide photographic services to document aircraft bird/wildlife strikes and related BASH activities.

12. **Aircrew Members:**

12.1. If an aircrew member observes and/or encounters bird activity at or near WIA that constitutes, or could potentially cause a hazard to flight safety, he/she shall report said activity to Base Operations. As a minimum, the following information should be included:
12.1.1. Call Sign
12.1.2. Location
12.1.3. Altitude
12.1.4. Time of sighting
12.1.5. Type of bird/waterfowl (if known)
12.1.6. Approximate number of birds/waterfowl
12.1.7. Bird/waterfowl behavior (soaring, feeding, flying to/from location, etc.)

12.2. Each Aircraft Commander (AC) is responsible to follow the guidance issued by his/her command during BWC MODERATE or SEVERE at Wake Island Airfield. AFPAM 91-212 states that supervisors and aircrews must use caution before conducting operations in areas under BWC MODERATE, and/or thoroughly evaluate mission needs before conducting operations in areas under BWC SEVERE.
ANNEX B TO WAKE ISLAND BASH PLAN

1. BIRD STRIKE REPORTS AND FORMS

1.1. GENERAL

1.1.1. Wake Island Airfield (WIA) has no base assigned aircraft. This annex outlines the procedures and/or forms required at WIA for reporting bird strikes by transient aircrews IAW AFI 91-202, U.S. Air Force Mishap Prevention Program, 91-204, Safety Investigations and Reports and AFPAM 91-212, Bird/Wildlife Aircraft Strike Hazard Management Techniques to enhance our local BASH Prevention program here at WIA.

2. BIRD STRIKE REPORTING

2.1. Report all wildlife strikes, both damaging and non-damaging, on the Air Force Safety Automated System (AFSAS) IAW AFI 91-204. The unit owning the mishap aircraft’s flying hours must file the report. Additionally, any wildlife remains found on the runway at WIA and believed to have been involved in a strike must be documented via AFSAS.

2.2. CFSI contract personnel do not have direct access to the AFSAS. As such, IAW AFI 91-202, 11th AF Supplement, for any bird/wildlife remains found on the runway (airfield) believed to have been involved in an aircraft bird/wildlife strike, the following reporting procedures apply:

2.2.1. The AOM and/or AAOM will complete AF Form 853, U.S. Air Force Bird Strike Report.

2.2.2. Completed reports will be submitted to the WIA QC Safety Officer for disposition.

2.2.3. The WIA QC Safety Officer will forward completed reports pertaining to PRSC MSG installations to the 3rd WG/SE office for tracking through their hazard reporting program. In addition, all original reports will be forwarded to AFSC/SEFW, as confirmed and coordinated with the PRSC ASUS/QA on specifics of the hazard report.

2.2.4. To assist transient aircrews, the AF Form 853 or MAJCOM approved Bird Strike Report, will be made available to flying units using WIA base facilities and/or base operations.

3. IDENTIFICATION OF BIRD/WILDLIFE REMAINS

3.1. Proper species identification of wildlife is an integral part of a BASH program. Feather fragments or fleshy remains from every bird strike, if available, must be sent to the Smithsonian Institution National Museum of Natural History for identification IAW AFI 91-204.
4. TECHNICAL ASSISTANCE

4.1. The USAF Mishap Prevention Program outlines responsibilities for reducing bird strike hazards. Obtain additional information on BASH management from AFPAM 91-212, *Bird Aircraft Strike Hazard Management Techniques*. Technical assistance is also available through the USAF BASH Team, HQ AFSC/SEFW, 9700 G Ave SE, Bldg. 24499, Kirkland AFB, NM 87117-5670. DSN: 312-246-5673/5674 or COMM: (505) 846-5673/5674. E-mail address; bash@kafb.saia.af.mil

5. BIRD/WILDLIFE SIGHTING & ACTIVITY REPORT

5.1. When bird/wildlife activity is sighted on or near the airfield, as observed, any responsible party should immediately contact Base Operations (ext. 101/222 and/or by LMR, channel 7/8) and provide the following information, as a minimum:

- 5.1.1. Number of birds/wildlife
- 5.1.2. Type of birds/wildlife (if known)
- 5.1.3. Location of birds/wildlife
- 5.1.4. Activity of birds/wildlife

5.2. Base Operations will coordinate bird/wildlife observations with the AOM, AAOM or designated representative for appropriate response (airfield or surrounding areas) and bird/wildlife dispersal, as deemed necessary. Once the bird/wildlife hazard has been mitigated, the AOM, AAOM or designated representative will advise Base Operations of any bird/wildlife hazard dispersal actions taken.

5.3. IAW the approved CFSI PWS, Section 1.8, *Airfield Management*, Sub-section 1.8.8., *Bird Aircraft Strike Hazard (BASH)*, Sub-paragraph 1.8.8.4., Base Operations will document any reported bird/wildlife activity and/or bird dispersal actions using *WIA Form 1, Bird/Wildlife Activity and Response Log*, to include the following:

- 5.3.1. Date
- 5.3.2. Bird location within the BEZ
- 5.3.3. Dispersal method used
- 5.3.4. Species
- 5.3.5. Estimated numbers
- 5.3.6. Number and species of birds taken lethally (if necessary)

5.4. As recorded, Base Operations will forward a copy of *WIA BASH Form 1, Bird/Wildlife Activity and Response Log* to the AOM (or AAOM) for inclusion within BASH Field Guide continuity binder (Attachment B) and to the Environmental Manager for reporting/tracking WIA BASH related data IAW USFWS requirements.

5.5. Base Operations will also annotate all required actions on AF Form 3616, *Daily Events Log*.

5.6. All data collected will be discussed during WIA BHWG meetings. In addition, available data and any actions taken (methods, results, etc.) are provided by the AOM
(or AAOM) to the 15th Air Wing, Hickam AFB, HI, for inclusion as part of their quarterly BHWG meetings.
ANNEX C TO WAKE ISLAND BASH PLAN

1. MAPS AND CHARTS

1.1. GENERAL

1.1.1. This annex outlines the use and requirements for local maps and charts required to implement the WIA BASH Reduction Program. Much of this information is also available in further detail within the Base Comprehensive Remediation Plan.

1.2. WAKE ISLAND AIRFIELD HABITAT MAP

1.2.1. The contractor will conduct a habitat survey to identify major habitat types available to birds, and create a habitat map based on this survey. Environmental will provide Base Operations a copy of this map.

1.2.2. When a specific hazard is identified and the location of the activity is isolated, consult the habitat map to determine if a specific attractant exists that can be altered within the scope of this plan.

1.2.3. Engineering will use the habitat map as a guide for the long-range civil engineering program to reduce actual and potential hazardous environmental factors on Wake Island Airfield.

1.3. BIRD EXCLUSION ZONE (BEZ):

1.3.1. The BDT will operate within the Bird Exclusion Zone (BEZ) when activated by the AOM or AAOM during BWC MODERATE or SEVERE. During aircraft operations (excluding emergency situations), when the AOM or AAOM declares BWC MODERATE or SEVERE, the BDT will have priority access within the BEZ to conduct bird/wildlife dispersal.

1.3.2. As outlined within the 11th AF Supplement to AFI 91-202, the BEZ is defined as an area, 1,000’ X 1,000’ either side of centerline, over the entire length of the runway, to include the overruns.

1.3.3. The BDT will make every effort to eliminate all bird/wildlife hazards within the BEZ in a timely manner, as is both reasonable and prudent to sustain mission requirements and overall flight safety.

1.3.4. In addition to immediate response measures, the BDT will utilize historical data from previous years to identify, monitor and apply long term mitigation techniques to reduce attractiveness; minimize use as nesting, loafing or feeding areas (see Figure 1, Habitat Map)
FIGURE 1 - WIA BASH OBSERVATION HABITAT MAP
FIGURE 2 - WIA BIRD EXCLUSION ZONE / MOWING BOUNDRIES
1. SAFETY RULES FOR PYROTECHNIC AND FIREARM USE

1.1. Pyrotechnic scare cartridges and launchers should be used only by trained staffs who have a clear understanding and working knowledge of these devices.

1.2. Always purchase high-quality, purpose-built pyrotechnic launchers and cartridges. These devices provide a greater safety margin than modified products originally designed for other applications.

1.3. Operators should wear proper eye and ear protection at all times.

1.4. Check the barrel after firing each round. Clean barrel as needed.

1.5. Store pyrotechnics in cool, dry and secure places to prevent product degradation and restrict access to qualified personnel only.

1.6. Never fire into a wind. Fire in a manner and a direction to cause birds to fly away from aircraft movement areas.

1.7. Never fire towards vehicles, aircraft, people, buildings, dry fields or any other flammable materials or liquids.

1.8. Never fire pyrotechnics from inside vehicles.

1.9. Prevent Foreign Object Debris (FOD) by collecting all pyrotechnic debris from airside areas.

1.10. Wait 30 minutes before removing misfires or duds from launch devices. Ensure both the chamber and barrel is safely aimed when removing these cartridges.

1.11. Duds, misfires and damaged pyrotechnic cartridges should be soaked in water for 24 to 48 hours prior to disposal.

1.12. Ensure operating instructions accompany pyrotechnic launchers at all times.

1.13. Do not attempt to modify pyrotechnic cartridges.

2. LOADING AND FIRING PYROTECHNIC (SCREAMERS AND BANGERS)

2.1. Load and discharge all launchers according to manufacturers’ instructions.

2.2. Insert a pyrotechnic device into the pistol according to instructions in the launcher’s manual. Screamers load hollow end first; bangers load fuse end first. Check and be sure the pyro fits loosely into the muzzle end. If force is required, remove the
pyrotechnic cartridge and clean the muzzle, otherwise the device may not function properly.

2.3. Hold pistol away from the body and fire in the direction of birds. Screamers will normally travel more than 60 metres; bangers will normally travel more than 25 metres.

3. TRANSPORTING PYROTECHNICS SAFELY

3.1. Cartridges must be transported in closed, non-flammable containers away from any source of ignition. Use of open trays containing multiple pyrotechnic cartridges is not recommended.

3.2. Smoking is prohibited when transporting and deploying cartridges, and at all times when airside.

3.3. Never transport launchers loaded with crimped blanks or pyrotechnic cartridges.

4. GENERAL GUIDELINES FOR SAFE USE OF FIREARMS

4.1. Use of firearms should be undertaken only in close co-operation with Airfield Operations staff.

4.2. Never point loaded or unloaded firearms at anyone. Carry firearms pointed toward the ground.

4.3. Never keep a firearm loaded, even with the breech open.

4.4. Examine firearms and liners daily. If these appear faulty or defective, report immediately as unserviceable.

4.5. Handle cartridges carefully to ensure they don’t become distorted, damaged or wet.

4.6. Whenever using firearms, personnel should wear appropriate apparel which includes:

- effective eye and ear protection,
- long-sleeved clothing to help prevent burns caused by misfires, and
- form-fitting gloves specifically designed for weapons use.

4.7. Due to their relatively short lethal range, shotguns are safer than, and therefore preferred over, rifles for wildlife control.

4.8. Never fire across active runways.

4.9. Prevent FOD (Foreign Object Debris) by collecting all empty casings from airside areas.

4.10. Never load or discharge firearms while inside a vehicle.
5. GENERAL GUIDELINES FOR SAFE TRANSPORTATION AND STORAGE OF FIREARMS

5.1. Firearms may be transported only when they are unloaded and rendered inoperable by means of a secure locking device.

5.2. All firearms should be stored upright in racks.

5.3. Shotguns and rifles left in unattended vehicles must be locked in racks or other secure compartments.

5.4. Lock all unattended vehicles which contain firearms.

5.5. Firearms must be unloaded with the safety on when stored inside vehicles.

5.6. Do not hide firearms inside vehicles. Not only can firearms become dirty and unserviceable, they can also be forgotten when out of sight.

5.7. Operators must never load or discharge firearms while inside vehicles.