Environmental Assessment of the Long Endurance Multi-Intelligence Vehicle (LEMV) Program

Prepared for:

US ARMY SPACE AND MISSILE DEFENSE COMMAND/
ARMY FORCES STRATEGIC COMMAND
AND
JOINT BASE MCGUIRE-DIX-LAKEHURST

DECEMBER 2012

Prepared by: EHS Technologies, Moorestown, NJ

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
DEC 2012		**00-00-2012 to 00-00-2012**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Environmental Assessment of the Long Endurance Multi-Intelligence Vehicle (LEMV) Program	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **EHS Technologies,1221 N. Church Street Suite 106,Moorestown,NJ,08057**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**170**	

Finding of No Significant Impact and Finding of No Practicable Alternative

Proposed Long Endurance Multi-Intelligence Vehicle (LEMV) Program

Joint Base McGuire-Dix-Lakehurst, Ocean County, New Jersey

December 2012

Federal Actions that potentially involve significant impacts on the environment must be reviewed in accordance with the National Environmental Policy Act (NEPA) and all other applicable laws. The United States Air Force (USAF) has completed an Environmental Assessment (EA) to address the potential environmental consequences of the Proposed Action and Alternatives for the LEMV program at the Lakehurst area of Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey. The EA is attached to this Finding of No Significant Impact/Finding of No Practicable Alternative.

Description of the Proposed Action

The US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) proposes to expand the integration, operation, and testing of LEMV hybrid airships at JB MDL. The LEMV requires a hangar of adequate size and height to house the inflated hybrid airship, plus office and shop space for engineers, testers, maintenance and assembly crews, and equipment/tool storage areas. The LEMV will also require airfields and airspace for test and training flights. Up to 3 LEMVs would be integrated and tested annually. The Proposed Action for the EA is to provide facilities and airfields for the LEMV integration and testing.

Alternatives Considered

Alternatives considered were:
1) LEMV integration within available hangar space on Lakehurst (determined at the discretion of JB MDL based on space availability and other mission priorities), and airfield operations from Mat 3 with limited touch-and-go flights within the Lakehurst Drop Zone.
2) LEMV airfield operations at a new airfield south of Mat 1, with option to build up to a 45,000 square foot addition onto an existing warehouse that would allow the Naval Air Systems Command to move out of Hangar 6, allowing all of that hangar to be dedicated to LEMV operations.
3) No Action Alternative. Discontinue LEMV operations at JB MDL after the testing of LEMV-1.

The site selection included the following criteria: a location with a hangar large enough to integrate and house the LEMV with associated airfield mats for take-offs and landings; a location that provides ample air space over sparsely populated areas; a secure DOD facility based on sensitive aspects of the LEMV program; and a location within reasonable proximity to USASMDC/URSTRAT to facilitate program monitoring.

Under Alternative 1, there would be no disturbance of wetlands but the airship would have a limited airfield area due to current and planned airfield obstructions on Mat 3. Under Alternative

2, the proposed airfield would require cutting trees and vegetation within 17.6 acres of wetlands. Tree clearing would be needed to provide a safe take-off and landing area for the airship, as well as provide improved line-of-sight from the Maxfield Air Traffic Control Tower to the LEMV airfield.

The Alternative 1 airfield at Mat 3 would be severely constrained and would only allow the airship to take off and land in very limited directions. While this option is feasible, the LEMV would be constrained to operate only during certain wind direction conditions, severely limiting its operations and increasing the program's overall safety risk. Due to the large unobstructed airfield requirement of LEMV (1350-foot radius ground run circle), the alternative 2 location was determined as the only practical alternative that allows a full range of safe take-off and landing directions for the airship.

The environmental consequences associated with the implementation of the Proposed Action are summarized in Section 5.0 and discussed in detail in Section 4.0 in the EA.

Public Review and Comment

The NEPA process is designed to involve the public in the federal decision making process. Public involvement and intergovernmental coordination and consultation are recognized as essential elements in the development of an EA. Formal notification and opportunities for public participation, as well as informal coordination with government agencies and planners, are an essential part of the EA process.

The Draft EA and Draft FONSI/FONPA were furnished to the US Fish and Wildlife Service, US Environmental Protection Agency, NJ Department of Environmental Protection, NJ Historic Preservation Office, NJ Pinelands Commission, Ocean County Planning Department, Delaware Tribe and Delaware Nation, and were made available during a 30-day public comment period. The EA was available for public review at the Manchester Branch of the Ocean County Library, 21 Colonial Drive, Manchester, NJ 08759. Upon completion of the comment period, the Draft EA was revised and the Final EA was developed.

In accordance with recommendations from the State Historic Preservation Office (SHPO), proposed plans for an addition to Building 572 (to accommodate warehousing displaced by airship use of Hangar 6) would be sent to SHPO for approval and concurrence and the addition would proceed until a "no adverse effect" determination has been obtained. The project would also comply with several best management practices recommended by the US Fish and Wildlife Service for the protection of downstream water quality and associated habitat for the federally-protected bog turtle.

Findings

FONPA

I find that there is no practicable alternative to the completing the Proposed Action, as defined in the EA, pursuant to EO 11990, the authority delegated by the Secretary of the Air Force Order 791.1, and in consideration of information contained in the attached EA of human and mission safety. The Proposed Action, as designed, includes all practicable measures to minimize harm to wetlands.

FONSI

Based on the analysis of potential impacts to the environment and the welfare of National Security and human safety, which are documented in the attached EA, it has been determined that there will not be significant human and environmental impacts associated with the Proposed Action. Accordingly, the requirements of NEPA and the regulations promulgated by the Council on Environmental Quality and the Air Force are fulfilled, and an Environmental Impact Statement is not required. This decision has been made after taking into account all submitted information and considering a full range of practical alternatives that would meet project requirements and are within the legal authority of the USAF.

The signing of this FONSI/FONPA completes the environmental impact analysis process under Air Force Regulations.

J. H. Bonapart

JOHN H. BONAPART, JR.
SES, DAFC
Deputy Director of Installations and Mission Support

11 DEC 2012

DATE

Table of Contents

List of Tables

List of Figures

List of Abbreviations and Acronyms

AADT	Annual Average Daily Traffic
AASF	Army Aviation Support Facility
AFB	Air Force Base
AICUZ	Air Installation Compatible Use Zone
AWC	Atlantic White Cedar
BASH	Bird Aircraft Strike Hazard
BMPs	Best Management Practices
AFI	Air Force Instruction
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERDEC	Communications-Electronics Research, Development, and Engineering Command
CFR	Code of Federal Regulations
CO	Carbon monoxide
COA	Certificate of Waiver or Authorization
CRM	Cultural Resources Manager
CWA	Clean Water Act
dB	Decibel
dBA	Decibel, A-weighted
DNL	Day-Night Level
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
ESQD	Explosive Safety Quantity-Distance
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
HP	Horsepower
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
ISR	Intelligence, Surveillance and Reconnaissance
JB MDL	Joint Base McGuire-Dix-Lakehurst
LEMV	Long-Endurance Multi-Intelligence Vehicle
LTA	Lighter-Than-Air
MEK	Methyl-ethyl-ketone
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAES	Naval Air Engineering Station (former)
NEPA	National Environmental Policy Act
NJ	New Jersey
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJPDES	National Jersey Pollution Discharge Elimination System
NJSA	New Jersey Statutes Annotated
NM	Nautical miles
NOA	Notice of Availability
NOx	Nitrogen oxides
NRHP	National Register of Historic Places
NRM	Natural Resources Manager
PM	Particulate matter
RDT&E	Research, Development, Testing and Evaluation
RONA	Record of Non-Applicability
SEL	Sound Exposure Level
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur dioxide
tpy	Tons per year
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geologic Survey
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
USASMDC/ ARSTRAT	US Army Space and Missile Defense Command

1. PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

USASMDC/ARSTRAT proposes to continue and expand the integration, operation, and testing of Long Endurance Multi-Intelligence Vehicle (LEMV) airships at Joint Base McGuire-Dix-Lakehurst (JB MDL) in central NJ (Figure 1-1). The LEMV requires a hangar of adequate size and height to house the inflated hybrid airship, plus office and shop space for engineers, testers, pilots, maintenance crews, and assembly crews, and storage areas for equipment and tools. The LEMV will also require airfields and airspace for test and training flights. Up to 3 LEMVs would be integrated and tested annually.

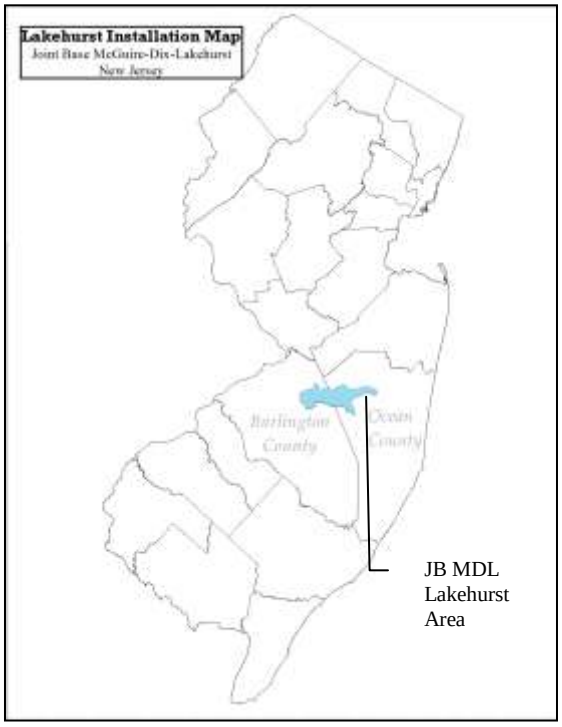


Figure 1-1. Location of JB MDL

1.1.1 Environmental Assessment Framework

This Environmental Assessment (EA) has been prepared to document the potential for environmental impacts resulting from proposed continuation and expansion of the LEMV program at JB MDL. This EA has been prepared under the provisions of, and in accordance with, the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321 *et seq*.), Council of Environmental Quality [CEQ] Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR 989 (*Air Force Environmental Impact Analysis Process*).

1.1.2 Background

USASMDC/ARSTRAT is currently conducting a LEMV development program. The LEMV is an optionally manned, long-endurance hybrid airship intended to enable continuous over-the-horizon communications, wide area surveillance and protection to support uninterrupted theatre operations in urban and mountainous terrain. Key goals of the LEMV include:

- Carry a 2,500 pound payload
  - 21-day endurance at 20 knot continuous winds
  - Operate at 7,500 feet above ground to 20,000 feet mean sea level (MSL) altitude
  - Provide 16 kilowatts of power to payloads
  - Multi-Intelligence capability
  - Reduced cost and logistical footprint
  - Capable of 80 knots dash speed and 20 knots average station keep speed. (USASMDC/ARSTRAT, 2010)

The LEMV will offer payload flexibility and an extended persistent "Intelligence, Surveillance and Reconnaissance" (ISR) capability that does not exist in theatre today. LEMV has the potential to improve information-poor situations, mitigating Warfighter gaps and existing shortfalls through multi-intelligence sensor integration (USASMDC/ARSTRAT, 2011).

The airship is a hybrid craft, meaning it combines the natural lift of helium with the aerodynamic lift and control of an airplane. The LEMV is 305 feet long, 145 feet wide, and 85 feet high, covering the equivalent of one acre in area, and is nearly as tall as an 8 story building.

The Army negotiated an agreement to integrate and test the first LEMV ("LEMV-1") at Hangar 6 on JB MDL Lakehurst on a temporary basis using existing facilities under a Categorical Exclusion. However, the decision to base LEMV long-term with expanded operations on JB MDL requires further assessment under NEPA. Depending on the success of the initial LEMV testing and deployment, USASMDC/ARSTRAT could order and deploy up to 20 LEMV over the next 5-10 years. Under this scenario, they would need facilities to assemble, outfit, and test up to three LEMVs at one time.

1.2 Purpose and Need

The purpose of the Proposed Action is to provide a long-term basing solution for the expansion of the LEMV Program. USASMDC/ARSTRAT needs a secure DoD facility to base the LEMV that has adequate hangar facilities for airship assembly, storage, maintenance and repair and adequate airfield and airspace for its operation, testing and training activities.

1.3 Scope and Content of the Environmental Assessment

This Environmental Assessment evaluates the individual and cumulative effects of the Alternatives with respect to land use, airspace, air quality, noise, geology, water resources, biological resources, cultural resources, socioeconomics, infrastructure, transportation, materials/waste, and safety. This EA analyzes the expansion and continued operation of the LEMV integration and testing program at JB MDL. LEMV operations at and around contractor-owned and at potential other federal sites are not addressed in this EA and may be subject to separate NEPA analysis. Overseas deployment of the LEMV is not analyzed pursuant to 32 C.F.R. PART 187—"Environmental Effects Abroad of Major Department of Defense Actions," where "deployment of ships, aircraft, or other mobile military equipment is not a major action" and per Executive Order (EO) 12114. Potential future non-DoD uses for the LEMV, including use by border control agencies, would be subject to additional NEPA review by the lead agency for those actions.

1.4 Decisions to be Made

As the action proponent, USASMDC/ARSTRAT will decide whether to continue and expand the LEMV program past the first LEMV, and where to conduct future LEMV integration, testing and basing after the successful first LEMV deployment. As the land owner, JB MDL will decide whether or not to agree to the long-term commitment of facilities, airfields, and airspace necessary to support LEMV operations.

1.5 Interagency Coordination, Native American Consultation, and Public Involvement

Public participation is a significant component of the NEPA process. The following provides a listing of key public notification and participation events that occurred as part of this environmental review process:

- JB MDL conducted interagency and intergovernmental coordination for environmental planning pursuant to the requirements of NEPA as required under Executive Order (EO) 12372, which has since been superseded by EO 12416 – *Intergovernmental Review of Federal Programs*, and subsequently supplemented by EO 13132. The Draft EA provides a list of agencies and individuals contacted during initial scoping (Chapter 9). Copies of the letters received from the respective agencies and individuals are located in Appendix A.
- JB MDL sent a letter to the NJ Pinelands Commission citing the National Defense Exemption (per N.J.A.C. 7:50-4.52(d)) to opt out of compliance with the Pinelands Comprehensive Management Plan requirement to submit a development application for the project. A copy of the letter is provided in Appendix A.
- EO 13175, Consultation and Coordination with Indian Tribal Governments (6 November 2000) directs Federal agencies to coordinate and consult with Native American tribal governments whose interests might be directly and substantially affected by activities on federally administered lands. The project sites are in areas that are unlikely to contain intact archeological sites or other significant resources based on past land disturbance; however, JB MDL is in the process of establishing a formal government to government relationship with the Delaware Nation and Delaware Tribe of Indians. The tribal consultation process is distinct from NEPA consultation or agency coordination and requires separate notification of relevant tribes. In furtherance of the developing government to government relationship and in compliance with Section 106 of the National Historic Preservation Act (NHPA), JB MDL provided the Draft EA to these tribes for review.
- JB MDL published and distributed the Draft EA and Draft Finding of No Significant Impact (FONSI)/Draft Finding of No Practical Alternative (FONPA) for a 30-day public comment period. The mailing list for the Draft EA is provided in Chapter 10. Legal Notices of Availability (NOAs) were published in the Asbury Park Press and the Burlington County Times on May 17, 2012 (Appendix E). Copies of the Draft EA and associated documents were made available at the Manchester Branch of the Ocean County Library. The JB MDL Public Affairs Officer was the primary point of contact for inquiries. Copies of received responses/comments on the Draft EA, as well as responses to these comments, are provided in the Final EA, as appropriate.

THIS PAGE INTENTIONALLY LEFT BLANK

2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

USASMDC/ARSTRAT proposes to conduct LEMV integration and associated testing and training flights in the US on a long-term basis.

The LEMV would be capable of both manned and unmanned flight operations. Description of the integration process, acceptance tests and ferry flights are described below.

2.1.1 Integration

Primary integration of the airship components consists of laying out fabric in a hangar with an open floor space of at least 340 by 180 feet. The fabric edges are cleaned with solvent and then heat welded together. The fabric envelope is then inflated with air and checked for leaks visually and with a solution of soapy water. Once the integrity is verified, it is inflated with helium. Depending on the size of the helium containers, between 5 and 7 helium trucks are needed to fill the LEMV. The fins, mission command module, engines, wiring, payload compartments, and other fixtures would then be affixed. During the integration phase, the workforce for a single LEMV would average 32 full-time employees (government and contractor), with occasionally up to 60 employees on-site. For integration of up to 3 LEMVs at one time, the average workforce would be 60 full-time employees.

2.1.2 Acceptance Tests

Each LEMV would undergo a series of tests prior to acceptance from the Army. The intensity of testing would be greatest on the first 1 to 3 LEMVs for "proof of concept". Acceptance testing could be reduced by 65 percent on subsequent LEMVs. However, for the purposes of analysis, it is assumed that all LEMVs would undergo the same degree of flight testing.

For the purposes of this EA, the term "manned" means a flight where there is a pilot and possible crew are physically on-board. During an "unmanned" flight the LEMV is maneuvered by a combination of remote piloting and autonomous control. A manned flight can be piloted by personnel on board or can be switched to remotely piloted mode for all or a portion of the flight.

Initial flight tests for each LEMV would originate from Lakehurst. The first tests would be limited in altitude, distance, and speed with later tests gradually increasing in these parameters. It is anticipated that 15 flight tests (all manned) would occur from Lakehurst, for up to 90 flight hours, prior to a ferry flight to a contractor facility where an additional 15 flight tests would occur (manned and unmanned) for up to an additional 120 flight hours. Individual flights would occur at varying maximum altitudes, ranging from 3,000 to 18,000 feet MSL.

Prior to flight testing, the LEMV would receive airworthiness release per Army Regulation 70-62 by the Aviation Applied Technology Directorate. There are two acceptable means of operating unmanned aircraft in the National Airspace System outside of "restricted" airspace or warning areas: 1) a Special Airworthiness Certificate – Experimental Category or 2) a Certificate of Waiver or Authorization (COA). The LEMV contractor will comply by conducting unmanned flights only in appropriately designated airspace or by obtaining a COA.

The LEMV would conduct flights primarily between Lakehurst and the restricted airspace of the Warren Grove Gunnery Range, shown in Figure 2-1. Laser tests would occur at Warren Grove, where, on average, one day of laser tests would occur per LEMV.

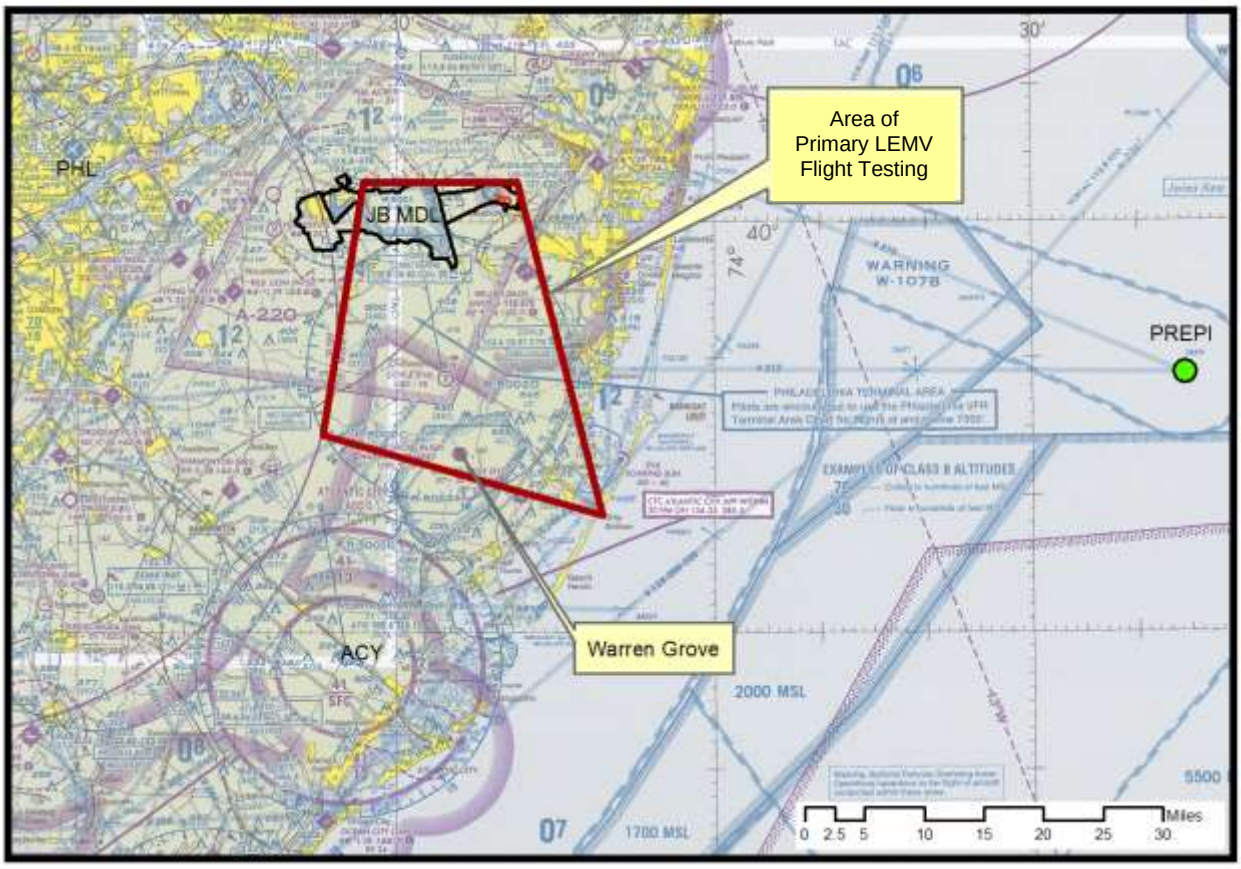


Figure 2-1. LEMV Primary Airspace Operating Area

The designated off-shore fuel dumping area, known as the PREPI intersection, is located 50 miles to the southeast of Lakehurst Maxfield Field and 35 miles off the NJ coastline (Figure 2-1). The LEMV fuel jettisoning test (non-emergency releases) would be conducted one time per airship only at the PREPI area with prior coordination with the Atlantic City Approach Control. The release would occur at an altitude over 5,000 feet MSL, as outlined in the McGuire Air Force Base (AFB) Instruction 13-302 "Base Airfield Operations Instruction". Less than 100 gallons of fuel would be released per test out the LEMV's 2,700 gallon fuel capacity.

LEMV flights would conform to all requirements of the Lakehurst Air Operations Manual published by the Commander, 305th Operational Support Squadron. Prior to each test flight, a flight plan would be filed with the applicable Flight Service Station. While not required for non-IFR aircraft, the flight plan is a good practice to enhance tracking and provide assistance to pilots. The LEMV would also be outfitted with military and civilian transponders to assist in identifying it on radar and on other aircraft's collision avoidance systems.

Depending on the time of year and weather conditions, future LEMV's could conduct all flight tests (30 flights and 210 hours total per LEMV) from Lakehurst. Either a COA would be pursued or all unmanned operations would take place in restricted airspace or warning areas.

The LEMV would be powered by four Centurion 4.0 BE-257 8-cylinder, 4-stroke, 350-HP diesel cycle turbocharged engines. The maximum airspeed would be 80 knots indicated airspeed or 92 miles per hour.

2.1.3 LEMV Deployment

The goal of the LEMV program is to provide ISR, communications and payload capability during wartime in theater. Consequently, over the life-span of a LEMV, most of its operations would occur overseas in forward deployment locations. Once acceptance testing is completed, the LEMV would make a manned flight to its deployment location. It is possible that LEMVs or their components could be sent back to JB MDL for configuration changes or repairs, but this would occur infrequently, as the deployment location would be outfitted with equipment and technicians that could make the majority of repairs and service changes.

2.2 Alternatives Considered

USASMDC/ARSTRAT identified a set of reasonable selection standards to identify potential alternatives for primary LEMV operations in the US. These include:

- A location with a hangar large enough to integrate and house the LEMV with associated airfield mats for take-offs and landings. Due to the expedited timeline for LEMV delivery, an existing hangar is needed.
- A location that provides ample air space over sparsely populated areas.
- A secure DoD facility based on the sensitive aspects of the LEMV program.
- A location within reasonable proximity to USASMDC/ARSTRAT (Huntsville, AL), to facilitate program monitoring.

Airship operations have airfield requirements that are very different from those of fixed wing aircraft. The LEMV will be a non-rigid hybrid airship, meaning it would combine the natural lift of helium with the aerodynamic lift and control of an airplane. Therefore, the LEMV will need more area for takeoff than a conventional helium airship to achieve aerodynamic lift. However, because of the helium component, it would need less area for takeoff than a fixed wing aircraft.

The optimal take-off/landing area would consist of a 350-foot radius ground run circle that is clear and level, in the center of a larger 1350-foot radius circular area (glide slope area) that must not have obstacles of a height greater than 50 feet at its outer perimeter. This configuration would allow a clear 360 degree glide path for take-offs and landings.

A mooring area consisting of a 300-foot radius circle would be needed. At the center would be a Towable Mooring Mast that would be staked to the ground. The following support equipment would be needed at the mooring site: castoring ground cradle, fuel truck, high reach bucket lift, light carts, 10-ton towing vehicle, and maintenance crew vehicle.

The LEMV is a very large airship and most conventional fixed-wing aircraft hangars are not configured for its length and height. Therefore, USASMDC/ARSTRAT focused the search for hangar space on any still existing large airship hangars. Section 2.3 discusses alternatives considered but eliminated from further consideration based on the reasonable selection standards identified previously. Based on the review of existing hangars

> The LEMV is 305 feet long, 145 feet wide, and 85 feet high, covering the equivalent of one acre in area, and nearly as tall as an 8 story building.

and their locations, USASMDC/ARSTRAT identified JB MDL as the only secure facility that could reasonably accommodate the program.

2.2.1 Alternative 1 – Limited Lakehurst Facility and Airfield Improvements Alternative

Under Alternative 1, integration, testing and basing of the LEMV would occur on JB MDL Lakehurst, in central NJ with primary mooring and air operations on Mat 3 with limited touch and go flights in the Lakehurst jump circle. Test flights would be conducted over land and sea, primarily within airspace between Lakehurst and the Warren Grove Gunnery Range, shown in Figure 2-1. Below are details of Alternative 1:

- Hangar Space as Assigned by JB MDL - As a Joint Base with multiple supported components and tenants, sharing of hangar space occurs frequently and allows for the most operational flexibility. The LEMV began operations in the western half of Hangar 6 under a temporary agreement with JB MDL to allow the Army to construct and test the first LEMV aircraft. Under this alternative, LEMV operations could be allowed within other hangars over the life of the program at the discretion of JB MDL, with prior coordination with other components and tenants. For example, the Army Communications-Electronics Research, Development and Engineering Command (CERDEC) plans to move a portion of their current operations in Hangar 5 into a new hangar facility that is scheduled to be built on Lakehurst in 2012-2013. This could allow LEMV to occupy some of the hangar deck and office space once CERDEC transfers to its new hangar. Hangar 5 is next to Hangar 6 and both open onto Mat 3. Additionally, depending on the future use and availability of Hangar 1, JB MDL could allocate a portion of Hangar 1 to the LEMV program. Hangar 1 opens onto Mat 1. Use of either of these hangars by LEMV would be predicated on using them in their existing configuration. Any proposed alterations to these hangars to support LEMV operations would need additional NEPA analysis and Section 106 consultation with the SHPO.
- Primary Flight Operations at Mat 3 - The west end doors of Hangars 5 and 6 open onto Mat 3. The proposed airship field on Mat 3 is shown in Figure 2-2. Approximately 6.8 acres of tree clearing would be needed within the glide slope area. The mat consists of maintained pavement and older, unmaintained pavement from the earlier Lighter-Than-Air era of the base. In 2012, the NJ Army National Guard will begin construction of an Army Aviation Support Facility (AASF) adjacent to Rounds Road on the unmaintained area of Mat 3. This new facility and associated helicopter parking would relocate the mooring site closer to Hangars 5 and 6, substantially limit LEMV take-offs and landings in a northern and eastern direction from the proposed ground run circle.
- Limited Flight Testing at the Lakehurst Jump Circle – The Lakehurst Jump Circle is a circular cleared area approximately ¾-mile in diameter or 270-acres. Under this alternative, only touch and go's would be authorized with no mooring permitted and minimal support vehicles (less than 3 at one time) situated along existing unpaved roads.

2.2.2 Alternative 2 – Major Lakehurst Facility and Airfield Improvements Alternative

Alternative 2 includes all the aspects of Alternative 1, but would include a new airship airfield south of Lakehurst Mat 1, with tree clearing for the LEMV glide path area and to increase visibility of Mat 1 from the Maxfield control tower. This alternative also includes moving existing

Navy operations out of Hangar 6 to allow the LEMV program to occupy the entire hangar. This would allow the LEMV to house up to 3 airships at one time in a single facility, which is operationally the most efficient.

2.2.2.1 New Airship Airfield South of Mat 1

This alternative includes a new airfield that would largely achieve the desired 1350-foot radius unobstructed 360-degree glide slope area. Such an airfield is not readily available on JB MDL. This airfield would also double as a mooring site for the duration of each airship's test program, so actively used airfields and jump circle/drop zone are not appropriate for the LEMV test program. This alternative for the LEMV airfield were developed based on the following criteria: a site entirely within the base boundaries; minimal building obstructions within the glide slope area; reasonable proximity to potential LEMV hangar space; avoiding areas of unexploded ordnance; and minimizing habitat destruction of federal and state-listed threatened and endangered species. Based on these criteria, only one practicable alternative site for the airship airfield was available.

Mat 1 is located to the west of Hangar 1 and east of Hangar 5. Mat 1 was the primary airship mat during the Lighter-Than-Air era of the base, and included a much larger cleared area during the 1930's. Under this alternative, a new airship airfield would be established by clearing 77 acres of trees south and west of Mat 1 and relocating an above-ground transformer with associated buried electric lines. The proposed tree removal includes the area within the airship airfield and also in an area between Mat 1 and Mat 3 to improve the views of the airfield from the Maxfield Air Traffic Control Tower. The proposed airfield would be unpaved and planted with native grasses. Figure 2-2 depicts the proposed airship field and areas of proposed tree removal. The mooring area within the airfield would be located south of Houghton Road. Temporary road closure would be necessary during active airship operations (ranging from 15-45 minutes per take-off/landing event). A set of flashing lights with signs on either end of Houghton Road would indicate to drivers not to proceed during airship take-offs and landings. This airfield configuration allows the unimpeded use of Saniuk Road to the north of Mat 1 so that vehicles would have an adequate alternate route during temporary road closures on Houghton Road. This airfield proposal also minimizes conflicts with building obstructions. This airfield could be used regardless of which hangar was used for integration of LEMVs. Like Alternative 1, this alternative would minimize use of the Jump Circle for LEMV flight activities.

The proposed airfield location was identified as the only location that would minimize building obstructions, provide close proximity to existing hangar space, avoid areas with high probability of unexploded ordnance (UXO), and minimize adverse effects to federal and state-listed threatened and endangered species. To create this airfield, 17.6 acres of the total 77 acres of trees to be removed would be located within wetland areas. The tree clearing in the wetlands would conform to the requirements and BMPs found in Sections 2.2.5 and 2.2.6. No wetlands would be filled under this alternative. With the siting constraints described above, the Air Force could find no practical alternative that would avoid tree clearing in wetlands.

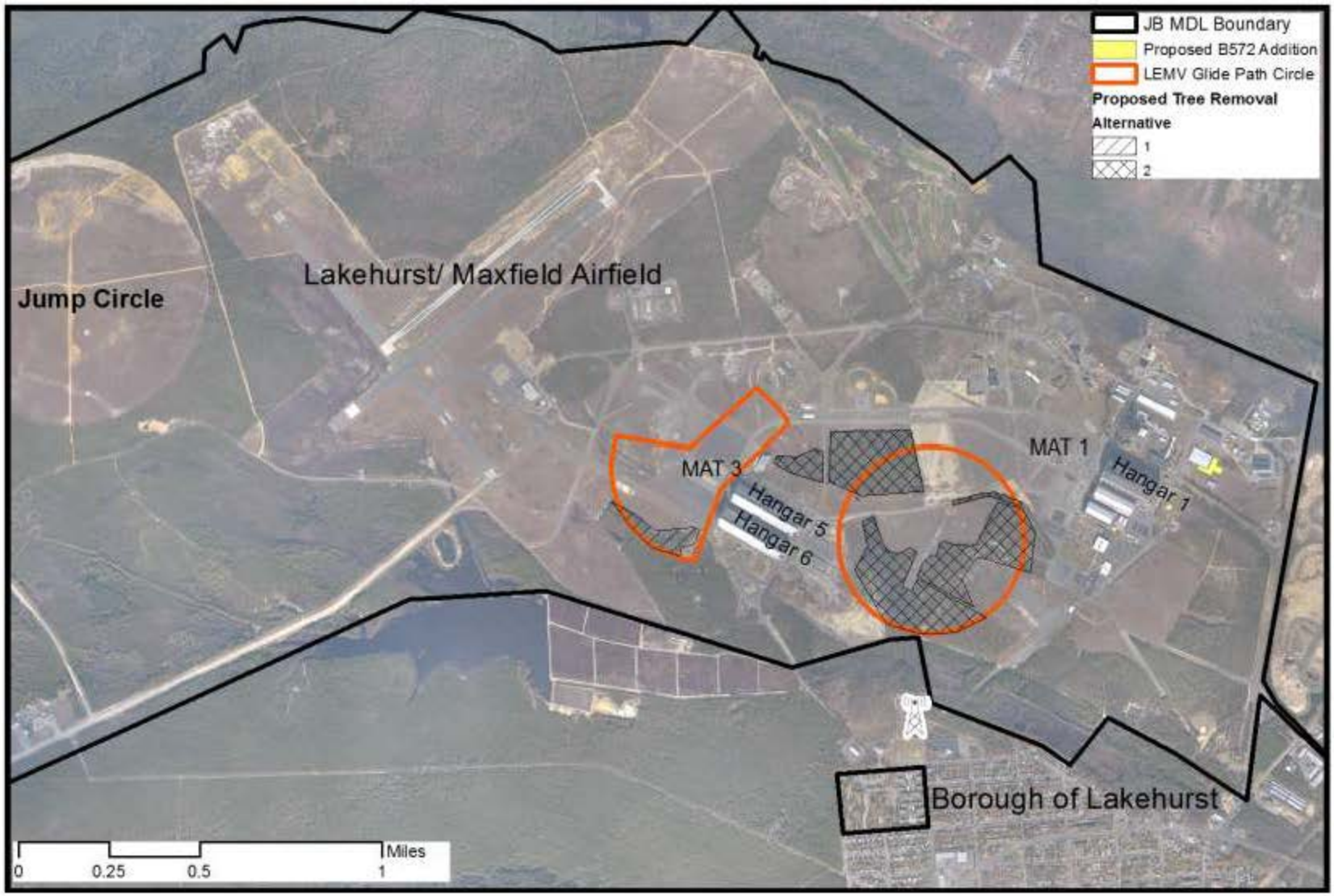


Figure 2-2. Hangar Locations and Proposed Airship Airfields at JB MDL Lakehurst

2.2.2.2 Full Use of Hangar 6

Under this alternative, the Army could negotiate an agreement with the Navy to move the Navy's warehouse operations out of Hangar 6 so that the entire hangar could be used for LEMV operations. This option would take 1-3 years to accomplish as an addition to an existing warehouse building (Building 572) would be needed for Navy equipment. The addition would be up to 45,000 square feet, with a concrete slab foundation and steel corrugated siding and roofing to match the existing finishes of the building. If agreed to by the Navy, the proposed Building 572 addition would become a connected action and is therefore analyzed in this EA as an option under Alternative 2.

2.2.3 Alternative 3 – No Action Alternative

As required under NEPA and 32 CFR 989, the No Action Alternative (Alternative 3) is retained in this EA for comparative analysis. Under this alternative, no further LEMV integration, storage or flight testing would take place at JB MDL after LEMV-1.

2.2.4 Identification of Preferred Alternative

USASMDC/ARSTRAT and JB MDL have identified Alternative 2 as the Preferred Alternative. This alternative would provide LEMV with the best airfield configuration for its operations. The possible use of all of Hangar 6 would provide LEMV the most efficient facility for the integration of multiple airships at one time.

2.2.5 Requirements

Under the action alternatives, the LEMV Program would follow laws, regulations, Executive Orders, instructions, and policies that apply to JB MDL.

Aircraft and aviation requirements:

- Army Regulation 70-62, "Airworthiness Qualification of Aircraft"
  - DOD Handbook, Airworthiness Certification Criteria, MIL-HDBK-516B
  - NAVAIRENGSTA 3710.5G "Air Operations Manual"
  - Federal Aviation Administration (FAA) Order 8130.34 "National Policy, Airworthiness Certificate of Unmanned Aircraft Systems"
  - FAA JO 7610.4M. "Special Military Operations", Chapter 12, Section 9. Unmanned Aircraft System (UAS) Operations in the National Airspace System (for official use only)
  - The LEMV fuel jettisoning test (non-emergency releases), would be conducted only at the off-shore "PREPI" intersection with prior coordination with the Atlantic City Approach Control at an altitude over 5,000 feet MSL, as outlined in the McGuire Air Force Base (AFB) Instruction 13-302 "Base Airfield Operations Instruction". Less than 100 gallons of fuel would be released per test out the LEMV's 2,700 gallon fuel capacity.

Environmental permitting requirements:

- Construction activities disturbing more than one acre would obtain a New Jersey Pollution Discharge Elimination System (NJPDES) Construction Stormwater General Permit.
- A site-specific Erosion and Sedimentation Control Plan would be submitted to the Ocean County Soil Conservation District Office for review and approval. The Plan would receive certification from the District prior to initiating tree clearing or construction[1].

Air Force or JB MDL environmental policies:

- In the event of a hazardous material or petroleum spill the LEMV team would immediately contact the base Dispatch Office at 732-323-4000 in accordance with base spill response policy.
- The program would adhere to the JB MDL hazardous material minimization (HAZMIN) process and procedures, as well as hazardous waste disposal requirements.
- JB MDL would seek bids for the forest products removed from the site in accordance with 10 USC 2665 and AFI 32-7064 (Air Force, 2004) and the proceeds deposited into the AF Forestry Account.
- In the case of inadvertent discovery of prehistoric or historic artifacts or their remnants during tree clearing or site construction activities, all land disturbing activities would cease, the site would be secured and the JB MDL Cultural Resource Manager would contact the NJ State Historic Preservation Office (NJ SHPO) and federally recognized tribes as applicable as outlined in the base Integrated Cultural Resources Management Plan (ICRMP).
- Plans and specifications for building additions or alterations within, or in the area of potential effect of, the eligible Lighter-Than-Air Historic District would be provided for SHPO review and the Air Force would not proceed unless concurrence with a "no adverse effect" is provided.
- Prior to the performance of any activities involving digging, drilling grading, or other subsurface disturbance activity, the contractor would contact NJ One-Call.
- The construction and tree clearing contracts would provide clear instructions to contractors on the steps to follow if UXO is discovered. A pre-construction safety brief would be provided by JB MDL to the contractor team outlining how to recognize UXO and the steps to follow. If UXO is discovered, all work would cease, workers would muster at an off-site location, and the discovery would be reported immediately to the base dispatch office at 732-323-4000.

[1] The Erosion and Sedimentation Control Plan would involve measures, including specific guidelines and engineering controls to reduce anticipated erosion and resultant sedimentation impacts. Measures may include use of filter fences, sediment berms, interceptor ditches, and/or other sediment control structures, and seeding/re-vegetation of areas temporarily cleared of vegetation. Re-vegetation plans and requirements included in the control plan should include planting during the optimum seeding season, whenever possible. Use of native grasses for re-vegetation should be addressed in the plan as required under the provisions of the Pinelands Comprehensive Management Plan. No plant materials should be used from species considered invasive as defined by EO 13112; regionally native plant species should be favored as required by EO 131148.

2.2.6 Best Management Practices

To minimize impacts on the environment, the LEMV program would incorporate the following best management practices (BMPs) as part of the implementation of Alternatives 1 and 2:

- Tree cutting for airfield clearance requirements would be conducted outside active bog turtle times (March 31 to October 16) and migratory bird breeding season of March 15 through July 31. Therefore, tree cutting would only occur between October 16 and March 15. To avoid potential adverse impacts to Northern pine snakes, low ground-pressure equipment would be used to avoid crushing unknown hibernaculum.
- In wetland areas, trees would be removed by cutting them just above the soil surface. In wetland areas, there would be no stump removal, direct soil disturbance, or other actions that would otherwise require a NJ Freshwater Wetlands Protection Act permit (equivalent to Clean Water Act Section 404 permit) (see Section 3.7.2). However, if a permit is deemed necessary from NJDEP, one would be obtained before any field activity. All tree cutting debris (branches, sawdust, etc.) would be removed from the wetlands.
- The project would adhere to the bog turtle conservation measures provided by the USFWS (see Appendix D for the list) for the Alternative 2 LEMV airfield.
- JB MDL would promptly revegetate areas of temporary disturbance with indigenous plant species. Temporary work areas and access routes would be located outside of wetlands. Tree clearing equipment would be washed off-site before use within 500 feet of wetlands to prevent the spread of invasive species. Only weed-free mulches or soils would be used for landscaping within 500 feet of wetlands.
- The JB MDL Natural Resources Manager (NRM) would periodically monitor the site during land clearing operations for the presence of special status species, particularly the Northern Pine Snake. If any are discovered, construction personnel would be required to contact the NRM at 732-323-2911. The NRM would attempt to capture any Northern Pine Snakes (State-Threatened) and relocate them to other suitable habitat on the base in accordance with procedures established by the US Fish and Wildlife Service (USFWS) and the State of NJ. If bog turtles (Federal-Threatened) were discovered, the NRM would immediately contact the NJ Office of the US FWS for guidance.
- Tall grass height would be maintained in LEMV airfields in the same fashion as other airfields on Lakehurst, a strategy has been successful in reduced Bird Airstrike Safety Hazard (BASH) over the last 20 years.
- Painting of components would be conducted within paint booths in accordance with applicable air permits.
- Refueling of the LEMV at JB MDL would occur in areas approved by the 87 Civil Engineer Squadron with appropriate secondary containment.
- To reduce the potential for spills during operation, the LEMV Program would:
    - Inspect equipment and vehicles for leaks daily.
    - Refuel equipment over paved areas, or provide temporary secondary containment.

  - Store hazardous materials and wastes in a manner that provides secondary containment in the event of a spill.
- Hard-wired electrical power would be provided and used preferentially over the use of generators to reduce air emissions. The Army would obtain permits for any generator use (over 37 kilowatts) in accordance with NJDEP air permit conditions.
- New utility lines and transformers to replace those removed under the proposed Alternative 2 Mat 1 expansion would be located along existing roads or within previously disturbed area areas, where no wetlands or special status species habitat would be disturbed.
- USASMDC/ARSTRAT and its contractors would maintain Standard Operating Procedures for reducing environmental impacts and safety hazards, including noise and pollution control measures. The LEMV program would work with the JB MDL Pollution Prevention manager to minimize hazardous material use and substitute them where feasible with less hazardous materials.

2.3 Alternatives Considered But Eliminated from Further Study

The size of the LEMV was the predominant consideration for determining the feasible alternatives evaluated in this EA. Consequently, a review of status of all the large airship hangars built in the US was conducted. Table 2-1 provides a list of historic hangars that were originally constructed to house large airships and their current status.

There were a handful of large steel airship hangars built between 1918 and 1942 in the US. Of the five remaining, three are owned by commercial entities and are fully utilized. One is located at Moffett Field, owned by NASA, and is undergoing extensive siding replacement that may take 1-2 years to complete. The remaining one is at Lakehurst, known as Hangar 1.

During World War II, there were seventeen large timber-framed airship hangars constructed in the US. Of these, only 7 remain standing, with two located at Lakehurst (Hangars 5 and 6). Ten of the original timber framed hangars were destroyed by hurricanes, fire or were demolished. There are two existing wooden hangars at Moffett Field; one is used by a commercial airship company and the other is vacant. Two hangars at NAS Santa Ana, CA remain, but they would require extensive renovation and lack airfield mat for large airship operations. The other remaining hangar is at former NAS Tillamook, Oregon but it is currently used as an aviation museum and development around the hangar does not afford enough landing mat area for safe operation of the LEMV.

Table 2-1. Status of Airship-Era Hangars

	State	Location/ Original Base	Type	Year Built	Status	Building Identifier
1.	CA	NAS Moffett Field, CA	Steel	1929	Transferred to NASA in 1994. Active, undergoing exterior replacement. No identified use after remediation.	Hangar 1
2.	CA	NAS Moffett Field, CA	Timber	1943	Transferred to NASA in 1994. Active. Used by Airship Ventures.	Bldg 46/ Hangar 2
3.	CA	NAS Moffett Field, CA	Timber	1943	Transferred to NASA in 1994. Active. No tenant identified. Used for storage.	Bldg 47/ Hangar 3
4.	CA	NAS Santa Ana, CA (MCAS Tustin)	Timber	1943	Based closed in 1999. Hangar still retained by the Navy and used under short term leases for video productions (movies and commercials) or small airship use.	Hangar 1, Building 28

	State	Location/ Original Base	Type	Year Built	Status	Building Identifier
5.	CA	NAS Santa Ana, CA (MCAS Tustin)	Timber	1943	Base closed in 1999. Hangar and land is managed by the City of Tustin. The redevelopment plan is uncertain but lack of mat and proximity of residential housing make it unsuitable for aircraft use.	Hangar 2, Building 29
6.	FL	NAS Richmond FL	Timber	1943	Destroyed by hurricane 1945.	
7.	FL	NAS Richmond FL	Timber	1943	Destroyed by hurricane 1945.	
8.	FL	NAS Richmond FL	Timber	1943	Destroyed by hurricane 1945.	
9.	GA	NAS Glynco, GA	Timber	1943	Damaged by hurricane in 1964, demolished 1971.	Hangar 1
10.	GA	NAS Glynco, GA	Timber	1943	Damaged by hurricane in 1964, demolished 1971.	Hangar 2
11.	IL	Scott Field (Scott AFB), IL	Steel	1923	Demolished in 1938.	
12.	LA	NAS Houma, LA	Timber	1943	Dismantled prior to transfer to local airport in 1947.	
13.	MA	NAS South Weymouth, MA	Timber	1943	Demolished in 1953.	Hangar 2
14.	MA	NAS South Weymouth, MA	Steel	1943	Demolished in 1966 (replaced with smaller hangar).	Hangar 1
15.	NC	NAS Weeksville, NC	Steel	1942	Active. Owned/operated by TCOM airship company.	Airdock#1
16.	NC	NAS Weeksville, NC	Timber	1943	Destroyed by fire 1995 (suspected lightening strike).	Airdock#2
17.	NJ	NAS Lakehurst, NJ	Steel	1921	Active. Used primarily by NAVAIR and Air Force.	Hangar 1
18.	NJ	NAS Lakehurst, NJ	Timber	1943	Active. Used by Army CERDEC Flight Activity.	Hangar 5
19.	NJ	NAS Lakehurst, NJ	Timber	1943	Active. Half is used by NAVAIR for storage. Other half is temporarily assigned to the LEMV program.	Hangar 6
20.	NY	NAS Rockaway, NY	Steel	1918	Destroyed by fire in 1921.	
21.	OH	Goodyear Zeppelin Corporation, Akron OH	Steel	1929	Active. Currently used by Lockheed Martin.	Goodyear Airdock
22.	OR	NAS Tillamook, OR	Timber	1943	Base closed in 1948. Destroyed by fire in 1992.	Hangar A
23.	OR	NAS Tillamook, OR	Timber	1943	Based closed in 1948. Converted to a privately-owned aviation museum.	Hangar B
24.	TX	Hitchcock Naval Air Station, TX	Timber	1942	Base sold in 1949. Hangar damaged by hurricane in 1961. Demolished in 1962.	
25.	VA	Langley Field (Langley AFB), VA	Steel	1919	Demolished in 1947.	Roma Hangar

Source: Shock, 1996.

After review of available airship hangars, the following options were considered, but were eliminated from further study based on the reasonable selection standards in Section 2.2:

- Construct a new LEMV integration and testing facility at another DoD or contractor facility. This option was not feasible due to the high construction cost and 5-6 year timeframe for implementation.
- Relocate the LEMV program to one of the existing airship hangars at Moffett Field, CA. While feasible, this option would locate the program over 2,200 miles from

USASMDC/ARSTRAT at a non-DOD facility. It would therefore not meet the selection standards of a DoD facility in reasonable proximity to USASMDC/ARSTRAT.

- Construct an airship hangar at a public or private regional airport. The highly sensitive nature of the work performed by USASMDC/ARSTRAT requires their facility be located within a secure DoD installation. Therefore, options for locating the new facility at a private or public airport were eliminated as alternatives.

3. AFFECTED ENVIRONMENT

3.1 Overview

This section specifically describes current baseline environmental, cultural, and socioeconomic conditions of an eastern portion of JB MDL, with emphasis on those resources potentially affected by the Proposed Action. The potential direct, indirect, and cumulative effects of the Proposed Action components and alternatives on each of the resources are addressed in Section 4.

3.1.1 Project Study Area – JB MDL

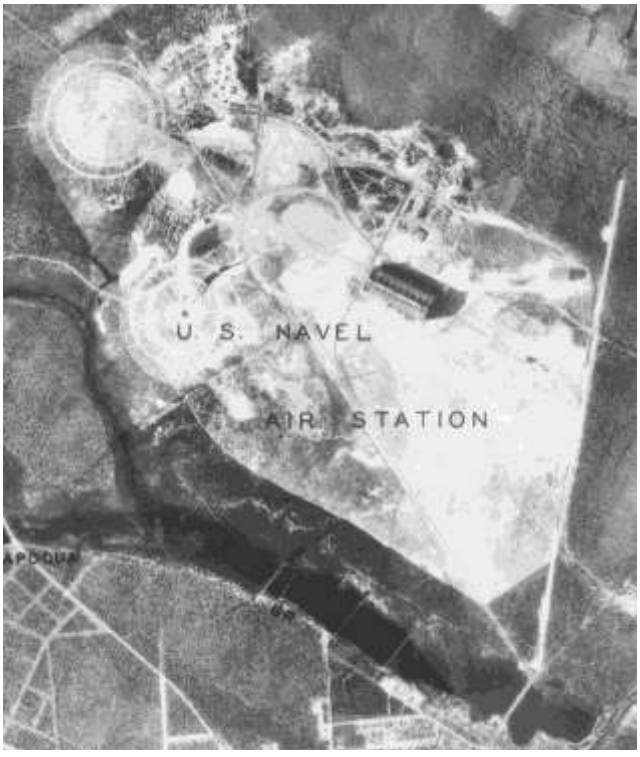
The project study area within JB MDL is located within the boundaries of Manchester and Jackson Townships, Ocean County, NJ, in the east-central part of the State. The project study area is approximately 45 miles east of Philadelphia, 65 miles south of New York City, 50 miles south of Newark, NJ, and 10 miles west of the Atlantic Ocean. JB MDL is located within the Pinelands National Reserve. The reserve consists of approximately 1.1 million acres in southern NJ, managed by the NJ Pinelands Commission. The Pinelands National Reserve includes portions of seven counties, including: Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, and Ocean.

The study area includes the Lakehurst area of the Joint Base from the Jump Circle on the west to Route 547 to the east. Specific areas of study that may be affected by the alternatives include the Jump Circle, Hangars 5 and 6, Mat 3, Hangar 1, Mat 1, Building 572 (warehouse), and their immediate surroundings.

3.2 Land Use

The hangars and airfield mats within the Lakehurst study area were constructed between 1921 and 1942 to support Navy airship operations. During those years, large areas were cleared of vegetation in the eastern portion of former Naval Air Station Lakehurst to accommodate the take-off and landing of large airships (Figure 3-1).

In 1961 when the Navy Lighter-Than-Air (LTA) program was terminated, the station became a fleet support activity with operations centering on resident helicopter squadrons. In 1973 the last of the fleet helicopter squadrons were relocated from the station. The Naval Air Engineering Center was moved from Philadelphia to Lakehurst in December 1974 and became the host activity at the station. The Naval Air Station Command and the Naval Air Test Facility Command were disestablished in 1977, and their missions were consolidated



Note: Hangar 1 shown near the center.

Figure 3-1. Aerial Photograph of Naval Air Station Lakehurst, 1930

into NAEC. The mission of the NAEC at the station was to develop and test aircraft carrier-based launching and arresting equipment for fixed-wing and rotary-wing aircraft. As a largely research and testing organization, former airship hangars 1 and 6 were reused chiefly for non-aviation activities, such as warehouses or schools, although occasional or temporary aircraft storage occurred in those hangars. Mat 1 has not supported routine aviation use in decades and the pavement has become greatly deteriorated. Trees and other vegetation have grown up within most of the formerly cleared airship mooring circles and landing areas west of Hangar 1. In contrast, CERDEC has used Hangar 5 and Mat 3 for aviation operations continuously for over forty years.

JB MDL is undergoing a master plan revision that is scheduled to be completed in Spring 2012. A list of current and future land use zoning and current occupants of facilities within the Lakehurst study area are provided in Table 3-1.

Table 3-1. Land Uses within the Lakehurst Study Area

Location	Current Land Use Zoning	Future Land Use Zoning	Current Occupants
Hangar 1	Research, Development, Testing, and Evaluation (RDT&E)	RDT&E and Community Service	AF Expeditionary Center, Naval Air Technical Training Center, Ocean County Vocational School, NAVAIR Foreign Military Sales (temporary while LEMV is in Hangar 6). The Navy airship occasionally occupies a small portion of the hangar on the west end.
Mat 1	Community Service and RDT&E on the East, rest is Airfield Pavement and Open Space	Same as current	AF Expeditionary Center outdoor storage and POV parking lot. Occasional landing by airships temporarily occupying Hangar 1.
Hangar 5 & 6	Operations and Maintenance	Same as current	Army Communications-Electronics Command (Hangar 5), NAVAIR Foreign Military Sales (1/2 Hangar 6) and LEMV (1/2 Hangar 6 temporary).
Mat 3	Airfield Pavement	Same as current	Aviation operations for CERDEC, Department of Justice and LEMV.
Area surrounding Mat 3	Operations and Maintenance and Open Space	Same as current	Vacant except for aircraft parking and helicopter takeoffs/landings. A portion is slated for construction of a NJ Army National Guard Aviation Support Facility in 2012.
Jump Circle	Training	Same as current	Vacant. Used for cargo drops and parachute operations, as well as intermittent ground-based communications testing by CERDEC. This area is mowed annually, with one-quarter prescribed burned each year.
Building 572	Industrial	Same as current	Warehouse for Navy activities.

Source: NAES, 2010

In the Pinelands, specific areas have been designated for environmental protection, forestry, and agriculture, with growth being directed and encouraged in and around areas capable of accommodating further development. The Pinelands Comprehensive Management Plan zones JB MDL as “Military and Federal Installation Area” defined as Federal enclaves within the Pinelands (Figure 3-2). Permitted uses are those associated with function of the installation or other public purpose uses (NJ Pinelands Commission, 2011).

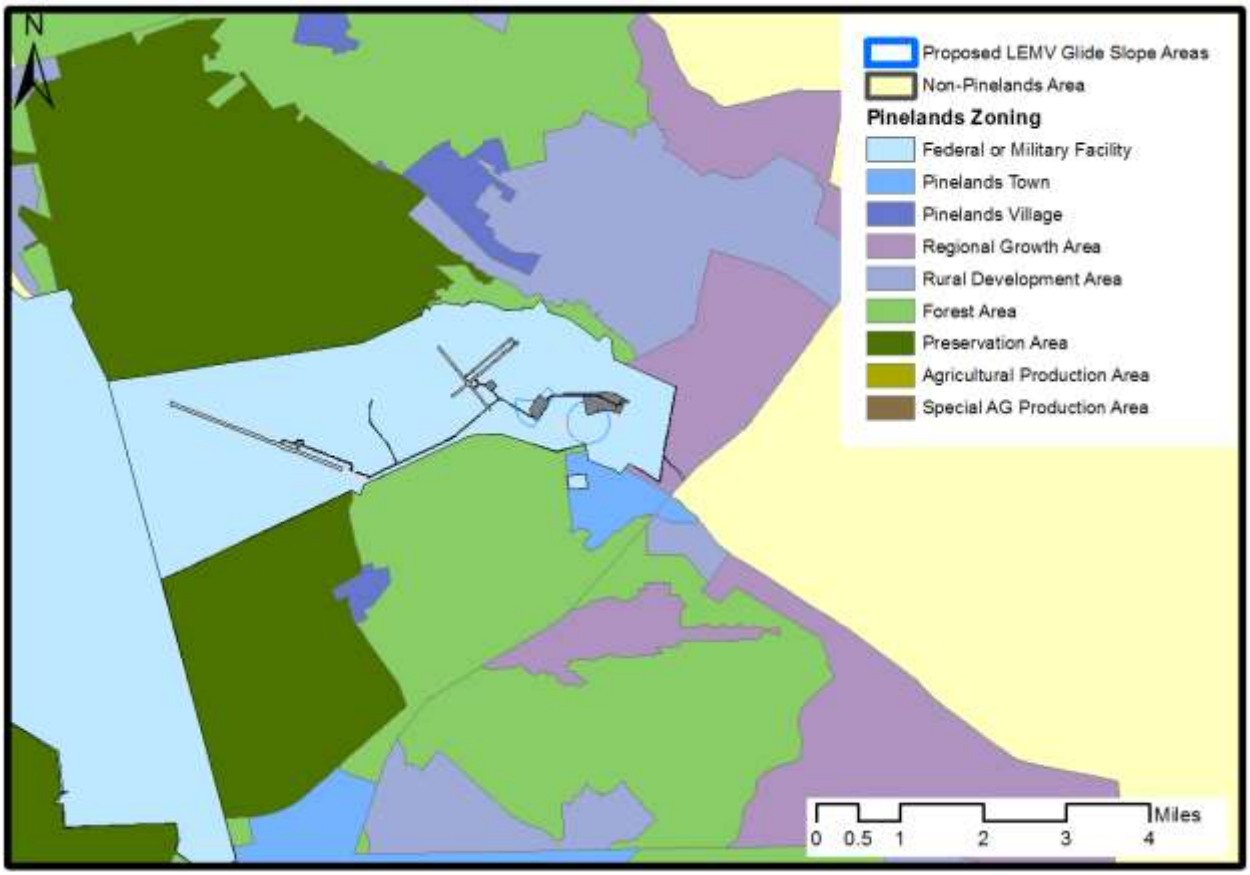


Figure 3-2. Pinelands Zoning

3.3 Airspace and Air Operations

3.3.1 Airspace

The airspace above and around JB MDL is identified as an alert area. An alert area notifies pilots of high-density military aircraft operations within a specified area, and does not restrict aircraft from transitioning the airspace. In addition, two public use airports are located in the vicinity of JB MDL; one approximately 8 miles northeast of the JB MDL airfield, and one approximately 7 miles southeast of the airfield.

Two low altitude Federal airways are located in the vicinity of JB MDL. One passes on a northeast-southwest orientation approximately 5 miles southeast of the airfield, the other passes on a northwest-southeast orientation approximately 8 miles to the north. Low-altitude Federal airways are used by civilian and military air traffic extending from 1,200 feet above ground level up to, but not including 18,000 feet above mean sea level. The eastern edge of the restricted airspace associated with Fort Dix ranges is approximately 5 miles west of the Lakehurst Maxfield Field. The restricted airspace extends to approximately 8,000 feet above mean sea level. The closest Military Training Routes to Lakehurst Maxfield Field are approximately 15 miles to the east and 8 miles to the south. The closest offshore military warning area is W-107 located 25 nautical miles (nm) to the east of Lakehurst Maxfield Field.

The proposed primary airspace operating area for the LEMV is shown in Figure 2-1. This proposed area between Lakehurst and the Warren Grove Gunnery Range is sparsely populated, and is outside the Philadelphia (PHL) and Atlantic City (ACY) airport approach and takeoff zones. Robert Miller Airport is the only commercial airport within the proposed LEMV operating area. This airport has one 6000-foot runway and 58 of the 65 aircraft based there are single engine type. In the 12-month period ending 19 March 2010, the airport had an average of 87 aircraft operations per day.

3.3.2 Airfield Operations at Lakehurst

Lakehurst Maxfield Field contains two 5,000-foot runways, 06/24 and 15/33, and a 3,500-foot Assault Landing Zone runway. Two helo spots are located within the Lakehurst Maxfield Field area. Helo Spot 1 is located at the intersection of the two runways and Helo Spot 2 is located on Mat 3. Air operations on Mat 1 are rare and are limited to occasions when commercial airships need temporary emergency shelter within Hangar 1, or when the Navy airship arranges for temporary space in Hangar 1.

Aircraft activities at Lakehurst Maxfield Field include takeoffs, landings, and closed pattern operations on the runways. Aircraft operations at Lakehurst Maxfield Field are generated by aircraft based at the station, transient aircraft, and aircraft from Air Force installations that use the airfield for practice approaches and landings. Table 3-2 summarizes the 2010 annual and average daily aircraft operations at Lakehurst Maxfield Field.

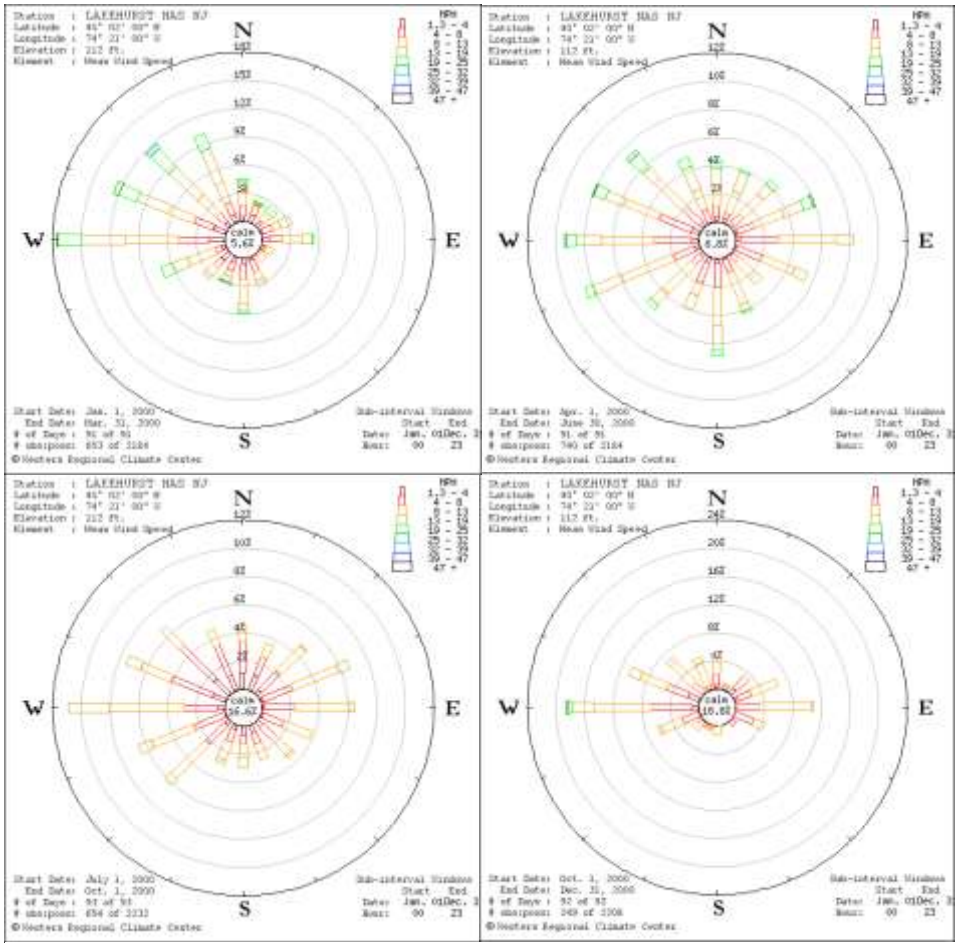
Table 3-2. Annual and Average Daily Aircraft Operations at Maxfield Field (2010)

Location	Annual Operations	Average Daily Operations
Runways 15/33 and 06/24	5,602	15
C-17 Landing Zone	8,812	24
Helo Spots 1 & 2	2,628	7
Transitions	485	1
Total	17,527	48

Source: Austin, 2011
Note: Helicopter activity at Helo Spot 2 on Mat 3, used primarily by CERDEC, was 1,143 operations in 2010, or approximately 95 per month.

3.3.3 Wind Direction at Lakehurst Maxfield Field

Wind direction is an important consideration for the safe take-off and landing of aircraft, particularly for airships. The LEMV would need to take-off and land in the direction of the prevailing wind. At Lakehurst, wind direction and strength varies by season, although overall the wind direction is typically from the west (Figure 3-3).



Notes: Top-left: January 1 to March 31; Top-right: April 1 to June 30; Bottom-left: July 1 to September 30; Bottom-right: October 1 to December 31.

Figure 3-3. Quarterly Wind Roses for Lakehurst

3.4 Air Quality

3.4.1 Ambient Air Quality

The Clean Air Act (CAA) requires the USEPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. Ambient air quality in an area can be characterized in terms of whether or not it complies with the primary and secondary NAAQS.

Primary NAAQS set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly.

NAAQS are provided for six principal pollutants, called criteria pollutants (as listed under Section 108 of the CAA), including the following: carbon monoxide (CO); Lead; nitrogen oxides (NOx); Ozone; Particulate Matter (PM); and sulfur dioxide (SO_2).

Each state and locality has the primary responsibility for air pollution prevention and control. The CAA requires each state to promulgate a State Implementation Plan (SIP) that provides for implementation, maintenance, and enforcement of the NAAQS in each Air Quality Control

Region in the state. In addition, the CAA allows states to adopt air quality standards more stringent than the Federal standards. Regions that comply with the standards are designated as attainment areas. In areas where the applicable NAAQS are not being met, a non-attainment status is designated (USEPA 2007a).

NJ's location along the northeast corridor between the major metropolitan centers of Boston and Washington, D.C., places NJ at the epicenter of pollutants transported from other states. In addition, westerly winds from the Ohio River Valley and nighttime reservoirs of pollutants from southern States along the Appalachian Mountain Range have been shown to contribute to high ozone and fine particulate concentrations in NJ (NJDEP, 2010). Currently, the entire State of NJ does not meet the NAAQS for ozone and is classified as moderate non-attainment for ozone; the 8-hour ozone average concentration is 0.116 ppm (USEPA, 2007).

Atmospheric ozone occurs when NOx, CO and Volatile Organic Compounds (VOCs) react in the atmosphere in the presence of sunlight (a photochemical reaction). NOx and VOCs are called ozone precursors. Therefore, VOCs and NOx emissions are regulated as a means of controlling ozone production. Motor vehicle exhaust, industrial emissions, and chemical solvents are the major anthropogenic sources of these chemicals. Although these precursors often originate in urban areas, winds can carry NOx hundreds of kilometers, causing ozone formation to occur in less populated regions as well.

The October 29, 2007 NJ SIP established general conformity budgets for McGuire AFB and Lakehurst Naval Air Engineering Station (NAES) for VOCs and NOx. These proposed budgets were established to provide the bases the operational flexibility to meet their missions and future missions of the DoD. These budgets were approved by EPA under 40 CFR 52.1582(m)(5). The 2011 general conformity budget for Lakehurst is 129 tons per year (tpy) of VOC and 793 tpy of NOx. The 2011 budget for McGuire is 703 tpy of VOC and 1,534 tpy of NOx (NJDEP, 2007). There is no specific SIP budget for the former Fort Dix area.

3.4.2 General Conformity Rule

The General Conformity Provision of the CAA (42 USC 7401 *et seq.*; 40 CFR 50-87) Section 176(c), including the USEPA's implementation mechanism, the General Conformity Rule (40 CFR 51, Subpart W), requires Federal agencies to prepare written Conformity Determinations for Federal actions in or affecting NAAQS non-attainment areas or maintenance areas. Since NJ is currently in non-attainment status for ozone, the procedural requirements of the General Conformity Rule are in effect for the Proposed Action and a Conformity Analysis is provided in Appendix B.

3.4.3 Existing Air Emissions Sources

The Lakehurst portion of JB MDL has its own Title V air permit (#BOP070001) for emission sources at the installation. Equipment identified in the Title V permit includes boilers, generators, above ground storage tanks, heaters, and paint booths. Other sources listed as "insignificant" include parts washers, small generators, jet fuel storage tanks, diesel fuel storage tanks, a small boiler, a paint booth, and the groundwater treatment air discharge at three remediation sites.

Table 3-3 describes the types of sources at Lakehurst and their annual emission levels based on 2010 data.

Table 3-3. Emission Sources at Lakehurst, Tons Per Year, 2010

Type	Number of Sources	CO	NOx	PM	VOCs	SO_2
Natural Gas Boilers and Natural Gas Emergency Generators	37	11.16	13.24	1.01	0.73	0.08
Propane Fired Boilers	1	0.04	0.28	0.008	0.01	0.0003
Diesel Emergency Generators	20	0.09	0.033	0.02	0.02	0.02
Paint Booths	3	0	0	0.29	0.28	0
Manufacturing/Process Sources	9	0	0	1.26	0.01	0
Fuel Tanks (sets)	4	0	0	0	2.62	0
Fire Pumps (diesel)	4	0.005	0.02	0.0003	0.001	0.0005
Total	**78**	**11.30**	**13.57**	**2.59**	**3.67**	**0.10**

Note: Lead emissions across the station are less than 0.05 tpy. CO = Carbon Monoxide; NOx = Nitrogen Oxides; PM = Particulate Matter; SO_2 = Sulfur Dioxides

Going forward, JB MDL is encouraging its new tenants to acquire their own air permits for their specific operations. Lakehurst activities with individual air permits include the NJ Army National Guard Consolidated Logistics and Training Facility and the Navy-Marine Corp Internet generator. The latter's emissions are included in Table 3-3. The training facility has not been operational for a full year, and their annual emissions are not available. However, estimations of their NOx and VOC emissions are provided in Appendix B.

The SIP analysis in Section 3.4 in Appendix B "Conformity Rule Compliance" describes all the annual emission sources at Lakehurst.

3.4.4 Annual Aircraft and Testing Emissions

Table 3-4 provides the annual aircraft and test program emissions for operations at Lakehurst airfields, as predicted and calculated by their respective program NEPA analysis or NOx and VOC modeling conducted to support the 2006 SIP budget.

Table 3-4. Calculated Aircraft Emissions

Criteria Air Pollutant	CO (tpy)	NOx (tpy)	PM_{10} (tpy)	VOC (tpy)	SOx (tpy)
C-17 Landing Zone Operations CY 11 and Beyond (Full Operational Capability)	100.12	622.48	148.40	13.50	0.00
Proposed Light Mobility Aircraft Aviation Operations at Lakehurst Maxfield	8.30	1.04	0.07	0.85	0.33
Naval Aircraft Testing at the Test Runway (Maximum – Highest Year of JSF Testing)	5.26	11.14	2.01	0.58	0.66
NJ Army National Guard Aviation[1]	14.26	14.41	3.55	7.78	0
Electromagnetic Aircraft Launching System[1]	NA	7.23	NA	6.75	NA

Criteria Air Pollutant	CO (tpy)	NOx (tpy)	PM_{10} (tpy)	VOC (tpy)	SOx (tpy)
Other Aircraft and Jet Track Emissions[1]	23.124	10.64	0.291	12.55	0.93
Annual Aircraft Emissions	**113.68**	**666.94**	**150.48**	**42.01**	**0.99**

Source: (1) NAES, 2006a.
Note: VOC is not a criteria pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant. NA = Not Available.

3.4.5 Hazardous Air Pollutants

Title III of the CAA established a program for controlling emissions of Hazardous Air Pollutants. A major source is any facility that emits 10 tpy or more of any Hazardous Air Pollutant, or 25 tpy of any combination of Hazardous Air Pollutants. These sources of emissions must obtain an operating permit and comply with Federally-mandated control technology (i.e., Maximum Achievable Control Technology) based on emission standards and other conditions. While some Hazardous Air Pollutants may possibly be emitted during LEMV operations, the program would not exceed regulatory thresholds and therefore is not subject to the above requirements.

3.5 Noise

The noise levels in the study area are dominated by fixed wing and rotary military aircraft operations. Other noise sources include vehicles and military training activities.

The yearly Day-Night Average Noise Level (DNL) is the primary metric for measuring the cumulative exposure of individuals to noise energy resulting from aviation activities. DNL is expressed in decibels (dB) or dBA (A-weighting) where noise measurements are adapted to the human ear's response to sound. DNL is the measure of the total noise environment. Unlike single event noise metrics, DNL averages the sum of all aircraft noise producing events over a 24-hour period with a 10 dBA upward adjustment added to the nighttime events (between 10 pm and 7 am). This adjustment is an effort to account for the increased human sensitivity to night-time noise events.

A decibel is a unit used to express relative difference in power or intensity, usually between two acoustic or electric signals, equal to ten times the common logarithm of the ratio of the two levels.

Federal agencies generally agree that DNL below 65 dBA is compatible with residences, nursing homes, schools, and similar land use types. A DNL above 75 dBA is generally considered unacceptable for these land uses. Between 65 dBA and 75 dBA, noise attenuation measures are recommended in the design and construction of public and quasi-public service buildings. Examples of common noise sources and their levels in decibels are provided in Table 3-5.

Table 3-5. Common Noise Sources and Levels

Sound Source	Noise Level (dB)	Effect
Jet Engines (near)	140	Threshold of pain begins at 125 dB
Rock Concerts (varies)	110-140	
Chainsaw, Pneumatic Drill, Jackhammer	110	Regular exposure to sound over 100 dB of more than 1 minute risks permanent hearing loss.
Garbage Truck/Cement Mixer	100	No more than 15 minutes of unprotected exposure for sounds between 90-100 dB.
Lawnmower, food blender	85-90	85 dB is the level at which hearing damage (8hrs) begins
Washing Machine,	75-78	Annoying; interferes with conversation; constant exposure

Sound Source	Noise Level (dB)	Effect
Dishwasher		may cause hearing damage
Vacuum cleaner, hair dryer	70	Intrusive; interferes with telephone conversation
Normal conversation	50-65	
Quiet Office	50-60	Comfortable hearing levels are under 60 dB
Refrigerator humming	40	
Whisper	30	Very quiet
Rustling	20	Just audible

Source: NIH, 2010

3.5.1 Current Noise Environment

The primary source of high noise levels at Lakehurst is aircraft operations, of which, C-17 touch and go's on the Landing Zone parallel to Runway 24 is the most dominant source (AMC, 2005). Prior to the C-17 landing zone, primary aircraft operations at Lakehurst Maxfield Field consisted of NJ Army National Guard helicopter flights, and the noise footprint was limited to the immediate Lakehurst Maxfield Field area. When the C-17 landing zone became operational in 2009, aircraft operations at Lakehurst Maxfield Field doubled and expanded the acreage under the DNL 65 dBA zone by 7,243 percent (land both within JB MDL and off-base). The C-17 conducts an average of 24 sorties per day[2] and is typically the largest aircraft operating at the Lakehurst Maxfield Field runways. JB MDL will be updating its Air Installation Compatible Use Zone (AICUZ) plan in 2012. Until that plan is complete, the most accurate noise profile for Lakehurst is from the C-17 Basing EA (AMC, 2005) (Figure 3-4). Portions of Mat 3, Mat 1, and Hangar 1 fall within the DNL 65 to 70 dBA levels as outlined in the C-17 basing EA (AMC, 2005).

3.5.2 Noise Sensitive Receptors

With regard to the noise environment, sensitive receptors include, but are not limited to, health care facilities, retirement homes, residences, and schools. The closest sensitive receptors to Mat 3 operations are the residents at the Military Officer's Housing Area, located 0.75 miles away. The closest off-base residents to Mat 3 are 1 mile away in the Borough of Lakehurst. The closest residents to Mat 1 are three military housing units just north of Hangar 1, approximately 0.3 miles for the proposed Mat 1 ground run circle. The nearest off-base residential receptors to Mat 1 are 0.6 miles south in the Borough of Lakehurst.

[2] The C-17 basing EA (AMC, 2005) estimated that the C-17 would conduct up to 115 sorties per day at the Landing Zone. In 2010, there were 24 sorties per day at the Landing Zone but operations could increase in the future up to the value described in the EA.

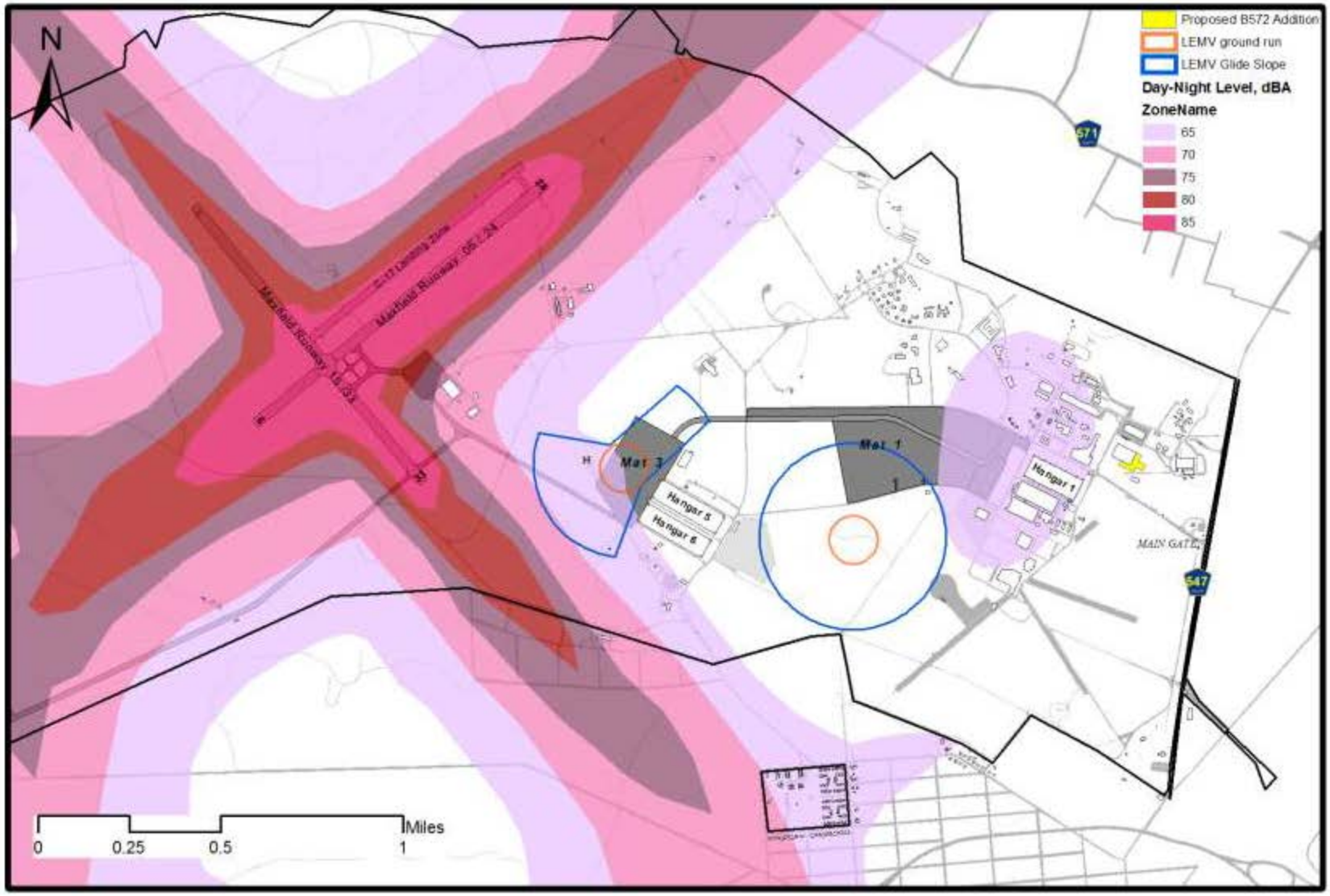


Figure 3-4. Noise Contours, Lakehurst Study Area

3.6 Geology, Topography, and Soils

3.6.1 Geology

Lakehurst is located in the Outer Coastal Plain. The Outer Coastal Plain is New Jersey's largest physiographic area consisting of about 2.25 million acres including all of Cape May, Cumberland, Atlantic, and Ocean Counties and parts of Salem, Gloucester, Camden, Burlington, and Monmouth Counties.

The geology is characterized as tertiary sedimentary rock. The NJ Geologic Survey indicates that the project study area lies entirely within the Kirkwood-Cohansey Aquifer system. This formation consists of light-colored sandy quartz gravel, is considered a fluvial deposit of Miocene times, and overlies the Cohansey Sand formation (NJGS, 2003).

Sections 307 and 309 of the Indoor Radon Abatement Act of 1988 directed EPA to list and identify areas of the U.S. with the potential for elevated indoor radon levels. All of Ocean County is listed as Zone 3 – Low Potential (USEPA, 2010).

Earthquake potential in Ocean County is relatively low (see Figure 3-5). The largest potentially active fault in NJ is the Ramapo Fault located in northern NJ where numerous minor earthquakes have been recorded within approximately 20 miles of the fault.

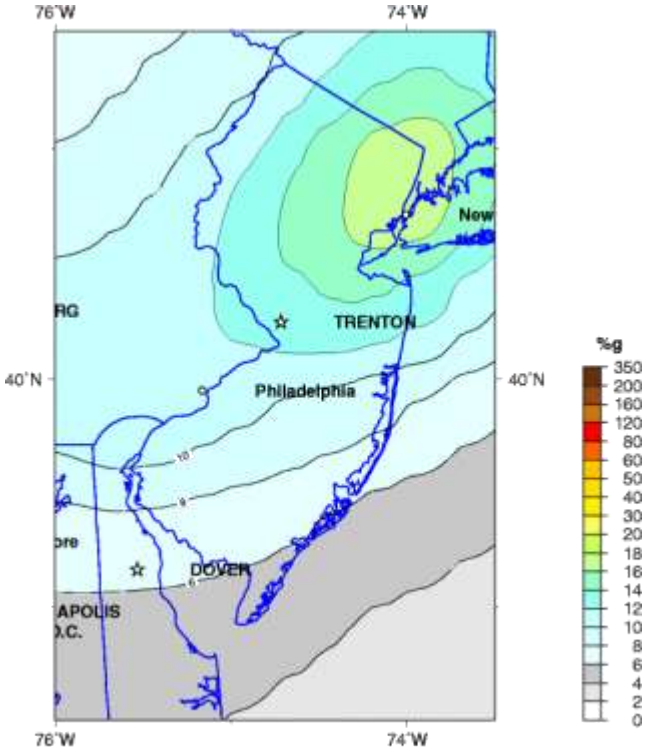


Figure 3-5. NJ Seismic Hazard Map

Source: USGS, 2008

3.6.2 Topography and Soils

The topography across the study areas is relatively level with slopes of 0-5 percent. The majority of soils present within the project study areas are members of the Lakehurst-Lakewood-Evesboro association. The Lakehurst-Lakewood-Evesboro association is characterized by nearly level to sloping, somewhat poorly to excessively drained, sandy soils in upland areas, dominated by pine or oak woodland. Primary limitations for land use are droughtiness[3], rapid permeability, very low fertility, and the hazard of wildfires (USDA, 1980).

The following soil types are located within the project study area (Figure 3-6):

- Urban Land is defines as areas where more than 80 percent of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces.

[3] A droughty soil is one that is unable to store enough water to meet plant requirements. Sandy and gravelly soils are droughty because they have low water-holding capacities.

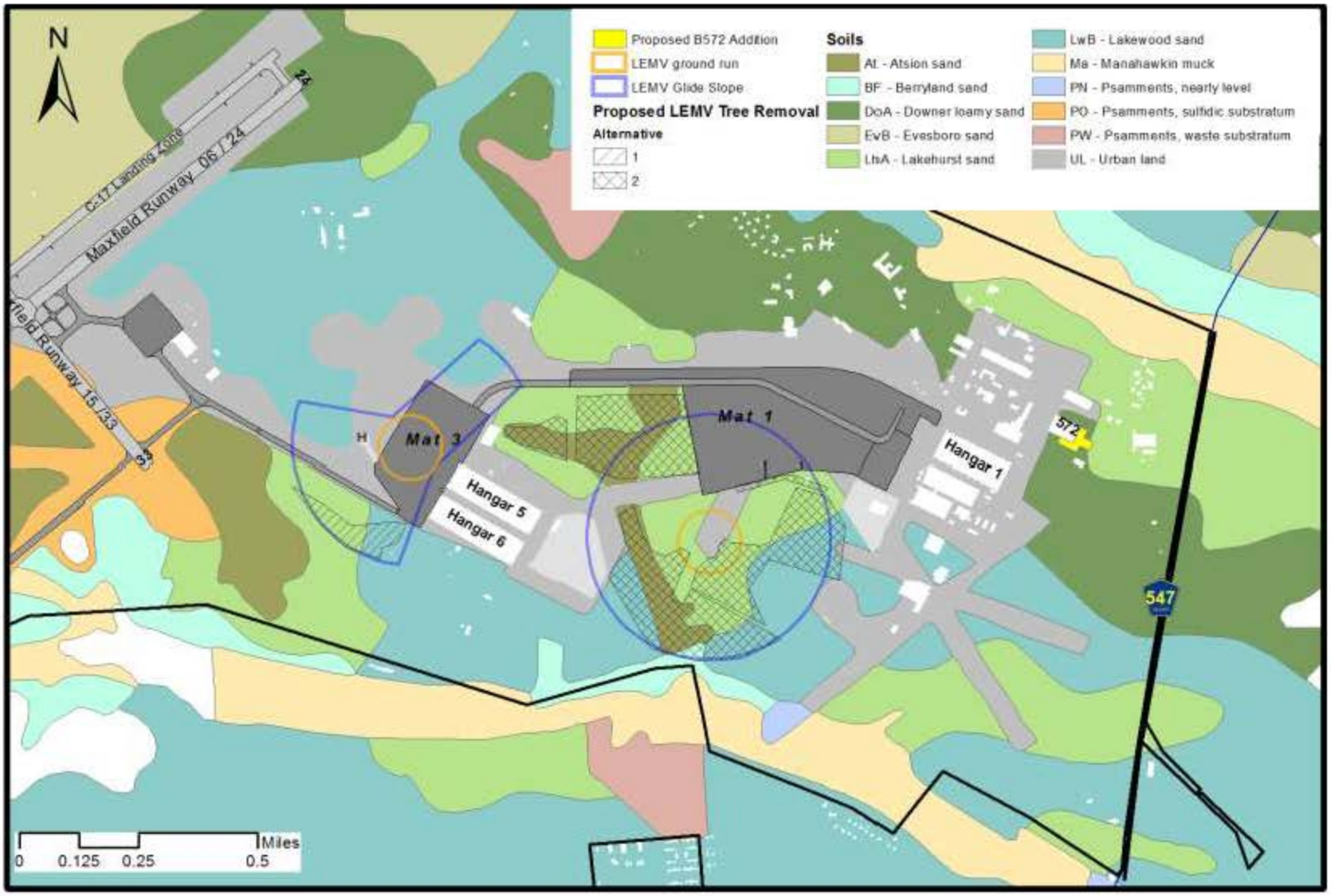


Figure 3-6. Soil Types in the Study Area

- Downer Loamy Sand (DoA), 0 – 5 percent slope is characterized as nearly level to gently sloping, well drained soil on divides or side slopes. Typically in a wooded area the surface layer is grayish brown loamy sand about 2 inches thick; the subsurface is brown loamy sand about 14 inches thick. Permeability is moderate or moderately rapid. Organic matter content and natural fertility is low.
- Lakehurst sand (LhA), 0-5 percent slope is characterized as nearly level, moderately well drained or somewhat poorly drained soil located in depressed areas and on low terraces. Lakehurst sand has a low available water capacity, and the permeability of this soil is rapid in the subsoil and substratum. This sand has a moderate wind erosion hazard and runoff is slow.
- Lakewood sand (LwB), 0-5 percent slope (most of the site) is characterized as nearly level to gently sloping, excessively drained soil. Lakewood sand has a low available water capacity, and the permeability of this soil is moderate to rapid. The hazard of wind erosion is severe and runoff is slow. This soil is generally suitable for most urban uses.
- Atsion sand (At) is defined as nearly level, poorly drained soil in depressional areas and on broad flats. The surface is typically black sand about 5 inches thick; subsurface layer is light gray sand 13 inches thick; subsoil is dark reddish brown loamy sand 6 inches thick; and substratum is light gray sand to a depth of 60 inches or more. Organic matter content is moderate and natural fertility is low. Most of the acreage of this soil is used for woodland. The seasonal high water table is between the surface and a depth of 1 foot from November to June (USDA, 1980).

None of the soil types within the project study areas are designated as prime farmland or farmland of state-wide importance. For projects disturbing over 5,000 square feet of soil, a site-specific Erosion and Sedimentation Control Plan must be submitted to the Ocean County Soil Conservation District Office for review and certification prior to initiation of construction[4].

3.7 Water Resources

3.7.1 Regulatory Framework

Within the U.S., "waters of the U.S." are regulated under Sections 401 (33 USC 1341) and 404 (33 USC 1344) of the Federal Clean Water Act. No features (i.e., navigable waterways) subject to regulation under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) are present in the study areas. The primary Federal regulations and guidance that govern water resources development, usage, and discharges at Federal sites, or sites affected by Federal activities, include the following:

- Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977 (CWA) (33 USC 1251 et seq.)
- Land and Water Conservation Act of 1976 (16 USC 460)
- National Pollutant Discharge Elimination System Wastewater Permits (33 USC 1342)

[4] The Erosion and Sedimentation Control Plan would involve measures, including specific guidelines and engineering controls to reduce anticipated erosion and resultant sedimentation impacts from tree clearing and construction activities. Measures may include use of filter fences, sediment berms, interceptor ditches, and/or other sediment control structures, and seeding/re-vegetation of areas temporarily cleared of vegetation. Re-vegetation plans and requirements included in the control plan should include planting during the optimum seeding season, whenever possible. Use of native grasses for re-vegetation should be addressed in the plan as required under the provisions of the Pinelands Comprehensive Management Plan. No plant materials should be used from species considered invasive as defined by EO 13112; regionally native plant species should be favored pursuant to EO 131148.

- Pollution Prevention Act of 1990 (42 USC 13101-13109)
- Safe Drinking Water Act of 1974 (42 USC 300f et seq.)
- Soil and Water Resources Conservation Act of 1977 (16 USC 2001)
- Superfund Amendments and Reauthorization Act of 1986 (P.L. 99-499; 40 CFR 300)
- Water Resources Development Act of 1990 (33 USC 2309a, 2316, and 2320)
- Energy Independence and Security Act of 2007, Section 438 Stormwater Management
- Air Force Instruction (AFI) 32-7041, Water Quality Compliance
- EO 11988, Floodplain Management, 24 May 1977
- EO 11990, Protection of Wetlands, 24 May 1977

Water resources at JB MDL are also regulated under the jurisdiction of NJDEP. NJDEP has the primary responsibility for protecting NJ's surface and ground waters from pollution caused by improperly treated wastewater and its residuals, as well as destruction of watersheds from development. The relevant NJ regulations and guidance for water resources within JB MDL include the following:

- NJ Freshwater Wetlands Protection Act (N.J.A.C. 7:7A et seq.)
- NJ Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq., N.J.A.C.7:14A-1.1 et seq.)
- Water Quality Planning Act (N.J.S.A. 58:11A-1 et seq.)
- Spill Compensation and Control Act (N.J.S.A. 58:10-23.11 et seq.)
- Safe Drinking Water Act (N.J.S.A. 58:4A-4.1 et seq.)
- NJ Ground Water Quality Standards (N.J.S.A. 58:12A-1 et seq.)
- Water Pollution Control Act (N.J.A.C. 7:14)
- Flood Hazard Area Control Act (N.J.S.A. 58:16A-50 et seq.)
- Pinelands Comprehensive Management Plan (N.J.S.A. 13:18A-1 et seq., N.J.A.C. 7:50-1.1 et seq.)

3.7.2 Surface Water Resources

The project study area lies within the Toms River Drainage Basin. Drainage from JB MDL Lakehurst discharges to the Ridgeway and Harris Branches to the north, and to the Black, Manapaqua, and North Ruckles Branches to the south. All five streams discharge into Toms River. Surface water drainage for the installation is generally to the southeast (NAES, 2002). Several headwater tributaries to these originate on the base. The location of wetlands by type is provided in Figure 3-7.

The Freshwater Wetlands Protection Act rules, N.J.A.C. 7:7A, were first adopted in June 1988, in response to the 1987 enactment of the New Jersey Freshwater Wetlands Protection Act. On March 2, 1994, the Department assumed responsibility in most of New Jersey for the Federal wetlands permitting program, also known as the "Federal 404 program" because it stems from section 404(g) of the Federal Clean Water Act. The Federal 404 program had previously been administered in New Jersey by the U.S. Army Corps of Engineers (ACOE). In an August 2010 letter from NJDEP for a tree clearing project at the McGuire airfield, "the Freshwater Wetlands Protection Act does not regulate the removal of above-ground vegetation within the Pinelands,

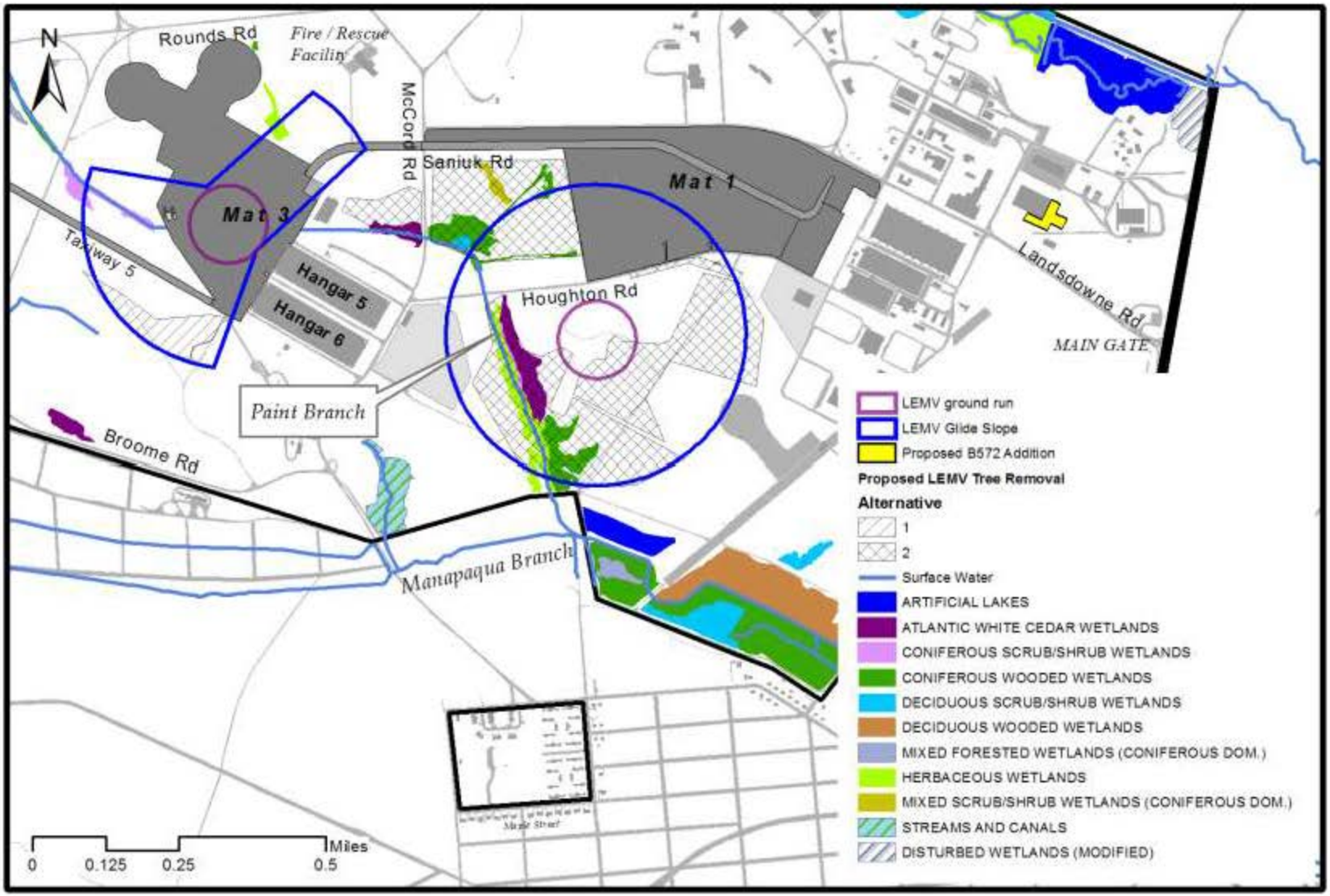


Figure 3-7. Surface Water and Wetlands Resources

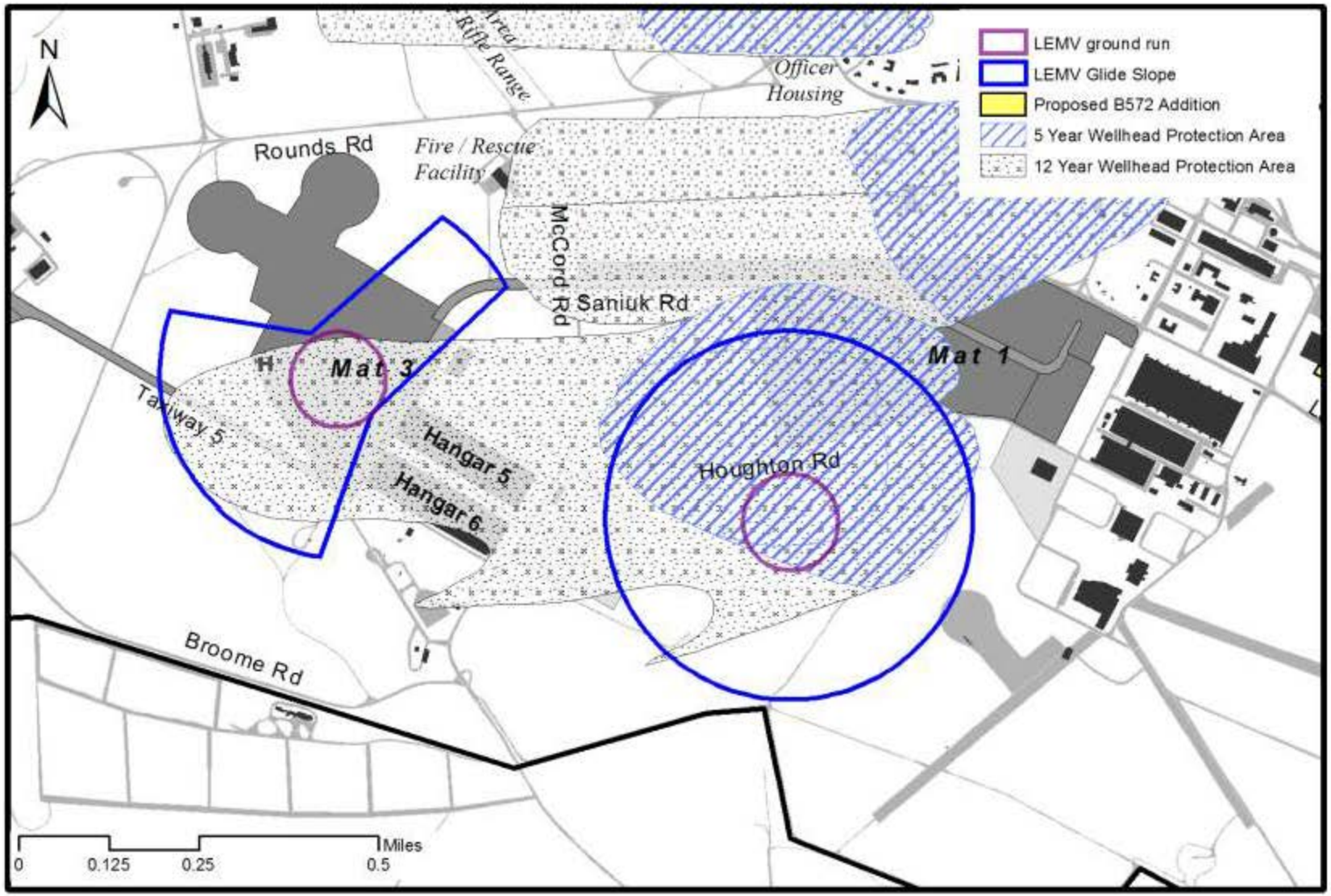


Figure 3-8. Groundwater Wellhead Protection Areas

although such activities would still be regulated within applicable riparian zones of regulated drainage features under the Flood Hazard Area Control Act" (JB MDL, 2011).

3.7.3 Groundwater Resources

Underlying Lakehurst is the Cohansey Sand Aquifer formation. The Cohansey Sand Aquifer is relatively shallow in depth and is highly permeable, making potential contamination a high concern.

A wellhead protection area is an area which a well draws its water from within a specified timeframe. Once delineated, these areas become a priority for efforts to prevent and clean up groundwater contamination. A well head protection area consists of three tiers, based on the timeframe of travel to the well. The outer boundaries of these tiers are: Tier 1 – two years; Tier 2 – five years; and Tier 3 – twelve years (NJDEP, 2003).

The groundwater below the majority of Mat 3 is located within a Tier 3 Well Head Protection Area for a Community Water System (Hill System) (see Figure 3-8). Mat 1 is within a Tier 2 Well Head Protection Area. There are two potable water well houses on the south side of Mat 1 that serve the Hill System. The Hill System provides potable water for at least 95 percent of the JB MDL Lakehurst population.

3.7.4 Stormwater Management

Lakehurst currently operates under a R11 Public Complex Stormwater General Permit from the NJDEP and maintains a Storm Water Pollution Prevention Plan for control of point and non-point source pollution of surrounding surface and groundwater. Current systems include pollution prevention measures, retention ponds, and a network of collection systems.

All construction projects at the base shall have site-specific soil erosion and stormwater management plans considering runoff control during and after construction. Proposed projects that disturb more than 1 acre of soil must obtain authorization under NJPDES Permit No. NJ008323, or under an individual permit. The procedures and practices included in these plans shall be in accordance with the Standards for Soil Erosion and Sediment Control under Chapter 251, P.L. 1975, the Soil Erosion and Sediment Control Act and the Federal Water Pollution Control Act, 33 U.S.C. 1323. Contractors may submit such plans as part of their environmental plan submittal.

Design criteria and calculations shall include but not be limited by, the objectives and principles in the Ocean County Technical Design Manual, and the "A Guide to Stormwater Management Practices in New Jersey Manual". JB MDL must comply with the stormwater requirements of the Energy Independence and Security Act of 2007 (Section 438, Stormwater Runoff). All newly constructed drainage systems shall have a maintenance and inspection schedule as part of their design. Inspections of all major drainage facilities are conducted annually and after major storms (NAES, 2009).

3.8 Biological Resources

3.8.1 Regulatory Framework

Protection and management of biological resources at JB MDL is mandated by a number of laws, regulations, and guidance documents. The primary statutes, regulations, EOs, and

guidance that direct, and apply to, the management of biological resources at the installation include, but not limited to, the following:

- Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) [5]
- Endangered Species Preservation Act of 1966 (16 USC 1531)
- Engle Act of 1958 (10 USC 2671)
- Federal Noxious Weed Act of 1975 (7 USC 2801)
- Fish and Wildlife Conservation Act of 1980 (16 USC 2901 et seq.) and Fish and Wildlife Coordination Act of 1934 (16 USC 661 et seq.)
- Migratory Bird Conservation Act of 1966 (16 USC 715)
- Migratory Bird Treaty Act of 1918 (16 USC 703-711)
- Sikes Act of 1960 (16 USC 670 et seq.), and the Sikes Improvement Act of 1997
- AFI 32-7064, Integrated Natural Resources Management
- 10 USC 2665, Sale of Certain Interests in Land; Logs
- EO 11987, Exotic Organisms, 24 May 1977
- EO 11990, Protection of Wetlands, 24 May 1977
- EO 11991, Protection and Enhancement of Environmental Quality, 24 May 1977
- Pinelands Comprehensive Management Plan (N.J.S.A. 13:18A-1 et seq., N.J.A.C. 7:50 et seq.).

3.8.2 Integrated Natural Resource Management Plan

Natural resources within the Lakehurst portion of JB MDL are managed in accordance with the Integrated Natural Resource Management Plan (INRMP), prepared for the former Naval Air Engineering Station in August 2002 (NAES, 2002). A Joint Base INRMP is under development. However, until the new plan is completed and promulgated, the INRMP in effect for the project study area is the Lakehurst INRMP. The INRMP provides detailed descriptions of the natural resources present at Lakehurst, identifies management issues, and establishes specific natural resources management activities. The INRMP was developed in cooperation with the United States Fish and Wildlife Service (USFWS) and the NJ Division of Fish and Wildlife.

3.8.3 Wetlands

Lakehurst contains 1,021 acres of wetlands (NAES, 2001). The wetlands in the eastern portion of Lakehurst, including the study areas, were field verified in 1997 and a jurisdictional confirmation letter was provided by the NJ Pinelands. The proposed Alternative 1 tree removal area does not include any wetland areas. There is a channelized wetland southwest of the proposed ground run area under Alternative 1 where vegetation is periodically mowed or cut to promote airfield safety for helospot 2 and to allow the Lakehurst tower to adequately view aircraft movements on Mat 3.

The proposed Alternative 2 tree removal area includes 17.6 acres of wetlands along the Paint Branch (a tributary of the Manapaqua Brook). The Paint Branch was channelized by the Navy

[5] The protection of Federally-listed species is regulated under the ESA. Section 7 of the ESA dictates that Federal actions should not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of critical habitat of such species. In addition, NEPA review and consideration of state-listed species is required per Section 5-3(q) of 32 CFR PART 651. Furthermore, Section 7(a) of the ESA requires formal consultation with the USFWS whenever a Federal proponent anticipates taking any action that may affect a listed species or critical habitat.

sometime between 1930 and 1943 based on historic aerial photographs. The mix of vegetation in this area is shown in Table 3-6 and depicted in Figure 3-7. Some portions of these wetlands include man-made channels to direct stormwater.

Table 3-6. Wetlands Vegetation within the Proposed Alternative 2 Tree Removal Area

Type of Wetland	Acres of Proposed Tree Removal	Percent
Atlantic White Cedar (AWC) wetlands	7.6	43.2%
Deciduous wooded wetlands	4.51	25.6%
Mixed scrub/shrub wetlands (coniferous dominant)	0.72	4.1%
Mixed Forested wetlands (coniferous dominant)	4.76	27.1%
Total	**17.6**	**100.0%**

AWC stands have declined by over 75 percent across NJ over the last two hundred years. AWC swamps can provide habitat for many species, including the Pine Barrens Treefrog, Timber Rattlesnake, Barred Owl, Black-Throated Green Warbler, and a rare butterfly, Hessel's Hairstreak. The NJ Wildlife Action Plan cites the identification, enhancement, and restoration of AWC communities within the Pineland as a priority conservation action (NJDEP, 2008).

The area of proposed construction for an addition to Building 572 is 900 feet from the closest wetland area.

3.8.4 Vegetation

Vegetation communities at Lakehurst are diverse, ranging from open grasslands to mature forest communities. Lakehurst consists of approximately 45 percent upland forest, 28 percent brushland and shrubland, 1.3 percent surface waters, 12 percent wetlands, and 13 percent developed/disturbed areas.

Plant species found within the region are common for climatic and hydrologic conditions of the Pine Barrens Natural Community. Tree species native to this region may include: pitch pine; red cedar; scarlet oak; black-jack oak; black oak; sassafras; black cherry; American holly; red maple; and scrub (NJ or Virginia) pine.

Lakehurst contains approximately 3,880 acres of forested land (NAES, 2002). Under Alternative 1, up to 6.8 acres of trees would be removed. Under Alternative 2, another 77 acres of trees would be removed, of which 17.6 acres would be located in wetlands. Based on Lakehurst INRMP GIS data, the vegetation types within these areas are listed in Table 3-7.

Table 3-7. Vegetation Types within Proposed Tree Clearing Areas

Vegetation Type	Acres of Proposed Tree Removal	General Type	Total Acres of Type within Lakehurst
Alternative 1			
Coniferous brush/shrubland	2.97	forest	199
Coniferous forest (>50% crown closure)	2.48	forest	1338
Other urban or built-up	1.35	urban	NA
Total	**6.8**		

Vegetation Type	Acres of Proposed Tree Removal	General Type	Total Acres of Type within Lakehurst
Alternative 2			
Coniferous brush/shrubland	36.55	forest	199
Coniferous forest (>50% crown closure)	13.4	forest	1338
Coniferous forest (10-50% crown closure)	5.37	forest	212
Old field (<25% brush covered)	4.08	field	182
Atlantic white cedar swamp	7.61	wetland	125
Deciduous wooded wetlands	4.51	wetland	112
Mixed forested wetlands (coniferous dominant)	4.76	wetland	115
Mixed scrub/shrub wetlands (coniferous dominant)	0.72	Wetland	97
Total	**77**		

The vegetation around Mat 1 and 3 is routinely mowed to keep vegetation low for airfield safety. The Jump Circle is mowed once a year and one-quarter is prescribed burned each year (both events occur outside of grassland bird breeding season).

3.8.5 Mammals

There have been no mammal surveys conducted on Lakehurst other than rare species surveys. However, the vegetative communities are representative of NJ Pine Barrens, and common large to medium species that are likely to occur include: white-tailed deer; gray fox; opossum; and raccoon. Species that occur less frequently include: red fox, and eastern coyote. Groundhogs occur along grass taxiway clearzones and lawn areas at the base. Common medium to small mammals that occupy upland forests include: eastern gray squirrel, red squirrel, and southern flying squirrel. While bats are present in the region during warmer months, the base does not contain tree species that would typically host large bat roosts. Small mammals that occur in dry upland areas include white-footed mice and pine voles (NAES, 2002).

3.8.6 Forest Birds

According to the Lakehurst INRMP, the extensive areas of pine and mixed pine and oak forests provide habitat for a number of bird species. The eastern towhee is the most common forest bird on the Lakehurst area. It occurs in every forest type as well as several other habitats on the area. The forests provide habitat for a number of insect-eating birds such as Red-Eyed Vireos, Scarlet Tanagers, and Great Crested Flycatchers. Common warblers include Pine Warblers, Prairie Warblers, Black-and-White Warblers, and Ovenbirds. Whip-poor-wills nest on the ground in dry open pine-oak and oak-pine woodlands, sometimes near fields. There are no previous forest bird survey points located within the areas of proposed tree removal.

3.8.7 Special Status Species

A search of the Natural Heritage Database and the Landscape Project by the NJDEP Natural Heritage Program identified several status species in the project study areas (see Appendix A). Only one Federally-listed species was identified in the database search, the bog turtle (Glyptemys muhlenbergii) (Federal threatened). However, the only bog turtle sightings (1993 or before) in the vicinity were located outside the project disturbance areas, further east along the

Manapaqua Branch (Joyce, 2011a) by 2400-3200 feet. However, those bog turtle locations are hydrologically-connected to the wetlands within the LEMV Alternative 2 airship airfield study area. Based on these past bog turtle observations, the USFWS requested a Phase I Bog Turtle Survey (see Section 4.8.2 for results). Based on the results of the bog turtle study and discussions with USFWS, a set of conservation measures were agreed to for the project, listed in Appendix D. Other State-listed threatened or endangered species identified by the database at or within a 1/4-mile of the project areas include: Barred Owl; Cooper's Hawk; Pine Barrens Treefrog; Red-Shouldered Hawk; Bald Eagle (foraging); and Least Tern. However, these species have not been recorded by JB MDL natural resource studies or by individual reports within the study areas.

Although there were no Federally-listed species found within the study areas (going back to the first rare species survey in 1989) (see Figure 3-9 and Figure 3-10), there are several State-listed threatened or endangered, and species of concern that have been sighted at least once over the last 20 years within the study areas:

Jump Circle

- Henslow's Sparrow (*Ammodramus henslowii*)– State endangered.
- Upland Sandpiper (*Bartramia longicauda*) – State endangered.
- Grasshopper Sparrow (*Ammodramus savannarum*) – State threatened (breeding only).
- Savannah Sparrow (Passerculas sendwichensis) – State threatened (breeding only).
- Vesper Sparrow (Pooecetes gramineus) – State endangered (breeding only).
- Horned Lark (Eremophila alpestris) –State threatened (breeding).
- Northern Pine Snake – State threatened.
- Eastern Box Turtle (Terrepene carolina carolina) – State special concern.
- Sickle-Leaved Golden Aster (Chrysopsis falcata); listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction; Rare in state with 21 to 100 occurrences state-wide.
- Wand-like Three-awn Grass (*Aristida virgata*); Imperiled in New Jersey because of rarity (6 to 20 occurrences state-wide).
- Torrey's Muhly (*Muhlenbergia torreyana*); listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction; Rare in state with 21 to 100 occurrences state-wide.
- Canby's lobelia (Lobelia canbyi); listed by the Pinelands Commission as endangered or threatened within their legal jurisdiction; Rare in state with 21 to 100 occurrences state-wide.
- Attalus (Dotted) Skipper (Hesperia attalus slossonae); State Special Concern.

Alternative 1 study area

- Prairie Warbler (*Dendroica discolor*) - Bird of Conservation Concern – habitat: mixed pine-oak barrens, grasslands).
- Northern Pine Snake (*Pituophis melanoleucus melanoleucus*) – State threatened.

Alternative 2 airship airfield study area

- Sickle-leaved golden aster Northern Pine Snake

- Grasshopper Sparrow (*Ammodramus savannarum*) – State threatened (breeding only) (see Table 3-8).

Building 572 expansion study area

- None

Lakehurst contains large expanses of grasslands (approximately 1,700 acres) within its airfield clear zones and the jump circle. The base has an established grassland bird survey and protection program. The base manages its grasslands located in and around runways, taxiways, and within the Jump Circle to discourage use by large birds that can cause an aircraft strike hazard. By keeping the grass length high, these areas provide suitable habitat for small State-listed threatened and endangered birds such as the Upland Sandpiper and Grasshopper Sparrow. Land disturbance and mowing of grasslands is avoided during the breeding season (April 1 – July 15) (NAES, 2002).

Table 3-8. Annual Totals of Grasshopper Sparrows and Upland Sandpipers Seen/Heard at Survey Points G4 and G4A, Alternative 2 Airfield

	Grasshopper Sparrows		Upland Sandpipers	
YEAR	**POINT G4**	**POINT G4A**	**POINT G4**	**POINT G4A**
2000	2	---	0	---
2001		No Survey Done		
2002	16	---	0	---
2003	2	---	0	---
2004	6	4	0	0
2005	9	7	0	0
2006	9	10	0	0
2007	9	6	0	0
2008	13	8	0	1
2009	8	8	0	0
2010	11	9	0	0

Notes: See Figure 3-9 for survey locations. 3 minute point counts totaled from 4 annual visits/point; Point 4A started in 2004; Although 1 Upland Sandpiper was seen/heard in 2008, the lack of their presence in previous and future years indicates this site is not important habitat for this species.

Grasshopper sparrows may use small grasslands, but over 100 acre areas are favored. Likewise, the Henslow's Sparrow prefers fields of 10 to 100 acres. Upland Sandpipers require larger home ranges. Of several NJ sites, nesting pairs occupied an average area of 216 acres (NJDEP, 2002). Since the 1950's, Upland Sandpiper populations in the eastern US have declined due to habitat loss. From 1970 to 1987, the number of known active breeding sites in NJ fell from 26 to 4 (NJDEP, 2002). According to the Northern Pinelands section of the NJ Wildlife Action Plan (NJDEP, 2008), "grasslands on the Lakehurst Naval Station provides some of the best grassland habitats found anywhere in the state and contain New Jersey's largest known breeding population of Upland Sandpipers." Upland Sandpipers can be consistently found in the 270-acre Lakehurst Jump Circle during breeding season. One of the Plan's partnership goals was for the Division of Fish and Wildlife to work with Lakehurst to develop a plan to maintain Upland Sandpiper, Vesper Sparrow, Grasshopper Sparrow, and Savannah Sparrow habitats by impeding succession with controlled burns and scheduled mowing. These management practices are already in place.

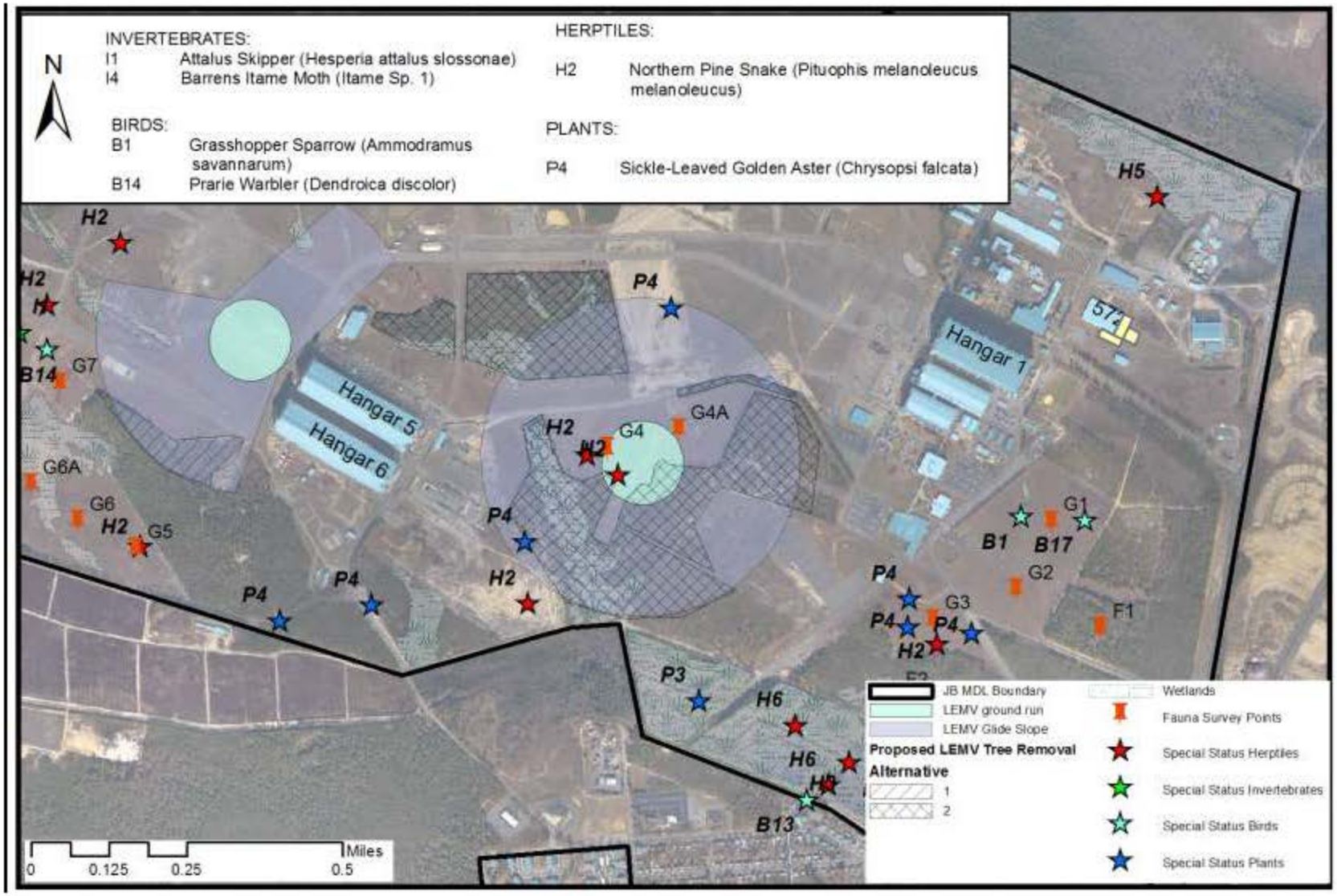


Figure 3-9. Special Status Species Sightings in the Proposed Tree Clearing Study Areas

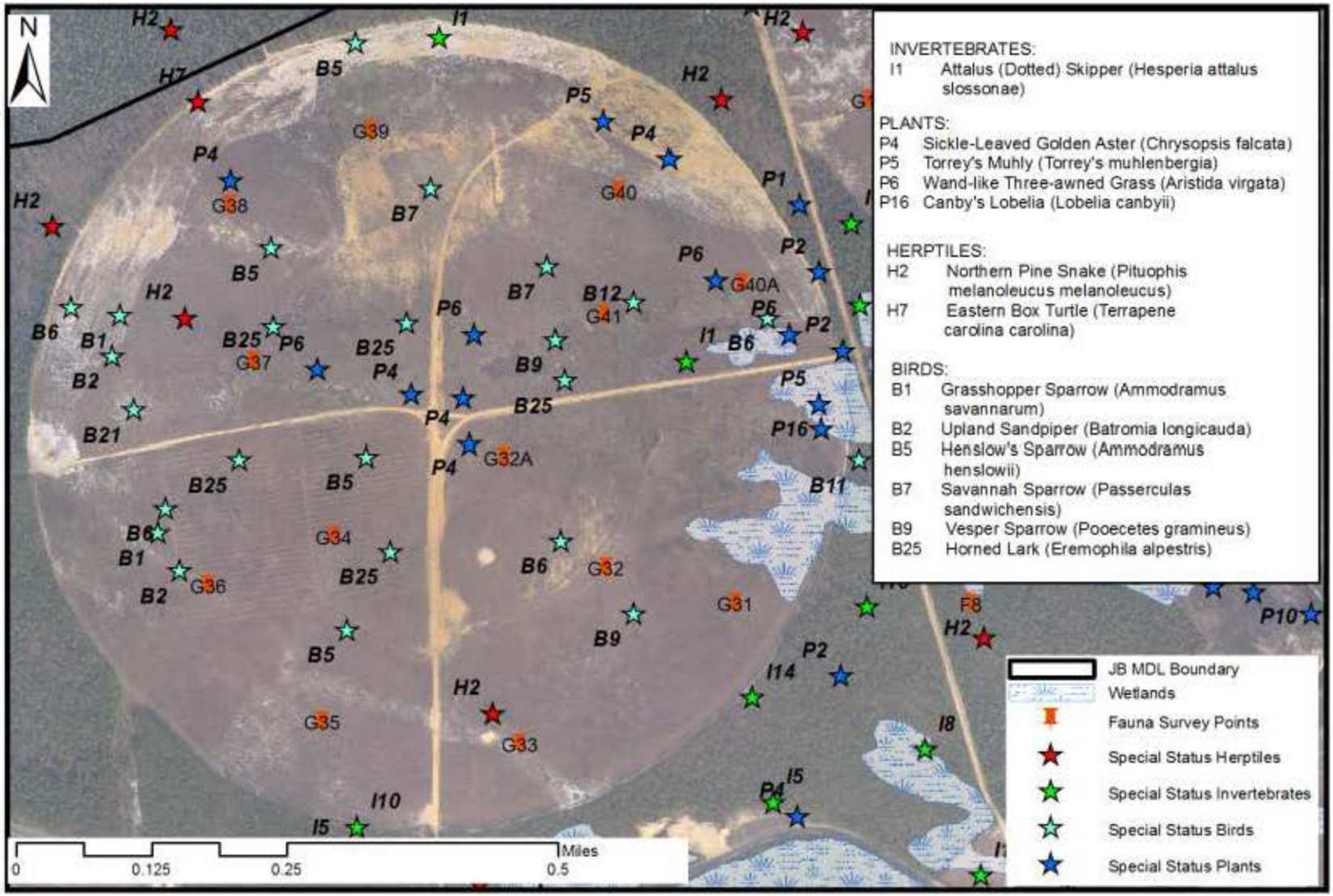


Figure 3-10. Special Status Species Sightings at the Lakehurst Jump Circle

While the Northern Pine Snake population outside of JB MDL is facing increasing threats from land development and poaching, there is a thriving population of these snakes within the Lakehurst portion of the base and they are found in relative abundance in nearly every area of Lakehurst. During a three-year study period in the late 1990's, 55 Northern Pine Snakes were captured and released (NAES, 2002). Six of the greatest threats to Northern Pine Snakes in the State are: 1) habitat loss and fragmentation; 2) poaching and illegal collection; 3) predation from both natural and subsidized predators; 4) mortality along roads; 5) fire suppression and habitat change; and 6) off-road vehicle use (Golden, et.al., 2009). It is likely that, as a secure facility, the base offers substantial protection to this species from at least two of these six threats: poaching and off-road vehicle use.

The nesting season for Northern Pine Snakes is from June 20 through about July 10. They hibernate from mid-fall to mid-spring in natural cavities. The Navy began a Northern Pine Snake protection program and data collection effort over 15 years ago, and known nesting sites and hibernacula are protected from disturbance by 350-foot and 150-foot buffers respectively on the base (NAES, 2002). Artificial hibernacula are created to encourage their survival and wire fencing is placed over nest entrances to discourage predators from digging up eggs. While there were no documented dens or nest sites within the study area, the sightings of Northern Pine Snakes at or near the proposed airfield area makes it likely that these areas provide foraging habitat.

Sickle-Leaved Golden Aster, which is rare in the State of NJ, is relatively abundant on Lakehurst. This plant thrives in disturbed areas and can be found in good numbers growing within the pavement cracks on Mat 1, along the sandy edges of base roads, and along tree lines at the Lakehurst golf course.

3.9 Cultural Resources

3.9.1 Integrated Cultural Resources Management Plan (ICRMP)

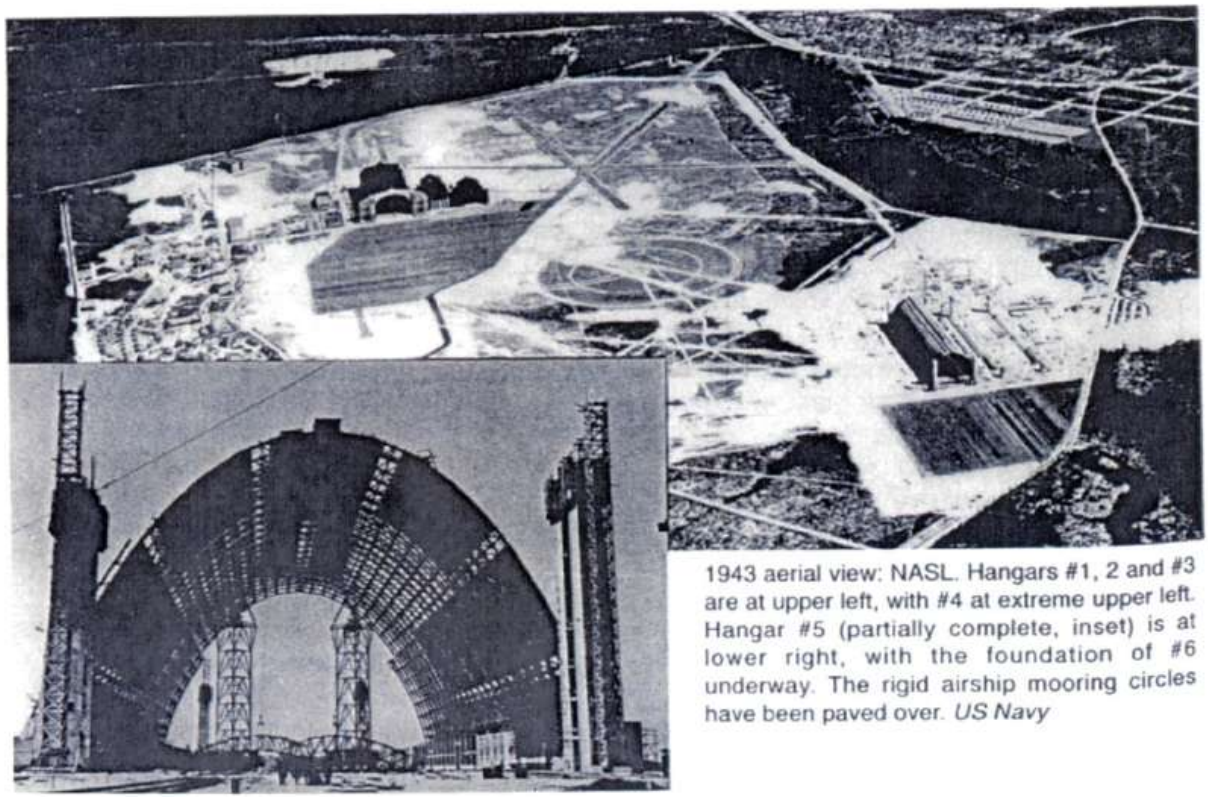
JB MDL operates its cultural resources management program in accordance with AFI 32-7065 – Cultural Resources Management. An ICRMP covering the entire Joint Base is under development and should be completed in 2012. Until then, the plan in effect for actions within the Lakehurst portion of JB MDL is the 2006 Naval Air Engineering Station ICRMP (NAES, 2006b).

The ICRMP provides an internal compliance and management tool that integrates the entirety of the cultural resources program with ongoing mission activities. The ICRMP establishes priorities for the identification and standards for the evaluation of cultural resources, and provides a schedule to accomplish program objectives during a five-year program (NAES, 2006b).

3.9.2 Prehistoric Archeological Sites

No prehistoric archeological sites have been identified on NAES Lakehurst. Two cultural resource surveys have been conducted for Lakehurst, including a reconnaissance survey conducted in 1994 (BEC, 1994) that identified areas of prehistoric site sensitivity, and Phase 1B shovel testing conducted in 2008 accomplished along a stretch of proposed road in an area having high archeological sensitivity (NAES, 2008). Neither survey encountered evidence of prehistoric occupation.

Prehistoric sites are rare in the Outer Coastal Plain of New Jersey. Nevertheless, potential remains for the presence of prehistoric sites in this region. Generally, undisturbed areas near surface water bodies in this region are more likely to have potential for archeological sites. Based on a review of aerial photographs from 1931 and 1953, the land in the eastern portion of Lakehurst was heavily disturbed by past Naval Air Station airship operations and construction activities (Figure 3-11). The Alternative 1 tree clearing site is not near water bodies and was heavily disturbed during the 1940's and 1950's. The Paint Branch (stream) within the proposed airship airfield under Alternative 2 was channelized sometime between 1931 and 1943, with land clearing on both sides occurring during that same period. The area around Building 572 was also heavily disturbed and cleared between 1931 and 1943. Consequently, there is low potential for intact archeological sites in any of the study areas. In their letter of December 23, 2011, SHPO concurred that no archeological survey was needed for vegetation removal activities based on all of the proposed removal method, prior stream channelization, and prior ground disturbance. They also indicated that the Building 572 area has low potential for archeological resources.



1943 aerial view: NASL. Hangars #1, 2 and #3 are at upper left, with #4 at extreme upper left. Hangar #5 (partially complete, inset) is at lower right, with the foundation of #6 underway. The rigid airship mooring circles have been paved over. *US Navy*

Figure 3-11. Aerial Photograph of Lakehurst, 1943
Source: Shock, 1996 (origin from US Navy)

3.9.3 Historic Archeological Sites

The documented patterns of historic land use in Ocean County indicate that the predominant historic activities were related to forest and water products, including extraction of bog iron, timber, charcoal, cranberries and water power. The environmental setting at Lakehurst suggests that these activities may have occurred within the base property, even though historic records of them are lacking.

There are four known or potential historical archeological sites within Lakehurst based on historic documents (BEC, 1994). These are:

- **Eighteenth-century Mill and Gun Road:** The remains of a mill dam were once evident in the area northeast of Building 33, Bachelor Officers' Quarters along the boundary of NAES Lakehurst. Mill remains were uncovered in the early twentieth century, when a cranberry bog was being cleared. An old Revolutionary War-era road, known as the Gun Road, was rumored to have crossed the sawmill location. Historic maps show the road running south across the eastern site of NAES Lakehurst. A visual inspection of the sawmill road area was made as part of the cultural resources survey in 1994 and recorded no artifacts or features. The area is not impacted by Lakehurst activities. This site is located more than a mile from the closest project study area.
- ***Nineteenth-century New Egypt Road Residence***: Following the Civil War several houses were built in remote areas of the Pinelands. One such mansion was said to exist along what was called *New Egypt Road* within or near Lakehurst (Wainwright 1977). However, the Beers Map of 1872 does not indicate any residence along that road within the boundaries of JB MDL Lakehurst. Therefore, the site is unlikely to be found within JB MDL.
- ***Eddystone "Russian" Proving Grounds Ruins:*** The cultural resources survey of 1994 (BEC, 1994) involved a walkover of areas associated with the Eddystone Proving Grounds. Three concentrations of ruins were identified: the main proving ground ruins located between Rockwell and Johnson roads, a smaller set of ruins 1,000 feet from Hangars 5 and 6 associated with the Lakehurst Proving Grounds, and ruins associated with trench systems near the Recovery Systems Test Site. The Proving Ground Ruins do not fall within the project study areas.
- ***Hindenburg Crash Site***: The location on Landing Mat #1 of t***h***e Hindenburg crash has been addressed as a potential historic archeological site. During World War II the entire area was surfaced to create Landing Mat #1. The soils below Landing Mat #1 have little potential to contain deposits associated with the crash, as the site was meticulously cleaned and investigated by the US Department of Commerce per the requirements of the Air Commerce Act of 1926 (BEC, 1994). Mat 1 is partially within the Alternative 2 study area and the crash site marker is located just outside the proposed Alternative 2 airfield area.

3.9.4 Historic Architectural Resources

The built environment of Lakehurst constructed prior to the Cold War has been inventoried and evaluated for National Register eligibility. A total of 71 buildings and 3 structures have been determined eligible for the National Register of Historic Places (NRHP) as contributing properties of Lakehurst LTA Historic District (NAES, 2006b).

The Lakehurst LTA Historic District is an early air transportation historic district located in the built-up area of Lakehurst. It has a period of significance spanning the entire period of Navy LTA operations from 1921 to 1962. The district is comprised of 74 contributing properties and 10 non-contributing properties. Originally delineated as part of the *Cultural Resources Survey for Naval Air Engineering Station, New Jersey* in 1994 (BEC, 1994), the district was determined eligible for inclusion in the National Register in 1996 (NAES, 2006b).

All but one of the 74 contributing properties of the Lakehurst LTA Historic District were constructed between 1919 and 1945 as part of the Navy's LTA aviation program that involved

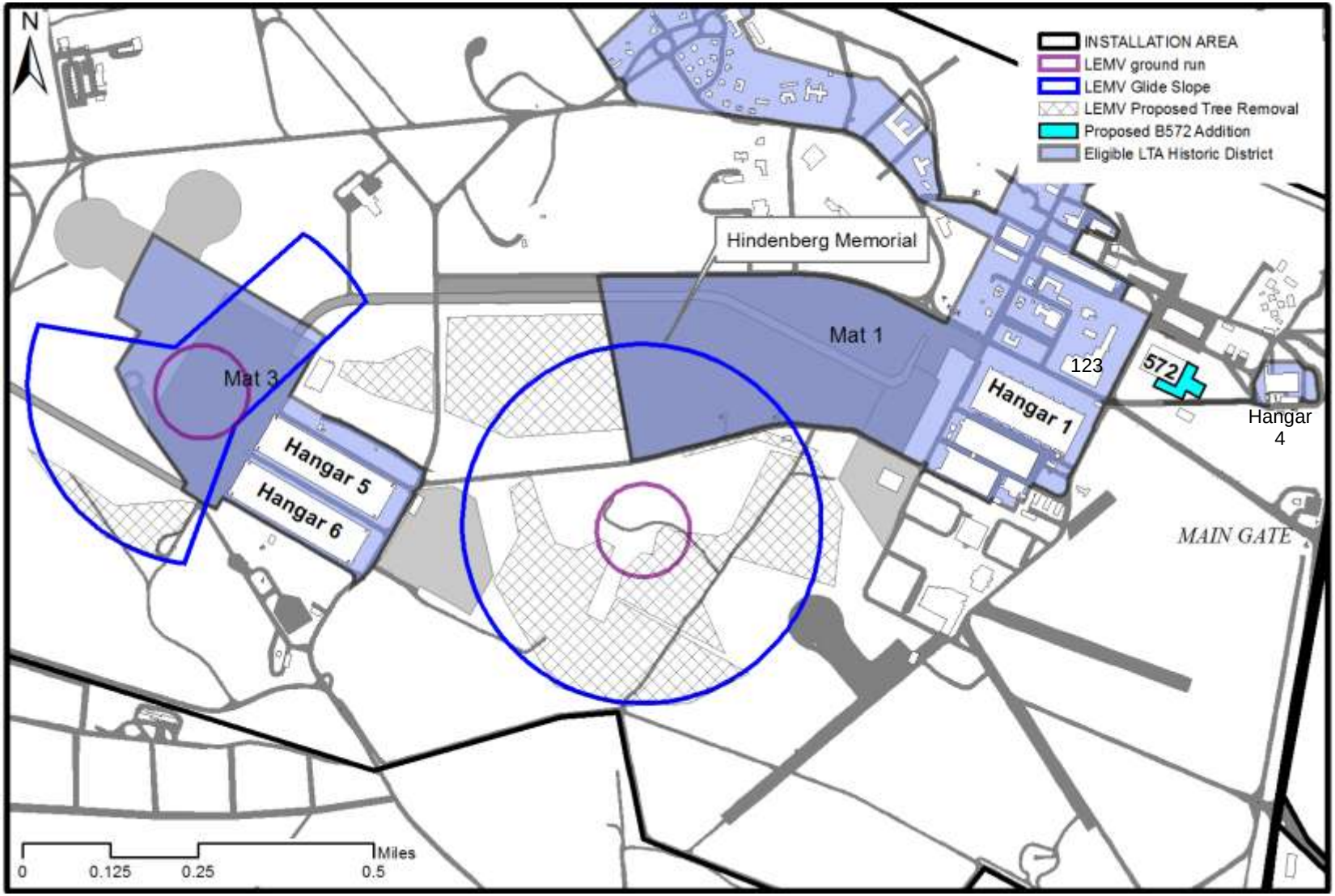


Figure 3-12. Lakehurst Lighter-Than-Air Historic District

operation of both rigid and non-rigid airships. The main body of the district consists of an industrial area and two arms that extend northwest along Lansdowne Road to a residential/administrative area and southwest along Saniuk Road to Landing Mat 1. A third arm extends northeast to include Hanger 4 (Figure 3-12). The industrial area along Hancock Road contains the main concentration of operational facilities (NAES, 2006b).

Hangar 1, built in 1921, is a National Historic Landmark. The LTA District includes Hangar 1, Mat 1, Hangars 5 and 6, and the original footprint of Mat 3 (see Figure 3-12). Hangars 5 and 6 were built in 1943. Hangars 1, 5 and 6 are designated Category I, Priority I in the ICRMP. Category I properties are those that have been determined eligible for inclusion in the NRHP. Priority I properties are worthy of long-term preservation and investment because they possess significant integrity of location, design, setting, materials, workmanship, feeling, and association. Priority I properties are afforded the highest level of protection.

Building 572 (warehouse) was built in 1984. Although Building 572 itself is not located within the LTA District boundaries, it is situated between two large contributing buildings within (Hangar 4 and Building 123) of the District (see Figure 3-12).

3.9.5 Native American Consultation

There are no Tribal Historic Preservation Officers with jurisdiction within the State of New Jersey. However, there are federally-recognized tribes, now located outside the state, that have a cultural ancestral affiliation with the lands comprising JB MDL. JB MDL is in the process of establishing a formal government to government relationship with the Delaware Nation and Delaware Tribe of Indians. The JB MDL Commanding Officer sent letters to these tribes in July 2011 and both expressed interest in reviewing ongoing actions at the base. For specific projects, the tribes requested that information be sent to their Tribal Historic Preservation Officers. No Native American Traditional Cultural Properties, protected tribal resources, treaty rights, sacred sites, or Indian lands are known to be present within the project study areas. However, JB MDL invited these tribes to be consulting parties for this EA under Section 106 of the NHPA (see Appendix A).

The Delaware Tribe responded that they had no concerns about the project by phone on August 14, 2012 (Appendix F). On request from the Delaware Nation, copies of the Lakehurst INRMP and Cultural Resources Survey were provided on June 18, 2012 and June 20, 2012 respectively (correspondence shown in Appendix F). A request for consultation under Section 106 was also sent to the Delaware Nation on October 31, 2012. On November 14, 2012, the Delaware Nation responded by e-mail that they reviewed the project against their Area of Interest and to continue with the project as planned (Appendix F).

3.10 Socioeconomics

The following subsections identify and describe the socioeconomic environment in Lakehurst Borough, Jackson Township, Ocean County, and the State of NJ. Data used in preparing this section was collected from the most recent available Census and Ocean County information.

3.10.1 Demographics

The 2010 census measured populations for the State of NJ, Ocean County, and Jackson Township. The populations of the State of NJ, Ocean County, and Jackson Township increased between 2000 and 2010. The State experienced an increase from 8,414,378 persons to 8,797,739 persons (3.5 percent), and the County experienced an increase from 510,916

persons to 573,678 persons (12.3 percent) (US Census, 2010a). Jackson Township has increased in population by 22.6 percent since 2000 (an increase from 42,816 persons to 52,497 persons). Lakehurst Borough's population increased by 5.2 percent since 2000 (from 2,522 to 2,654 persons). Except for the Borough of Lakehurst and the adjacent River Pointe active adult community, the immediate areas around JB MDL Lakehurst are sparsely populated.

3.10.2 Economy

The Lakehurst portion of JB MDL is surrounded primarily by forest areas (wildlife management areas), industrial development and sand mining, the Borough of Lakehurst, high density planned communities, and low density residential areas situated along county roads. While the density of businesses and shops in the immediate vicinity of the base is relatively low, there is a higher density of retail businesses originating approximately 5 miles southeast along the Route 37 corridor, and additional retail businesses (of lower density) along Route 547 in Jackson approximately 10 miles to the north of the base. There are also several high density retirement villages in Manchester and Toms River along the Route 70 and Route 37 corridors to the southwest.

The JB MDL Lakehurst area employs a combined workforce of approximately 2,300 military, civilian, and contractor personnel (NAES, 2010). These employees consist primarily of engineers, technicians, logisticians, acquisition experts and support specialists. In the 2000 census, government workers made up 16 percent of Ocean County's workforce.

3.11 Environmental Justice

Table 3-9 presents the ethnic characteristics of the region's population.

Table 3-9. Regional Population Percentage by Race by State, County and Township

Area	White	Black or African American	American Indian, Eskimo, or Aleut	Asian or Pacific Islander	Other Race	More Than One Race	Hispanic Origin	Percent Minority
State of NJ	68.6	13.7	0.3	8.3	6.4	2.7	17.7	49.1
Ocean County	90.9	3.2	0.2	1.7	2.5	1.5	8.3	17.3
Jackson Township	88.8	4.8	0.2	2.5	2.3	1.4	7.8	19
Lakehurst Borough	85.4	8.1	0	6.4	0	1.7	5.2	19.8

Source: U.S. Census, 2010a; U.S. Census 2009a.
Notes: The racial classifications used by the Census Bureau were issued by the Office of Management and Budget on October 30, 1997. For data purposes, Other Race refers to combinations of two or more of the first six categories. Persons of Hispanic origin may be of any race.

Median household incomes and poverty levels from the U.S. census are presented in Table 3-10. Ocean County's median household income ($59,939) is under the State average of $70,347. Jackson Township has a significantly higher income at approximately $82,977 per household. Only 4.2 percent of Jackson residents and 4.4 percent of Lakehurst Borough residents are at or below the poverty level. This level is significantly lower than the State average of 8.8 percent. Ocean County's poverty level, at 7.9 percent, is slightly lower than the State average.

Table 3-10. Income Statistics for the State, County and Township

Area	Total Population (2009)	Median Household Income (2009)	Total Number of Persons at or Below Poverty Level (2009)	Total Percent at or Below Poverty Level (2009)
State of NJ	8,707,739	$70,347	757,573	8.7%

Ocean County	573,678	$59,199	43,599	7.6%
Jackson Township	51,932	$82,977	2,164	4.2%
Lakehurst Borough	2,698	$64,327	118	4.4%

Sources: US Census 2010a, US Census 2009a, US Census 2009b.

3.12 Infrastructure

3.12.1 Building Infrastructure

An engineering study is underway to identify repairs needed in Hangars 5 and 6. Until repairs are completed, there is a possibility of fire hazard within these wooden hangars from: deficient electrical systems; the storage of fueled aircraft; and lack of a hangar deck fire suppression system.

3.12.2 Potable Water Supply

The Hill Water System serves the area from Route 547 to Lakehurst Maxfield Field Hangar, excluding the Cathedral of the Air, Freedom Park and Building 42 (JB MDL, 2010). The Hill Water System obtains ground water from five wells. Lakehurst possesses a NJDEP Water Allocation Permit (#5366), which allows for the diversion of 21 million gallons of water per month from the underlying Kirkwood-Cohansey aquifer. The water treatment building and two standalone brick well houses are located on and adjacent to Mat 1, within the outer portion of the airfield area under Alternative 2. The Alternative 2 airfield would be located 700 feet from the closest well house on Mat 1.

3.12.3 Wastewater Treatment

Most facilities at Lakehurst connect to a base wastewater collection system, including 15 pumping systems, (operated by JB MDL) that ultimately ties into the Ocean County Utility Authority, which provides tertiary treatment for wastewater before it is discharged into the Atlantic Ocean.

3.12.4 Electric

GPU Energy provides electricity to the Lakehurst area of JB MDL. The proposed edge of the Alternative 1 ground run area is located within 350 feet of an existing 2400 volt electric line and several transformers. There is a 2400 volt electric line running through the proposed Alternative 2 ground slope area, with an above ground transformer near its center.

3.13 Transportation and Traffic

Ocean County is serviced by several State and Federal highways as well as a network of local and county roads. The major north-south highways are Routes US 9, the Garden State Parkway, Route 35, and County Route (CR) 539. Route 70 is the major access road from the Garden State Parkway and the Philadelphia-Camden area, and the highway connects with other east-west routes such as Routes 72, 37, and 88. Route I-195 is a major interstate freeway providing an express connection between Trenton and the shore area, with links to the New Jersey Turnpike and other major north-south arteries.

Primary access to Lakehurst MDL is from Route 547 that connects to Route 70 to the south and Route 571 to the north. The main gate and commercial gate are located on Route 547. There is also a commuter gate for non-commercial traffic on the south side of the base north of Pinehurst Estates that is open for one-way traffic during peak morning and afternoon commuting hours,

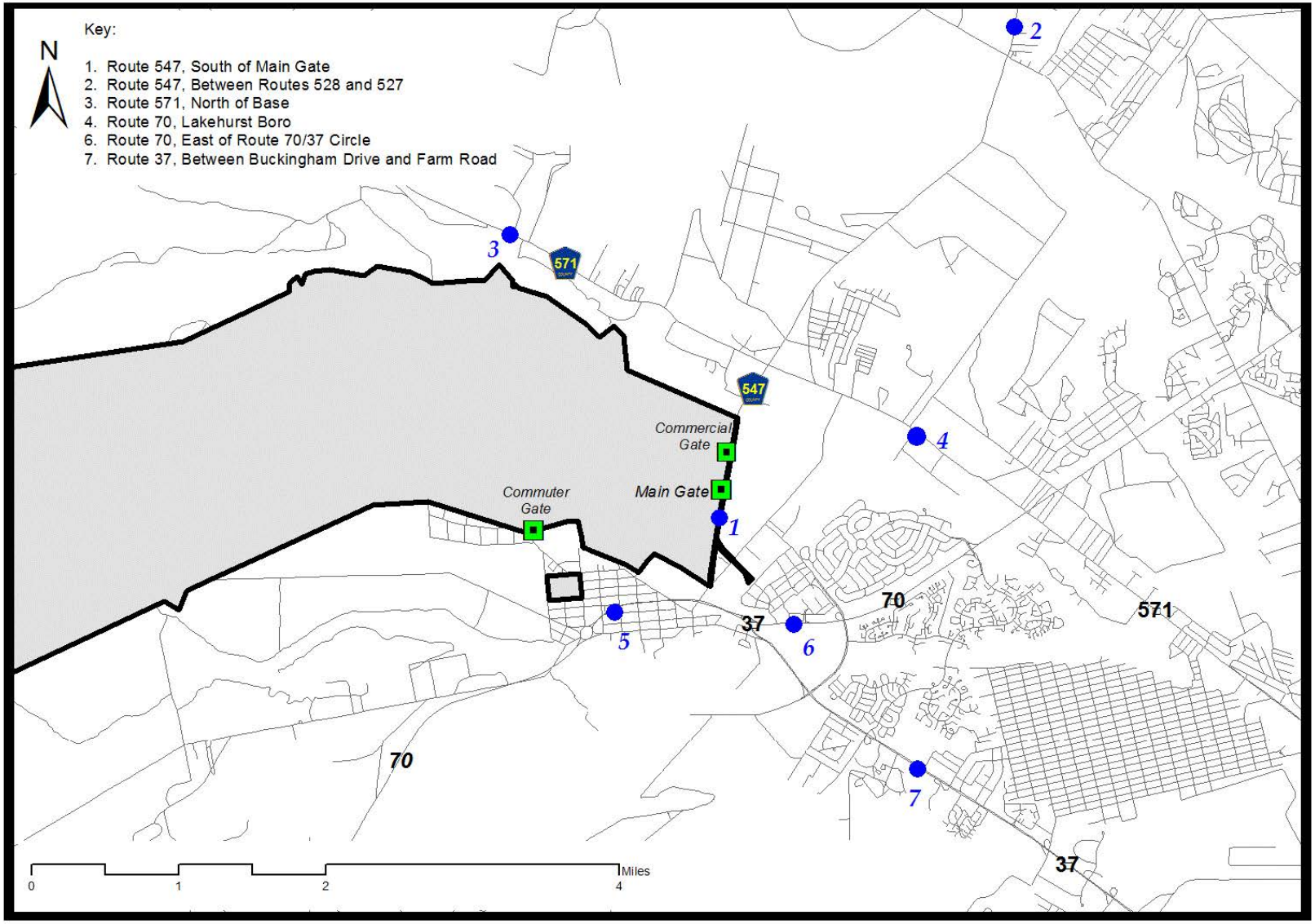


Figure 3-13. Gates and Traffic Count Locations

accessed via Route 70 (see Figure 3-13). The Lakehurst portion of JB MDL employs 2,300 military, civilian and contractor personnel. During the peak hour morning timeframe, approximately 550 vehicles travel through the main gate.

Annual Average Daily Traffic (AADT) describes the number of vehicles that traverse a road at a specific point on the road system.

Peak traffic volume on Route 547 occurs at 7 am in the morning and at 4pm in the afternoon, most of which is assumed attributable to the typical work schedule at JB MDL. The Annual Average Daily Traffic (AADT) on Route 547 is 13,130 (NJ DOT, 2011), which is split almost evenly between north bound and south bound traffic. An average of 1,098 vehicles traveled on Route 547 during peak morning hour (6 – 7 am) based on the 2009 survey. Based on the mix of vehicles counted in a same survey, truck traffic makes up approximately 6 percent of vehicles traveling on Route 547 (1,743 trucks out of 28,535 vehicles over a two day period) (NJDOT, 2011).

Peak traffic volume on Route 547 occurs at 7 am in the morning and at 4pm in the afternoon, most of which is assumed attributable to the typical work schedule at JB MDL. The AADT on Route 547 is 13,130 (NJ DOT, 2011), which is split almost evenly between north bound and south bound traffic. An average of 1,098 vehicles traveled on Route 547 during peak morning hour (6 – 7 am) based on the 2009 survey. Based on the mix of vehicles counted in a same survey, truck traffic makes up approximately 6 percent of vehicles traveling on Route 547 (1,743 trucks out of 28,535 vehicles over a two day period) (NJDOT, 2011). Table 3-11 provides traffic counts on roads leading to and from the Lakehurst gates.

Table 3-11. Traffic Counts in the Region of the Lakehurst Gates

Location	Study Dates	AADT (2-way)	Peak AM hour	Peak PM hour
Route 547, near Lakehurst Commercial Gate	9/2- 9/3/2009	13,130	7-8 am	4-5 pm
Route 547, Between Routes 528 and 527	4/23 – 4/26/2007	12,015	6-7 am	4-5 pm
Route 571, North of JB MDL	5/6 – 5/9/2008	10,601	6-7 am	4-5 pm
Route 571, East of Route 547	4/17/2007	10,283	6-7 am	4-5 pm
Route 70, Lakehurst Borough	8/14- 8/17/2007	22,016	10-11 am	4-5 pm
Route 70, east of Route 70/ Route 37 Circle	8/14 – 8/17/2007	15,074	10-11 am	4-5 pm
Route 37 (between Buckingham Drive and Farm Road)	3/30 -4/2/2009	31,555	10-11 am	3 pm

Sources: NJDOT, 2011.

The peak hour morning and afternoon traffic in the region of the Lakehurst gates (Routes 547 and 571) generally coincides with the typical workday start and end times for JB MDL. However, the more traveled corridors (Route 70 and 37) experience later peak morning traffic between 10 and 11 am, probably associated with the opening times of commercial businesses along those corridors. The road with the highest AADT near Lakehurst is Route 37 (southeast of the base) that experiences almost two and a half times more traffic volume per day than Route 547.

3.14 Materials and Waste

Lakehurst has a mature recycling program, including enforcing provisions for recycling construction waste such as asphalt and concrete. Lakehurst utilizes the Ocean County Landfill in Manchester Township for non-recyclable waste.

Lakehurst adheres to a Hazardous Material Control and Management Plan which defines the procedures for the handling and disposal of hazardous waste. According to the management plan, each department and tenant must possess a Hazardous Waste Coordinator and Spill Response Coordinator. The LEMV test program in Hangar 6 currently complies with the base HAZMART process where hazardous materials are distributed from a central location and their usage and disposal are tracked. The Spill Response Coordinator and/or the Hazardous Waste Coordinator must be contacted in the event of a spill. Table 3-12 lists the quantities of hazardous materials and wastes from LEMV-1 at Lakehurst.

Table 3-12. Hazardous Materials and Waste from LEMV-1

Material	Quantity
Paints and coatings	185 gallons
Adhesive	232 gallons
Epoxy filler	6 gallons
Blended solvents	100 gallons
Methyl-ethyl-ketone (MEK)	105 gallons
Waste	**Quantity**
Hydraulic fluid	220 pounds
MEK-associated waste (including personal protective equipment)	440 pounds

LEMV-1 also used a soapy water mixture to test for air leaks. The wastewater was disposed of by vacuum truck to an off-site permitted location.

Compressed helium was used to inflate LEMV-1. Depending on the size of the truck and tubes, between 5 and 7 helium trucks area needed to inflate a single LEMV. Of the 14 federal contract helium suppliers listed on the Bureau of Land Management website, 3 are located Pennsylvania and 2 are located in NJ (BLM, 2011).

Helium is becoming a scarce commodity in the world. In August 2011, the Federal Helium Reserve and its officials claimed that by the year 2020, the reserve could run out. In the next 10-15 years, the US could become a net importer of helium from sources like Australia, Russia, and the Middle East (Gulf Times, 2011). Between 2006 and 2010, an average of 78 million cubic meters of helium was extracted each year from natural gas.

3.15 Safety

3.15.1 Police, Fire Protection, and Medical Facilities

If an emergency requiring police protection occurs, JB MDL is connected to the 911 Emergency System. The JB MDL Police force provides primary response to emergencies. Its closest headquarters is located 0.4 from Mat 1 and 1.3 miles from Mat 3. The Lakehurst Fire Rescue Facility is located at Rounds Road and McCord Road adjacent to Mat 3.

If a medical emergency occurs, military medical facilities are available on all three portions of JB MDL. Civilian medical facilities within close proximity to Lakehurst include the Community Medical Center located in Toms River, NJ (on Route 37 near the Garden State Parkway) approximately 10 miles east of the main gate.

3.15.2 Ordnance

The project study areas are all outside the "sweep required" areas of Lakehurst for unexploded ordnance. However portions of the proposed tree removal areas for Alternatives 1 and 2 are located in the "use caution" areas (Figure 3-14). Along the Manapaqua branch, a hunter found a black-powder mortar round in October 1985 in a "swamp" (Figure 3-14). Other rounds were discovered during the site preparation for the fire rescue facility northeast of Mat 3, but outside the study area.

There is a small ordnance magazine located southwest of Hangar 6. This magazine has an Explosive Safety Quantity Distance (ESQD) arc associated with it, where occupied facilities are prohibited (Figure 3-14).

The "use caution" area south of the proposed Alternative 2 ground run area was used for Navy bombing practice from 1930 to the mid-1940's. This area included targets for dropping inert bombs, practice bombs with marker charges, miniature bombs, depth charges, flares and other pyrotechnics (NAES, 1996). The "use caution" area south of Mat 3 is associated with "Midway Range Firing Line #1 and 2", from the Lakehurst Proving Ground Era, from 1918 to 1921. The firing point was close to what is now the Pinehurst Gate and the impact area was at what is now the Jump Circle. Types of ordnance tested at the proving ground included shrapnel shells, high explosive shells, and chemical shells (NAES, 1996). The Jump Circle is in the "sweep required" zone, as it contained impact trenches for all three proving ground firing lines: Midway firing lines 1 and 2 and the West Range firing line.

3.15.3 Facility Safety

Hangars 5 and 6 are slated for evaluation for several safety issues, such as deficient electrical wiring and capacity and lack of a fire suppression system. The study should be completed by November 2012. The study will evaluate needed repairs, their priority, and costs.

3.15.4 Airship Flight Safety

Airship safety is influenced by a number of factors including: the design of the airship, maintenance, weather, and experience of the pilot and ground crew. Based on data from the National Transportation Safety Board between 1996 and 2006, the major causes of 23 recorded U.S. commercial blimp accidents were: 52% airship mechanical issues/ poor design/ improper maintenance; 26% high winds/ bad weather; 18% human error (pilot or ground crew); and 4% electromagnetic interference. Most accidents occurred with several of these factors contributing. For those accidents where pilot error played a role, the average pilot hours of operation in type was 536 hours. Where pilot error did not play a role, the average pilot hours of operation in type was 1,875. Of the 23 accidents, only two resulted in fatalities (one pilot and one ground crew).

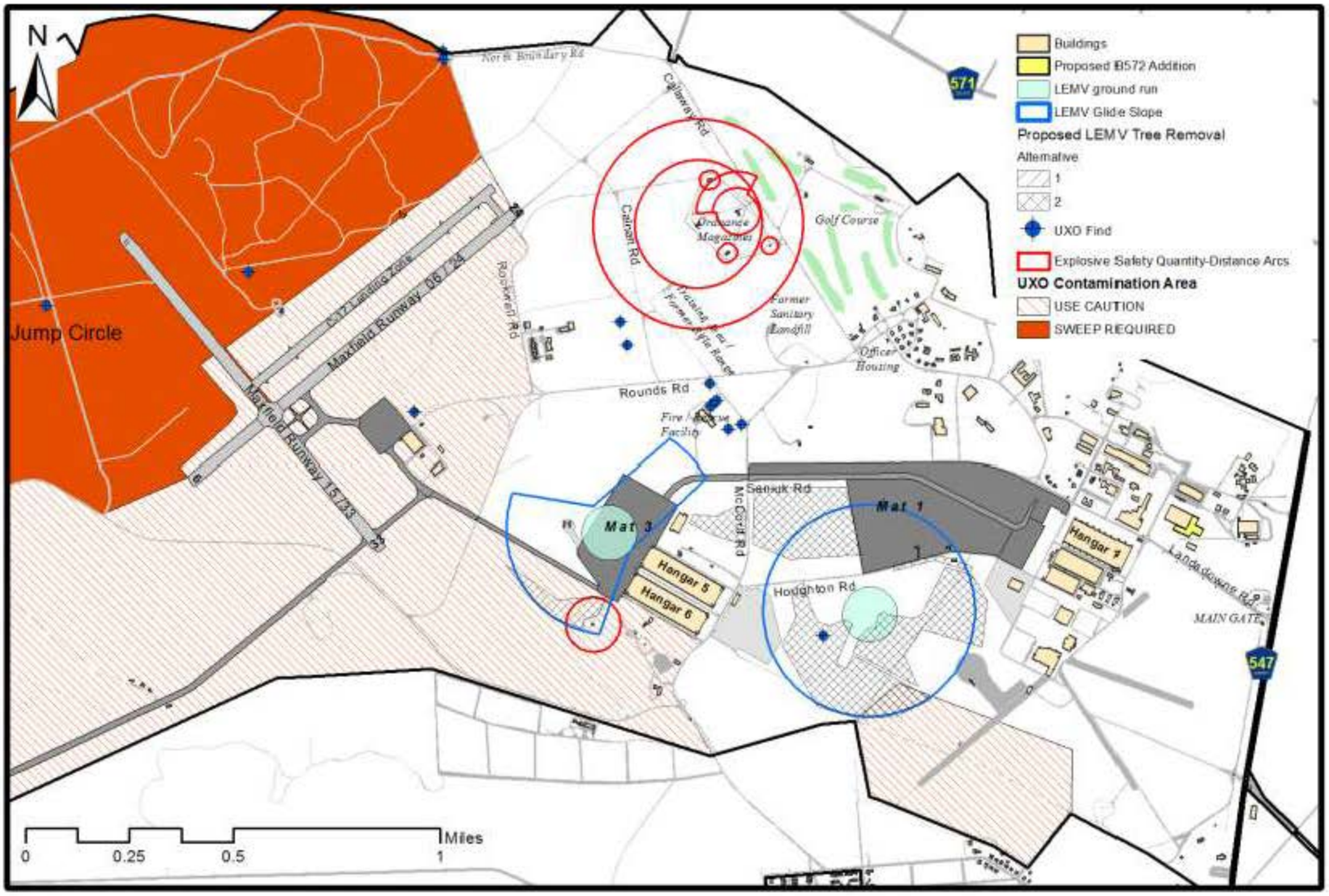


Figure 3-14. ESQDs and UXO Areas.

3.15.5 BASH

Tall grass has been a successful BASH management practice at the Lakehurst airfield for 20 years. It was initiated by the NRM in consideration of the habitat preferences of birds most likely to be hazardous to air operations in the Pinelands region. Geese and gulls are known to avoid high grass areas, so the program worked very well. The native warm season grasses that dominate the airfield are not species with heavy seed heads, so seed eaters like blackbirds and starlings are not drawn to the airfield. The high grass has also failed to draw rodent-hunting raptors in unusual numbers, despite the healthy population of red-tail hawks. Grasshopper sparrows are common on grasslands of JB MDL but they have never been a serious hazard to aircraft operations. This species does not flock in heavy numbers, and the individual birds are quite small. The Lakehurst BASH rate remains significantly below that of other airfields in the region that use a standard 7-14 inch grass height standard (Joyce, 2012).

THIS PAGE INTENTIONALLY LEFT BLANK

4. ENVIRONMENTAL CONSEQUENCES

4.1 General Overview

This section identifies potential direct and indirect effects of the alternatives for each resource area described in Section 3 and compares and contrasts the potential effects of those alternatives. The potential environmental, cultural, and socioeconomic effects of implementing each identified alternative, as well as any required mitigation associated with each alternative, are also presented.

4.2 Land Use

4.2.1 Effects of Alternative 1 (Limited Improvements)

No significant adverse land use impacts would be anticipated due to implementation of Alternative 1. The present base zoning of Hangars 5 and 6 and Mat 3 is "aircraft operations and maintenance" with the same designation for the future according to the 2010 *Vision Plan, Naval Air Engineering Station* (NAES, 2010). The Vision Plan encourages the consolidation of aircraft-related operations near the Lakehurst Maxfield Field runways and Alternative 1 would be consistent with this plan.

The Proposed Action requires 6.8 acres of tree clearing within the Pinelands National Reserve. However, this alternative is consistent with the function of the military installation and promotes development outside of the Pinelands Preservation District[6] in accordance with the Pinelands Comprehensive Management Plan. With the adherence to requirements in Section 2.2.5 and the BMPs listed in Section 2.2.6, Alternative 1 would result in less than significant adverse impacts to the environmental resources of the Pinelands Area.

4.2.2 Effects of Alternative 2 (Major Improvements)

No significant adverse land use impacts would be anticipated due to implementation of Alternative 2. Alternative 2 would convert land categorized as open space at Lakehurst to "airfield" in the form of an unimproved airship field. This change in land use would be minor and would not adversely impact current or future land use plans at Lakehurst. The proposed addition to Building 572 would also not affect current or future land use, as it would be an industrial use in an industrial area.

The Proposed Action requires 77 acres tree clearing within the Pinelands National Reserve. However, this alternative is consistent with the function of the military installation and promotes new development outside of the Pinelands Preservation District[6] in accordance with the Pinelands Comprehensive Management Plan. The use of existing facilities, airship airfield expansion, and addition to an existing warehouse (with the adherence to requirements in Section 2.2.5 and the BMPs listed in Section 2.2.6) would result in less than significant adverse impacts to the environmental resources of the Pinelands Area.

[6] As JB MDL is designated "Federal or Military Facility" by the Pinelands, there are officially no designations of Pinelands Preservation within the base (see Figure 3-2). However, for Lakehurst, there are areas of Preservation Districts to the north and south of its border to the west of Maxfield Field. Based on past communication with the Commission, new development is favored in the eastern portion of Lakehurst not bordered by Preservation District (in contrast to the largely forested and undeveloped areas on the western portion of Lakehurst).

4.2.3 Effects of Alternative 3 – No Action Alternative

No land use impacts would be anticipated as a result from implementation of Alternative 3, as LEMV operations would not continue at JB MDL.

4.2.4 Mitigation Measures

No mitigation measures would be required.

4.3 Airspace and Air Operations

4.3.1 Effects of Alternative 1 (Limited Improvements)

The LEMV program would conduct up to 90 flights per year. Based on 2010 air operations at Lakehurst, LEMV would increase annual aircraft operations by 1 percent. Mat 3 supports helicopter take-offs and landings, as well as parking and taxiing of fixed wing aircraft belonging to various supported tenants. LEMV mooring and flight operations at Mat 3 would require close coordination with other tenants and would potentially interfere with or delay operation of other tenant flights. The planned construction of the NJ National Guard Army Aviation Support Facility on the north side of Mat 3 (see Section 4.16, Cumulative Impacts) would further crowd aircraft operations on the mat and reduce the possible directions for take-off and landing of the LEMV. Test flights would occur primarily over the relatively unpopulated area of the NJ Pinelands between Lakehurst and the Warren Grove Gunnery Range (Figure 2-1), and would conduct laser tests within the restricted airspace at Warren Grove. Therefore, flight testing would have low potential for aviation accidents or low incidence of injury to people and infrastructure in the event of an accident. This airspace also falls outside of major airport operating areas, resulting in negligible impacts to regional airspace. Overall, Alternative 1 would have moderate adverse impacts on the ability of the LEMV to take off and land in prevailing wind direction due to the limited area on Mat 3. However, these impacts would not be considered significant because the LEMV pilot and Lakehurst air traffic control would bias flight schedules to times or days with favorable weather and wind conditions, or the pilot could make more gradual and controlled ascents/descents to account for less than optimal wind direction.

4.3.2 Effects of Alternative 2 (Major Improvements)

Alternative 2 would provide a dedicated LEMV mooring site and take-off/landing site at Lakehurst. The proposed airship airfield would be physically separated from other air operations on Mat 3 by approximately 0.75 miles and from Lakehurst Maxfield operations by about 1.5 miles. JB MDL would clear trees between the Maxfield Tower and the LEMV airfield to increase visibility and aircraft safety. This physical separation of LEMV operations from primary helicopter and fixed wing aircraft patterns would increase flight safety overall at Lakehurst when compared to Alternative 1. This new airfield would allow LEMV pilots to take-off in nearly any direction, based on current wind direction, increasing program efficiency. The location of well houses and water treatment facility in the northeast portion of the airfield would prevent take-offs and landings in that direction, but this would have little negative impact on LEMV operations based on prevailing winds that occur to the west and northwest (Figure 3-3). The LEMV would conduct flight operations in the same primary area as under Alternative 1. Overall, Alternative 2 would not cause a significant adverse impact on air operations and airspace.

4.3.3 Effects of Alternative 3 – No Action Alternative

No airspace impacts would be anticipated as a result from implementation of Alternative 3, as LEMV operations would not continue at JB MDL.

4.3.4 Mitigation Measures

No mitigation measures would be required.

4.4 Air Quality

4.4.1 Effects of Alternative 1 (Limited Improvements)

Project construction would involve tree cutting, chipping, and grading. Exhaust emissions from construction vehicles, personal vehicles, soil erosion, and fugitive dust are all construction issues that would cause minor, short-term air quality impacts.

During LEMV integration and flight testing, there would be a minor increase of criteria pollutant emissions. However, annual emissions from LEMV, when added to other emission sources at Lakehurst, would not exceed the Lakehurst SIP budget (see Appendix B, Section 3.4) and would comply with the Clean Air Act.

An average of 60 additional full-time personnel would commute to Lakehurst with personal vehicles on a workday basis under Alternative 1. There would be a slight increase in automobile emissions from these commuter vehicles, but these emissions would have a negligible effect on air quality.

4.4.2 Effects of Alternative 2 (Major Improvements)

There would be slightly more short-term air emissions when compared to Alternative 1, due to the larger area of tree clearing, utility work, and the construction of an addition to Building 572. Soil conservation requirements, as described in Section 2.2.5, would sufficiently minimize airborne particulate release. Mobile source emissions during construction would result in direct, minor, short-term adverse air quality impacts.

The establishment of a dedicated LEMV mooring area would allow the installation of electric hook-ups for blowers and lighting that would eliminate the use of small generators. This would have a minor, positive impact on air emissions when compared to potential use of generators at unimproved mooring sites.

Long-term emissions from LEMV integration and testing would be the same as under Alternative 1. Based on the analysis provided in Appendix B, the proposed LEMV program would not cause Lakehurst to exceed its SIP budget, even when added to other reasonably foreseeable future actions and programs at Lakehurst, and would comply with the Clean Air Act.

4.4.3 Effects of Alternative 3 – No Action Alternative

No impact to air quality would be anticipated due to the implementation of Alternative 3, as LEMV operations would cease after LEMV-1.

4.4.4 Mitigation Measures

No mitigation measures would be required.

4.5 Noise

4.5.1 Effects of Alternative 1 (Limited Improvements)

4.5.1.1 Airfield Tree Removal

Tree removal activities would occur in the Fall and Winter months over a period of up to 1 week. These activities would be scheduled during daytime hours when background noise levels would generally be higher, and when many people are at work and away from home (i.e., between 7:00 a.m. and 6:00 p.m.). During this work, increases in noise levels would mainly result from the use of bulldozers, dump trucks, chain saws, wood-chippers, and stump-grinders. Table 4-1 shows the general noise levels associated with operating tree clearing equipment. With multiple items of equipment operating concurrently, noise levels can be relatively high in the immediate vicinity during daytime periods when construction activities take place.

Table 4-1. Noise Levels of Typical Tree Clearing Equipment

Equipment at 50 Feet from Source

Source	Noise, dBA
Truck	91
Roller	89
Bulldozers	80
Pickup Trucks	85
Backhoes	85
Grader	85
Loader	85
Chainsaw	105
Wood Chipper	110

Source: Bolt, Beranek, and Newman, 1971.

On-Site Receptors

Noise levels would primarily be limited to the immediate vicinity of the project site where the primary receptors would be construction workers. However, adherence to appropriate Occupational Safety and Health Administration standards and use of hearing protection would protect the workforce from excessive noise.

Trucks delivering equipment to the site or wood waste from the site would travel along base roads, increasing noise temporarily to receptors while they are passing by. Trucks would pass within 0.25 miles of the Officer's Housing area and enlisted barracks, resulting in intermittent, short-lived noise levels of up to 63 dBA.

Off-Site Receptors

Noise levels from the tree cutting area south of Mat 3 to the nearest off-site sensitive receptors (Officer's Housing, 1 mile away) can be estimated using the following equation:

$$Lp2 = Lp1 - 20 \log10 (r2/r1)$$

where Lp2 is the predicted noise level at the receptor location, Lp1 is the noise level at the measurement location, r2 is the distance from the noise source, and r1 is the distance where the Lp1 reading was taken from the noise source. Thus, highest level of tree cutting noise perceived from the nearest residential receptor fenceline is estimated to be:

$$Lp2 = [110 \text{ dBA} – 20 \text{ Log10 } (5{,}280 \text{ feet}/50 \text{ feet})] \text{ dBA} = 69.5 \text{ dBA}$$

Typical noise attenuation within residential structures (windows closed) is approximately 25 dB. Consequently, the resulting experienced by residents indoors would be 45 dB which would be barely perceptible.

4.5.1.2 Operational Noise

Noise data from the engines used on the LEMV was not available. However, a search of a FAA circular on noise levels of US certificated and foreign aircraft listed a similar 3-blade propeller-driven aircraft that has two 350-HP engines (Piper PA-60-700P) with a 78.9 dBA (corrected) (FAA, 2001). This measurement represents the noise from a 1000-foot level overflight at maximum engine power (14 CFR 36 Appendix F). However, the LEMV would have 4 engines compared to the Piper's 2 engines. By adding the noise of two sets of Piper engines, the maximum noise from the LEMV at 1,000 feet would be increased by 3 dB, for a total of 81.9 dBA. Noise levels from LEMV flights would be the greatest during take-offs, when the engines are temporarily at their highest power output.

Under Army Pamphlet 40-501, personnel exposed to steady state noise levels with a time-weighted average of 85 dBA or greater must take hearing protection measures. The LEMV would continue its existing hearing conservation program, taking into consideration the proposed configuration of the building, mat, and aircraft operations to determine when hearing protection is required of workers in different roles. Consequently, the impact on outside workers from intermittent aircraft noise would be negligible to minor.

LEMV flight operations would occur less than 90 total days out of a year, so that their noise effects would cause little change to the overall Lakehurst time-weighted noise contours (Figure 3-4). The closest worker receptors to Mat 3 LEMV operations would be located at Hangars 5 and 6. When the LEMV is taxiing out of Hangar 6, the LEMV would be operating at low power with an estimated temporary SEL of up to 79 dBA. The noise would be intermittent and fall below the Air Force 8-hour hearing protection standard of 85 dBA, resulting in minor impacts to on-site daytime workers.

Noise Levels at Off-Site Receptor Locations – Mat 3

There would be a maximum of 90 sets of take-offs and landings under the LEMV program, with each event only lasting a few minutes. The nearest residential receptors would be Officer's Housing located 4,000 feet away, where they would experience temporary noise levels of less than 70 dBA during takeoffs. The nearest off-base residential receptor would be located 1 mile away, resulting in a SEL of 67.5 dBA to these receptors. The location of Hangars 5 and 6 plus acres of vegetation between the take-off area and off-base receptors would further dampen noise levels. The LEMV would take-off and land primarily in a west or southwest direction to avoid Hangars 5 and 6. The resulting flight path would be over a mile west of the Borough of Lakehurst, further limiting noise to sensitive receptors.

Of the 90 potential test flights per year, up to 9 would occur during night-time hours. During night-time, sound exposure levels would be perceptible to residents in the Officer's Housing area and possibly off-base residents, but with the windows closed, noise levels would fall below the typical thresholds for physiological reaction to noise (>50 dBA) or for disrupting deep sleep (>60 dBA) (Siebein and Lilkendey, 2010). Off-base residents would continue to experience the same or similar day and nighttime noise levels when compared to current aircraft operations.

4.5.2 Effects of Alternative 2 (Major Improvements)

4.5.2.1 Airfield Tree Removal

The noise analysis for Alternative 1 tree removal would be the same for tree removal on Mat 1, although the duration of activity would be likely 6 weeks instead of 2 weeks. Some portion of the tree clearing would be closer to the housing areas (on base and off), but some would be further away when compared to Alternative 1. Overall, the noise perception at the housing areas would be similar but would occur over an additional 4 weeks during daytime hours.

4.5.2.2 Operational Noise

Operational noise would be similar to that described under Alternative 1. Take-offs and landings would still occur infrequently on Mat 3 but the majority of flight operations would occur at Mat 1 instead. This would introduce airship noise closer to several office buildings on the base, with a portable office building as the closest receptor. With its "office trailer" construction, there is likely much less insulation and noise dampening than a conventional brick office building, and these workers may experience increased noise during take-offs and landings. The mooring site would also include blowers to maintain inflation of the LEMV. The blowers would cycle on and off but would operate around the clock when the LEMV is present. Depending on the noise levels they generate, it may be necessary to provide additional sound dampening at the source.

Residential receptors on-base would experience the same noise levels generally as under Alternative 1. Off-base receptors would be located 0.75 miles from the ground run area, resulting in a SEL of 70 dBA during LEMV take-offs. With the potential for take-offs and landings within a 360 degree circle, there is higher potential for low-flights (<2,000 feet) over or near the Borough of Lakehurst. The LEMV pilot would develop a flight route to minimize disturbance to residents and would reduce speeds (as practicable) over residential areas to reduce noise impacts.

4.5.3 Effects of Alternative 3 – No Action Alternative

Under the No Action Alternative, LEMV operations would be discontinued and there would be no change in noise levels.

4.5.4 Mitigation Measures

No mitigation measures would be required.

4.6 Geology, Topography, and Soils

4.6.1 Effects of Alternative 1 (Limited Improvements)

Implementation of Alternative 1 would involve tree clearing for the proposed Mat 3 glide slope area. As a result, there would be a potential for soil erosion by wind and rain if adequate soil conservation practices are not followed. However, JB MDL would obtain certification of a soil erosion and sediment control plan by the Ocean County Soil Conservation District and obtain an authorization to discharge stormwater associated with a construction activity under a NJPDES general permit.

None of the soils within the project study area are considered Prime Farmland soils or soils of state-wide importance. Furthermore, no substantial changes to the topography of the project area would be anticipated.

With the adherence to requirements in Section 2.2.5 and the BMPs listed in Section 2.2.6, there would be minimal impact to geology, topography and soils.

4.6.2 Effects of Alternative 2 (Major Improvements)

The impacts of Alternative 2 would the same as Alternative 1 except that a larger area of tree clearing would be needed for the new airship airfield and for increased Mat 1 airfield visibility from the Maxfield control tower. There would also be minor temporary soil disturbance for the construction of an addition to Building 572. The utility work to be relocated the aboveground transformer would also temporarily disturb soils. All of these projects would be subject to Ocean County Soil Conservation District rules that include provisions for reducing soil erosion. With the adherence to requirements in Section 2.2.5 and the BMPs listed in Section 2.2.6, there would be minimal impact to geology, topography and soils.

None of the soils within the project study area are considered Prime Farmland soils or soils of state-wide importance. Furthermore, no substantial changes to the topography of the project area would be anticipated.

4.6.3 Effects of Alternative 3 – No Action Alternative

No impacts to geology, topography, and soils would result from implementation of Alternative 3, as LEMV operations would be discontinued at JB MDL.

4.6.4 Mitigation Measures

No mitigation measures would be required.

4.7 Water Resources

4.7.1 Effects of Alternative 1 (Limited Improvements)

No adverse impacts to surface water resources would be anticipated due to implementation of Alternative 1, provided that protective measures required by the Ocean County Soil Conservation District permitting process are followed.

No wetlands or 100- or 500-year floodplains are located within the Alternative 1 project study area; therefore, no adverse impacts to these water resources would be anticipated due to implementation of Alternative 1.

A portion of Mat 3 is located within a Tier 3 Well Head Protection Area. The LEMV program would follow the requirements and BMPs in Sections 2.2.5 and 2.2.6 to reduce the potential for spills of hazardous material, hazardous waste, and fuel. Consequently, the activities associated with the LEMV program would not contribute to groundwater contamination and would not affect water quality within the Hill Community Water System. Leak testing of the LEMV with soapy water would be conducted indoors and the water collected and disposed of appropriately off-site. Similarly, use of hazardous materials and painting would be conducted indoors with appropriate controls and disposal methods.

4.7.2 Effects of Alternative 2 (Major Improvements)

In wetland areas, trees would be removed but cutting them just above the soil surface. Wetlands would be protected during tree clearing through the use of the BMPs in Section 2.2.6.

Stumps no below the water level would be painted with glyphosate to prevent regrowth. In wetland areas, there would be no stump removal, direct soil disturbance, or other actions that would otherwise require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (see Section 2.2.5). The tree clearing would be subject to Ocean County Soil Conservation District rules that include provisions for reducing soil erosion and sedimentation. With use of the BMPs in Section 2.2.5 and 2.2.6 there would be negligible impacts to wetland water quality.

The long-term removal of 17.6 acres of trees in wetland areas for the airship airfield may cause surface water levels change. In areas that currently have large trees, water levels could rise from decreased vegetation transpiration – causing an effect termed "watering up" (Dubé, et. al,.1995). However, increased sunlight from tree removal could increase evaporation during warmer months. Based on the minor amount of tree clearing to be conducted, the overall surface water level changes would be minor.

The mooring site would be within a 400 feet of two Hill System water supply wells. In accordance with the Lakehurst wellhead protection program, hazardous materials would not be used or stored in the vicinity. However, fueling of the LEMV at the mooring site would be necessary. With secondary containment, fueling procedures, and rapid spill reporting and response, impacts on potable water supplies would be negligible. JB MDL would work with the LEMV program to establish site-specific Standard Operating Procedures for LEMV fueling in this area to prevent pollution.

The utility work to support Alternative 2 would be subject to Ocean County Soil Conservation District rules that include provisions for reducing soil erosion and sedimentation. New electric lines would not be installed in wetland areas, further reducing potential for sedimentation of surface water.

Construction of the proposed addition to Building 572 would involve increasing the amount of impermeable surface area and the potential for additional runoff into storm water receptors. The design of the addition would take into consideration additional stormwater runoff in accordance with NJAC 7:8 "Stormwater Management Rule" and the Energy Independence and Security Act of 2007, Section 438 "Stormwater Run-off Requirements for Federal Development Projects", resulting in negligible impacts to stormwater management.

4.7.3 Effects of Alternative 3 – No Action Alternative

No adverse surface or groundwater impacts would occur as LEMV operations would be discontinued at JB MDL.

4.7.4 Mitigation Measures

No mitigation measures would be required.

4.8 Biological Resources

4.8.1 Effects of Alternative 1 (Limited Improvements)

Implementation of Alternative 1 would result in the removal of 6.8 acres of trees to provide the necessary glide slope area from Mat 3. No wetlands would be disturbed under this alternative.

The noise and tree removal activities would cause birds and animals to leave the immediate area and seek other locations both on and off the base to reside and forage in. During construction, the frequent presence of people and heavy equipment (and associated construction noise) plus the removal of vegetation would likely keep animals and birds from returning to the site. However, this displacement would have a minor impact on wildlife as this tree clearing represents less than 0.2 percent of available forest habitat on Lakehurst.

Based upon information received from the USFWS, no Federally-listed threatened or endangered species are located within the Alternative 1 project study area; therefore, no further consultation with the USFWS pursuant to Section 7 of the ESA is required.

Tree removal would occur in upland areas where there is no potential to affect bog turtle habitat. Tree removal activities would cause birds and animals to leave the immediate area and seek other locations both on and off the base to reside and forage in. During tree removal, the frequent presence of people and heavy equipment (and associated construction noise) plus the removal of vegetation would likely keep animals and birds from returning to the site. After the tree clearing phase, the noise from LEMV operations and the LEMV operations themselves would not pose more disturbance to birds than the current air operations occurring on Mat 3.

The USFWS requested that tree cutting be conducted outside of the migratory bird breeding season of March 15 to July 31 to reduce impacts on migratory birds. This would be a condition of the project under Section 2.2.6. The 6.8 acres of tree removal represents 0.2 percent of the Lakehurst area's forest, and 0.6 percent of coniferous forest (with >50% crown closure). Removal of trees (forest edge habitat) and subsequent displacement of animal species would result in minor, long-term adverse impacts to biological resources at Lakehurst.

JB MDL would seek bids for the forestry products cleared from the site in accordance with AFI 32-7064 and 10 USC 2665 and deposit proceeds into the AF Forestry Account.

Based on the extensive snake monitoring program data at Lakehurst, there are no known hibernacula or nests for the Northern Pine Snake (State-threatened) near Mat 3. Given the relative abundance of pine snakes on Lakehurst, it is always possible that hibernacula or nests could be inadvertently uncovered or disturbed by tree clearing activities. The Natural Resources Manager would periodically monitor clearing activities for the presence of snakes and workers would be required to contact the Natural Resources Manager at 732-323-2911 if snakes are discovered (Section 2.2.5).

The Jump Circle has several acres of wetlands and is known breeding habitat for several State-listed threatened and endangered grassland birds. Ground disturbance from vehicles has been limited in the past within the Jump Circle as it can cause ruts in the soil and damage vegetation, that consequently damage habitat for grassland birds. These ruts also make annual mowing maintenance more difficult. Vehicles are usually limited to the existing dirt roads within the Circle, and drivers are asked to make minimal, direct out-and-back trips to recover air-dropped materials. As stated in Section 3.8.7, the Jump Circle provides the best habitat in the State for the State-listed endangered Upland Sandpiper. While other State-listed grassland birds (like the Grasshopper Sparrow) use the Jump Circle for breeding, if this habitat were lost, it is reasonably foreseeable that these species could relocate to smaller grassland sites at Lakehurst or in the region. However, the Upland Sandpiper typically requires at least 200-

acres[7]of contiguous home range. . A loss of the Jump Circle's breeding habitat could not easily be replaced and would result in significant adverse impacts to this species. Therefore, the use of the Jump Circle for mooring was not included under the action alternatives. However, the use of the Jump Circle for infrequent touch-and-go flights (with up to three support vehicles on existing roads) that do not include fueling or mooring inside the Jump Circle would have minor impacts on grassland habitat and Lakehurst populations of State-listed grassland birds, provided that touch-and-go's not occur during the breeding season.

Thus, there are no significant adverse impacts to any species under this alternative.

4.8.2 Effects of Alternative 2 (Major Improvements)

The noise and tree removal activities would cause birds and animals to leave the immediate area and seek other locations both on and off the base to reside and forage in. During construction, the frequent presence of people and heavy equipment (and associated construction noise) plus the removal of vegetation would likely keep animals and birds from returning to the site. However, this displacement would have a minor impact on wildlife as the tree clearing under this alternative represents 2.1 percent of available forest habitat on Lakehurst. The USFWS requested that tree cutting be conducted outside of the migratory bird breeding season of March 15 to July 31 to reduce impacts on migratory birds. This would be a condition of the project under Section 2.2.6. Overall, removal of trees (forest edge habitat) and subsequent displacement of animal species would result in minor, long-term adverse impacts to biological resources at Lakehurst.

The 77 acres of tree clearing area for Alternative 2 includes 17.6 acres within wetland areas. To avoid disturbance to the soils in and around the wetlands, trees would be cut above the soil line and the roots would not be disturbed. Section 2.2.6 describes the BMPs that would be followed to minimize impacts to wetlands during tree clearing. However, the vegetation and habitat associated with these wetlands would be dramatically changed. While tall trees would be removed, eliminating most of the shade in the wetlands, grasses and shrubs would remain to provide soil stabilization.

At the request of the USFWS (see Appendix A), a Phase I bog turtle survey was conducted for the proposed Alternative 2 airfield. The resulting report is provided in Appendix C. The main objective for the survey was to determine if the channelized stream (Paint Branch) corridors and other wetlands within the proposed tree removal area were suitable habitat for bog turtle. Herpetological Associates (HA) investigated approximately 32 acres of wetlands and transitional areas on December 20, 2011 in the study area. HA did not find any wetlands that were considered highly suitable bog turtle habitat. No bog turtles or evidence of their presence (e.g., egg shells, bones, empty shells or their tracks in the mud) were found or observed. The channelized stream corridors laced the combined presence of spring-fed hydrology, soft mucky substrate and/or typical indicator vegetation which often illustrates suitable bog turtle habitat (HA, 2012).

The USFWS recommended a series of conservation measures for the project. The project would adhere to these measures, listed in Appendix D. With adherence to these measures, there would be no significant direct or indirect impacts to bog turtles.

[7] Source: NJ Department of Fish and Wildlife, Upland Sandpiper Fact Sheet. It is important to note that the Lakehurst Jump Circle routinely has 5-7 pairs of Upland Sandpipers within its 312 acres during the breeding season.

The 17.6 acres of wetland area tree removal includes 7.6 acres of trees containing over 50 percent AWC along a tributary of the Manapaqua Branch. The stand that would be removed is relatively small and narrow and there have been no sightings of rare, threatened, or endangered species inhabiting this stand (Joyce, 2011b). The Cumulative Impact Analysis (see Section 4.16.1.5) discusses an ongoing, but unrelated, AWC restoration project that would minimize adverse impacts that Alternative 2 may have on potential threatened or endangered species habitat.

The proposed ground run area would be located partially in existing grassland habitat. During tree removal in and around the area, there is potential to disrupt and harm State-listed threatened and endangered grassland birds during the nesting season. However these impacts would be reduced to minor levels by avoiding the start of tree clearing during the period of March 15 through July 31 (see Section 2.2.6). The mooring site/ground run area would be located in a grassland area, where year-round activities would displace grassland birds that may otherwise use that immediate area.

Based on the extensive snake monitoring program data at Lakehurst, there are two known hibernacula for the Northern Pine Snake (State-threatened) located over 600 feet from the proposed tree clearing area. Therefore, the tree clearing would not conflict with the base INRMP that provides a 150 foot buffer for these sites. Given the relative abundance of pine snakes on Lakehurst, it is always possible that hibernacula or nests could be inadvertently uncovered or disturbed by tree clearing activities. The Natural Resources Manager would periodically monitor clearing activities for the presence of snakes and workers would be required to contact the Natural Resources Manager at 732-323-2911 if snakes are discovered (Section 2.2.5).

The use of the Jump Circle for mooring was not included under this Alternative to prevent significant environmental impacts (see discussion under Section 4.8.1). However, the use of the Jump Circle for infrequent touch-and-go flights (with up to three support vehicles on existing roads) that do not include fueling or mooring inside the Jump Circle would have minor impacts on grassland habitat and Lakehurst populations of State-listed grassland birds, provided that touch-and-go's not occur during the breeding season.

4.8.3 Effects of Alternative 3 – No Action Alternative

Under the No Action Alternative, LEMV activities would be discontinued at JB MDL. There would be no impact to biological resources under this alternative.

4.8.4 Mitigation Measures

No mitigation measures are required.

4.9 Cultural Resources

4.9.1 Effects of Alternative 1 (Limited Improvements)

Under Alternative 1, Hangars 6, 5 or 1 could be used to integrate additional LEMV airships. This use would be compatible with their architectural and historic configuration as airship hangars. The LEMV program would not make changes to the interior or exterior of the hangars. Any proposed alterations in the future would be subject to additional NEPA evaluation and Section 106 consultation in accordance with the ICRMP.

The proposed ground run area has low potential to contain intact archeological sites, as it is paved and falls within the Urban Land soils area. The tree clearing area within the proposed glide slope was heavily disturbed by former airship operations and construction, and also has low potential for intact archeological sites. If archeological sites are inadvertently discovered during tree clearing activities or normal operations, JB MDL would cease all disturbance activity, secure the site(s) and contact the JB MDL Cultural Resources Manager (CRM). The CRM would take all necessary actions pursuant to the Lakehurst ICRMP (NAES, 2006b).

4.9.2 Effects of Alternative 2 (Major Improvements)

As discussed in 4.9.1, the proposed use of all of Hangar 6 would be subject to using the building without changes to its interior or exterior. Consequently, there would be no impact to its historic features. Any proposed alterations in the future would be subject to additional NEPA evaluation and Section 106 consultation in accordance with the ICRMP.

Although Building 572 itself is not located in the LTA District boundaries, it is situated between two large contributing buildings (Hangar 4 and Building 123) of the District (see Figure 3-12). The size and architecture of Building 572 makes it a dominant feature in the viewsheds of the LTA properties in the area. There are also other newer industrial buildings in the vicinity (including the groundwater remediation building, covered cylinder storage sheds, and hazardous material building) that are very dissimilar to the LTA properties (see Figure 4-1). Given the existing industrial nature of the area, the increase of the Building 572 footprint would not affect the views or setting of District buildings more so than its current configuration. SHPO provided a conditional no adverse effect determination in their letter dated January 19, 2012 (Appendix A) for the addition (based on photo renderings of the proposed addition submitted by JB MDL relative to LTA District buildings), providing that the Air Force provides final plans and specifications for the project for their review and comment to ensure the project would not impact the characteristics or setting of historic resources. The Air Force would submit plans and specifications for the proposed addition to SHPO and would only proceed when a "no adverse effect" determination has been obtained (see Section 2.2.5).

The tree clearing south of Mat 1 would open the view between the Hangar 5 and 6 area and the Hangar 1, 2, and 3 area, which would to some extent replicate the visual setting of the post-1943 LTA era. In their January 19, 2012 letter, SHPO concurred with the assessment that the tree clearing would mimic the original setting of the hangars and the historic district, and would not diminish the district's character or integrity.

The proposed airship airfield and tree clearing areas have low potential for intact archeological sites based on review of aerial photography that indicates a high level of land disturbance from past LTA-era activities and construction (between 1930 and 1943), including the channelization of the Paint Branch (Figure 3-11). If archeological sites are inadvertently discovered during tree clearing activities or normal operations at the proposed Alternative 2 airfield, JB MDL would cease all disturbance activity, secure the site(s) and contact the JB MDL Cultural Resources Manager (CRM). The CRM would take all necessary actions pursuant to the Lakehurst ICRMP (NAES, 2006b). .

4.9.3 Effects of Alternative 3 – No Action Alternative

No impacts to cultural resources would be anticipated from the implementation of the No Action Alternative.

Figure 4-1. Proposed Building 572 Addition (View Towards the Northwest)

4.9.4 Mitigation Measures

No mitigation measures would be required.

4.10 Socioeconomics

4.10.1 Effects of Alternative 1 (Limited Improvements)

Tree clearing activities for the proposed glide slope area at Mat 3 would provide short-term (2 weeks) work for up to 6 workers.

Approximately 60 full-time personnel would be employed by the LEMV program at Lakehurst. Most of the workers under LEMV-1 were temporarily re-located from other contractor and DoD offices on the east coast. With the continuation of the LEMV program (if it becomes a Program of Record), many of these workers and their families might locate on a permanent basis and would find permanent homes in the area. The LEMV contractor might also consider opening a local office outside of the base, which would benefit the local economy to a small degree (Buckhouse, 2011). Implementation of Alternative 1 would continue and expand LEMV jobs at Lakehurst. The integration process at Lakehurst would increase purchases from regional material suppliers to a small degree, with a minor positive impact on the regional economy.

4.10.2 Effects of Alternative 2 (Major Improvements)

The long-term positive socioeconomic effects of Alternative 2 would be the same as under Alternative 1.

Additional tree clearing for the proposed airship airfield, utility work, and the construction of an addition to Building 572 would provide short-term work (6-12 months) for approximately 24 workers.

4.10.3 Effects of Alternative 3 – No Action Alternative

Under the No Action Alternative, LEMV operations at JB MDL would be discontinued. There would no impacts to socioeconomic factors under this alternative.

4.10.4 Mitigation Measures

No mitigation measures would be required.

4.11 Environmental Justice

4.11.1 Effects of Alternative 1 (Limited Improvements)

No disproportionate impacts to minority populations or low-income populations would occur due to the implementation of Alternative 1. There are no areas of disproportionately minority or low-income populations surrounding Lakehurst and the LEMV program would not introduce significant adverse impacts that would affect the health, quality of life, or visual setting of off-base populations.

4.11.2 Effects of Alternative 2 (Major Improvements)

The effects of Alternative 2 would be the same as Alternative 1 for environmental justice.

4.11.3 Effects of Alternative 3 – No Action Alternative

No disproportionate impacts to minority populations or low-income populations would occur due to the implementation of Alternative 3, as the LEMV program would be discontinued.

4.11.4 Mitigation Measures

No mitigation measures would be required.

4.12 Infrastructure

4.12.1 Effects of Alternative 1 (Limited Improvements)

The addition of an average of 60 full-time workers at Lakehurst would have a negligible effect on building and utility infrastructure. Hangars 5 and 6 will be undergoing an engineering study to identify repairs needed. The use of this hangar by LEMV would provide additional program resources to fund necessary repairs, providing a positive impact to infrastructure.

4.12.2 Effects of Alternative 2 (Major Improvements)

The effects of Alternative 2 on infrastructure would be the same as under Alternative 1, with the exception that an addition could be needed on a warehouse building to relocate Navy storage. This building addition would require extended electric service for overhead interior lighting and would have a minor impact on utilities.

4.12.3 Effects of Alternative 3 – No Action Alternative

There would be no impact to infrastructure under Alternative 3, as LEMV operations at JB MDL would be discontinued.

4.12.4 Mitigation Measures

No mitigation measures would be required.

4.13 Transportation and Traffic

4.13.1 Effects of Alternative 1 (Limited Improvements)

The Lakehurst portion of JB MDL employs 2,300 military, civilian and contractor personnel. During the peak hour morning timeframe, approximately 550 vehicles travel through the main gate.

During LEMV integration and testing, an average of 60 full-time workers would travel to and from Lakehurst daily. During peak integration periods, there would an average of 2 trucks a day, up to 9 trucks per day maximum, providing deliveries to support the program. Like most employees on JB MDL, workers would stagger their arrival times between 6:30 am and 8:00 am. If half arrived during the peak morning hour at the main gate, this would result in a 2.7 percent increase in peak morning traffic on Route 547, resulting in minor traffic impacts to local roads.

During tree removal, an average of 6 workers would travel to and from the site daily, and an average of 4 trucks per week, for 2 weeks would transport wood chips, logs and vegetation. The extra tree clearing workers would result in up to a 1.1 percent increase in peak morning traffic levels at the gate, and a 0.5 percent increase in peak morning traffic on Route 547 overall, which would cause minor short-term impacts to traffic on Route 547. An extra 4 trucks per week on Route 547, even if they all arrived on a single day, would result in an increase of only 0.2 percent to overall daily truck traffic. Other major roads in the study region (Routes 70 and 37) experience much higher traffic levels than Route 547 and the impacts of the extra construction worker vehicles on these roads would be far less noticeable.

4.13.2 Effects of Alternative 2 (Major Improvements)

Under Alternative 2 the number of commuter vehicles and delivery trucks for LEMV operations would be the same as under Alternative 1. If Navy storage is moved from Hangar 6 to a new addition of Building 572, there would be a minor long-term decrease in truck traffic along primary base roads, as the warehouse would be within 900 feet of the commercial gate.

There would be more tree clearing under Alternative 2 than Alternative 1. There could also be construction of a 45,000 square foot addition on Building 572 that would result in temporary construction-related traffic (construction workers and construction vehicles). If both the tree clearing and building addition work were to occur at the same time and all workers arrive during the peak morning hour, there would be a 7 percent increase in peak morning traffic at the main gate, and a 3.4 percent increase in peak morning traffic on Route 547, resulting in minor short-term impacts to traffic.

During temporary road closures on Houghton Road during LEMV takeoffs and landings, vehicles could use Saniuk Road to reach their destinations. Under the current posted speed

limits, the use of Saniuk Road as a detour would result in less than 2 minutes of additional travel time to reach their destination, resulting in negligible impacts to base traffic.

4.13.3 Effects of Alternative 3 – No Action Alternative

There would be no impact to transportation routes or traffic under Alternative 3, as LEMV operations at JB MDL would be discontinued.

4.13.4 Mitigation Measures

No mitigation measures would be required.

4.14 Materials and Wastes

4.14.1 Effects of Alternative 1 (Limited Improvements)

The removal of 6.8 acres of trees would result in the largest construction waste stream for this alternative. This waste may be in the form of logs and wood chips. As described in Section 2.3.1, JB MDL would seek bids for the forestry products cleared from the site in accordance with AFI 32-7064.

The integration of LEMVs would consume several hundred gallons of hazardous materials, including paints, solvents, and adhesives (see Table 3-12). The program would continue to use methyl-ethyl-ketone (MEK) to clean fabric seams prior to sealing them. MEK is highly flammable and respiratory protection is needed for its safe use. The program would continue to store and use MEK in a safe manner that is protective of personnel and that minimizes fire hazard. As stated in Section 2.2.6, the LEMV program would work with the JB MDL Pollution Prevention manager to minimize hazardous material use and to substitute them with less hazardous alternatives where feasible.

Assuming 3 LEMVs are flight tested in any one year, flight operations would consume about 28,000 gallons of diesel fuel per year. Overall, the LEMV program would have a minor impact on hazardous material use, hazardous waste generation and fuel consumption.

There would be no helium recovery system for intentional deflation of LEMVs. Helium tubes and cylinders would be returned to the supplier for re-use and there would be no waste generated from helium use. In the near-term, the LEMV program intends to procure its helium through a 2-year Defense Logistics Agency nation-wide bulk helium contract awarded in September 2011 with one of the federal contract suppliers located in NJ. The full inflation of one LEMV would require 800,000 cubic feet (22,654 cubic meters) of helium (or between 5-7 truck-loads). If 3 LEMVs were inflated each year, this would consume 0.09 percent of the annual US supply. Consequently, the LEMV program would have a negligible impact on helium supplies.

4.14.2 Effects of Alternative 2 (Major Improvements)

The effects on materials and waste for LEMV operations would be the same as under Alternative 1. Greater amounts of tree removal waste would be generated when compared to Alternative 1. Minor amounts of construction materials would be consumed for utility work and the possible addition to Building 572. There would be minor amounts of construction waste generated.

4.14.3 Effects of Alternative 3 – No Action Alternative

There would be no impact to material supplies or waste generation levels under Alternative 3, as LEMV operations would be discontinued.

4.14.4 Mitigation Measures

No mitigation measures would be required.

4.15 Safety

4.15.1 Effects of Alternative 1 (Limited Improvements)

The proposed tree clearing would be located outside identified UXO contamination areas where sweeps are required. As with most locations on Lakehurst, it is possible that tree clearing could uncover additional UXO. Therefore, there is potential risk to worker safety during land clearing if UXO is encountered. In order to minimize safety risks to workers who may unexpectedly encounter or discover UXO, proper procedures should be followed as instructed in pre-construction safety briefings. As stated in Section 2.2.4, a pre-construction safety brief would be provided by JB MDL to the tree clearing team outlining how to recognize UXO and the steps to follow. If UXO is discovered, all work would cease, workers would muster at an off-site location, and the discovery would be reported immediately to the base dispatch office at 732-323-4000. Following tree clearing, the potential for encountering UXO would be very unlikely and risks to LEMV operations would be low to negligible.

There would be adequate emergency response resources at JB MDL to react quickly to any LEMV incidents or accidents. The LEMV program has established safety policies and procedures to minimize workplace hazards. Hangars 1, 5 and 6 do not have a fire suppression system and the LEMV program would work with the JB MDL Fire Department to set up fire prevention practices and a fire watch system, as necessary. Hangar 1 poses a somewhat lesser fire hazard risk when compared to Hangars 5 and 6 due to its steel construction versus wooden construction. The LEMV uses diesel fuel that is much less flammable than aviation gasoline. Consequently, there would be moderate fire hazard associated with fueled airship inside any of these hangars, but BMPs could be implemented to reduce the likelihood of fire.

As an experimental airship, LEMV flight testing would initially pose a high safety risk to the pilot, other aircrew, and ground crews. As the testing progresses and the technology matures, the level of risk would diminish. Testing would be performed in an incremental fashion to minimize risks, and the LEMV would pursue airworthiness release per Army Regulation 70-62 from the Aviation Applied Technology Directorate.

The LEMV pilots would comply with all requirements of the Lakehurst Air Operations Manual published by the Commander, 305th Operational Support Squadron. Prior to each test flight, the pilot would file a flight plan with the applicable Flight Service Station. While not required for non-IFR aircraft, the flight plan is a good practice to enhance tracking and provide assistance to pilots. The LEMV would also be outfitted with military and civilian transponders to assist in identifying it on radar and on other aircraft's collision avoidance systems.

The LEMV program would employ very experienced (world class) airship pilots as a means to reduce program risk. Pilot qualifications would include: vector thrust experience; FAA airship rating; 1,000 hours pilot in command; FAA instrument and multi-engine ratings; and passing a FAA Class 2 physical.

Unmanned flights would be conducted in appropriately designated airspace or by obtaining a Certificate of Waiver or Authorization (COA) in order to reduce the potential for aviation accidents.

Overall, the safety risks of Alternative 1 would be less than significant with the adherence to the requirements and BMPs described in Sections 2.2.5 and 2.2.6, respectively.

4.15.2 Effects of Alternative 2 (Major Improvements)

The safety risks of Alternative 2 would be same as under Alternative 1, except that the use of a dedicated airship airfield south of Mat 1 would provide greater physical separation between airship operations and other aircraft operations on Lakehurst, increasing airspace safety.

BASH rates would be minimized at the new airship airfield by keeping grass height tall, as described in Section 2.2.6 and 3.15. This practice would deter larger birds like Canada geese from occupying the site, despite the otherwise attractive presence of open water along the Paint Branch created by tree removal under this alternative. The site may attract small grassland bird species, but 20 years of data shows that their presence has not caused BASH issues at Lakehurst airfields. By managing the grass height in this fashion, the BASH safety risk would be minor.

4.15.3 Effects of Alternative 3 – No Action Alternative

LEMV operations would cease after the conclusion of LEMV-1. No impacts to health and safety would occur under this alternative.

4.15.4 Mitigation Measures

No mitigation measures would be required.

4.16 Cumulative Impacts

The CEQ regulations implementing NEPA requires the consideration of cumulative impacts as part of the process. “Cumulative impacts result from the incremental impact of the Proposed Action when added to other past, present and reasonably foreseeable future actions” (40 CFR 1508.7). Secondary impacts are those that are caused by the Proposed Action, but may occur later in time or farther removed in distance, relative to the primary impacts of the Proposed Action. Relevant actions (those that could result in cumulative impacts) and their Regions of Influence include:

- Construction projects planned within 5 miles of the Proposed Action that could compete for resources or affect traffic levels, noise, air quality, water quality, or forest habitat.
- Transportation projects planned within 10 miles of the Proposed Action that could alter traffic patterns or cause travel delays during the tree clearing, utility work, and warehouse construction phase.
- Past, ongoing and foreseeable actions that affect regional airspace use or aircraft operations at Lakehurst.

Table 4-2 provides a list of relevant past, present and reasonably foreseeable projects, their location, and resources most likely to be affected by their construction or operation. Figure 4-2 shows the location of off-base projects.

4.16.1 Cumulative Impacts Associated with Alternatives 1 and 2 at JB MDL

4.16.1.1 Land Use

Continued residential development is expected outside the base to the north and east of Lakehurst Maxfield Field (Miele Farms, Grawtown Estates, and River Pointe) that could reduce open space in the area. The Legler Service Area water main extension to connect that area with the Jackson Municipal Utilities Authority may further enable residential development in that area. The changes to the Sewer Service Areas surrounding the base may also encourage development in areas where new service is extended but the plan also aims to limit expansion in areas that are environmentally sensitive and does not affect Pinelands designated Regional Growth Areas, Towns, or Villages. The presence of a new Super Wal-Mart on Route 37 is likely to attract additional development in the area, although this project includes the preservation of 212 acres near that site.

JB MDL and the County have been working together closely for several years to preserve land around the base to limit encroachment. The easement and fee simple purchase of portions of the Clayton Sand Mine would limit future residential encroachment.

Overall, the cumulative impacts of the LEMV program and other aviation operations on JB MDL would have a minor impact on land use on base. Off base, the cumulative impact of the changes to land use surrounding the base would have a minor impact on the operations of the proposed LEMV.

4.16.1.2 Airspace and Air Operations

LEMV would reintroduce a major airship program at Lakehurst. The LEMV program would conduct up to 90 flight operations per year, causing a minor increase the competition for airspace both within JB MDL and the vicinity. Other potential incoming regional airspace users include Navy test program aircraft, the Light Mobility Aircraft, MV-22, and expansion of the Robert Miller Airpark.

The Air Force began the process of retiring 22 of its oldest C-5s in FY2011 and is replacing them with C-17s. The 105th Airlift Wing out of the New York Air National Guard, Stewart International Airport in Newburgh New York is replacing its fleet of 13 C-5s with C-17s, requiring an additional 1,620 short-field landing operations at the JB MDL Maxfield Field when compared to the number established in the Environmental Assessment, East Coast Basing of C-17 Aircraft, Department of the Air Force, Air Mobility Command, September 2005. Similarly, the 167th Airlift Wing at Eastern West Virginia Regional Airport in Martinsburg will bed down 8 C-17s, requiring an additional 1,620 training operations per year at Maxfield. These operations will primarily be daytime closed pattern operations (NGB, 2011). However, the current numbers of C-17 operations at Maxfield are less than half the amount anticipated in the September 2005 study, indicating that the extra 3,240 operations per year would not have a significant cumulative impact on airspace or airfield use at JB MDL.

4.16.1.3 Air Quality

Implementation of the LEMV program would result in direct, short-term adverse impacts associated with fugitive dust emissions caused by tree clearing or construction activities. These impacts would be reduced with the application of BMPs and dust control measures during construction activities and would not contribute to cumulative impacts. LEMV integration and flight testing operations would result in minor increase of criteria pollutants and would not be

regionally significant. Thus, minor adverse, cumulative, air quality impacts would be anticipated as a result the LEMV program and other proposed projects within the vicinity.

Lakehurst has a SIP emission budget of 129 tpy of VOC and 793 tpy of NOx. When the LEMV maximum emissions are added to the present and proposed NOx and VOC emissions at Lakehurst, the total is below the Lakehurst SIP budget (see Section 3.4 of Appendix B).

4.16.1.4 Noise

The proposed LEMV program would not substantively increase aircraft operations at JB MDL above their current levels. Consequently, the long-term noise from the LEMV would not contribute to cumulative adverse noise impacts. Other projects in the Region of Influence that will increase air traffic would have cumulative impacts on noise in the region (on and off base), including increased use of Lakehurst Maxfield Field at JB MDL by C-17 aircraft and Army National Guard aviation operations, the basing of the Light Mobility Aircraft, short-duration testing of the Joint Strike Fighter, and the expansion of operations at the Robert Miller Airpark.

4.16.1.5 Wetlands

The LEMV program would require tree clearing in wetland areas under Alternative 2. Alternative 1 would not affect wetlands. When added to the planned McGuire Airfield tree clearing project, approximately 171 acres of wetlands would be converted from forested or scrub/shrub to a cleared condition (mowed or short scrub-shrub depending on the maintenance schedule). This would result in minor changes in wetland water levels from a combination of increased evaporation and reduced transpiration. When compared to the amount of total wetlands across the Joint Base, the cumulative effects on wetland habitat and water quality would be minor. The ongoing Atlantic White Cedar restoration project south of Lakehurst would off-set the tree removal proposed under Alternative 2 and increase the total acres of AWC in the local area, resulting in positive cumulative long-term impacts for wetland water quality and habitat along the Manapaqua Branch. The continuation of AWC restoration will be a goal of the JB MDL INRMP, which will be finalized in 2012.

4.16.1.6 Surface Water/Groundwater

The LEMV program, when combined with other past, present and future actions in the area, would not significantly adversely affect surface water or groundwater resources.

4.16.1.7 Threatened and Endangered Species

The LEMV program would require some tree clearing within the glide slope areas. This tree removal would increase slightly the amount of grassland habitat on Lakehurst for state-listed threatened and endangered grassland birds. When this clearing is added to the proposed tree-clearing at the McGuire Airfield at JB MDL, there would be an overall increase in grassland habitat that is beneficial to state-listed birds.

4.16.1.8 Historic and Architectural Resources

The proposed LEMV program would utilize one or more hangars within the eligible LTA Historic District and would re-establish airship operations at Lakehurst. The action alternatives would potentially include repairs or improvements to these hangars that are consistent with the ICRMP activities that would result in no adverse effect. Therefore, the LEMV program, when added to the past and future projects in and around the LTA District, would not adversely affect the LTA District and would not create significant adverse effects on architectural resources.

4.16.1.9 Socioeconomics

The proposed LEMV program would result in minor, short-term positive impacts on jobs and the local economy during the construction phase. The program would employ approximately 60 full time employees that would be relocated from other areas of the country or could be hired locally. When compared to the other planned residential developments and the construction of the Super Wal-Mart in the region, the LEMV program would have a minor to negligible cumulative effect on jobs and demand for services in the region.

4.16.1.10 Environmental Justice

No cumulative environmental justice impacts would be anticipated as a result of the implementation of the proposed LEMV program in conjunction with proposed projects in the vicinity of the project study area. Neither Ocean County nor Jackson Township are comprised of a disproportionate percentage of minority and/or low-income populations compared to the State, and the Proposed Action does not involve the displacement or direct impact of any minority populations.

4.16.1.11 Infrastructure

The LEMV program would have a negligible impact on infrastructure at Lakehurst. Some utility lines or features would need to be installed or moved to accommodate the mooring site. However, this would not affect utility service overall. The addition of an average of 60 full-time workers within existing buildings would have a negligible cumulative effect on infrastructure. Overall, the occupation of the hangars by the LEMV program would provide additional resources for their maintenance and repair. This would allow resources to be reallocated to other buildings and utilities on JB MDL that need repair or replacement, resulting in positive cumulative impacts.

4.16.1.12 Transportation and Traffic

The LEMV program would cause minor, long-term adverse impacts on traffic as the number of truck deliveries and worker vehicles would increase slightly. The other planned projects in the region of influence, including proposed residential developments and transportation improvement projects, would cumulatively result in adverse short-term impacts during their construction phase. Intersections most likely to experience cumulative traffic impacts from the projects in the Region of Influence include: Route 527/528; Route 547/528; Route 547/Route 571; Route 547/Route 70. Once the construction phases are over, the transportation improvement projects would increase road safety, while the residential developments would increase local traffic over the long-term.

4.16.1.13 Materials and Waste

The LEMV program would consume materials that are readily available from several suppliers in the region. Helium use for LEMV would be minor when compared to national production rates, although U.S. helium supplies may run out in 2020. Cumulatively, the LEMV program would have a negative although very minor effect on helium supplies nationwide. Cumulatively, there would be several hundred acres of trees to be cleared for the LEMV, the Proposed CERDEC Flight Activity Facility, McGuire Airfield, Grawtown Estates, Miele Farms, and the Super Wal-Mart, resulting in moderate amounts of vegetation waste.

4.16.2 Alternative 3 (No Action Alternative)

Under the No Action Alternative, the LEMV program would be discontinued at JB MDL. No cumulative environmental, socioeconomic or cultural resources impacts would be anticipated.

Table 4-2. Past, Present, and Future Projects in the Region of Influence

Action	Location	Description	Timeframe	Resources Potentially Affected
On-Base				
McGuire Airfield Tree Clearing	JB MDL, McGuire Airfield	An EA was completed in 2011 for the removal of 175 acres of tree clearing in airfield safety zones. This will include 16 acres of scrub-shrub wetlands and 137 acres of forested wetlands. Open-emergent wetlands in the safety zones would not be disturbed. Another 22 acres of tree clearing would occur in upland areas.	2012	Airspace, Vegetation, Wetlands
NJ Army National Guard Army Aviation Support Facility	JB MDL, Mat 3	The facility is planned to begin construction in 2012 on Mat 3 near Rounds Road. This project would relocate existing Army Aviation personnel and assets from the Lakehurst Maxfield Field Hangar.	Construction phase 2012-2014	Air Quality, Traffic; Airspace; Infrastructure
CERDEC Flight Activity Facility	JB MDL, Lakehurst	CERDEC is planning to construct a 138,000 s.f. hangar facility that will move some of their operations out of Hangar 5. Their contractor operations within the eastern half of the hangar, within interior stand-alone buildings, would remain. The new facility would be located north of Mat 3 and would remove 37 acres of upland forest.	Construction phase 2012-2013	Airspace, Forest, Land Use
New Modular Solar Panel Arrays	JB MDL, East of Hangar 1	Tentatively planned for the area east of Hangar 1, this project would establish one or two five-acre farms of modular solar panel units that would be wired to provide a supplemental power feed at Substation 1. Up to 10 acres of trees would be cleared. Such a system, which would be provided by a firm licensed by the New Jersey Board of Public Utilities to serve as an electric generation provider, would enable the base to offset purchased coal-plant- and nuclear-plant-generated electrical power with a "green" source of power.	Unprogrammed, Construction Phase (estimated) 2013	Historic Properties, Forest Habitat, Energy
Light Mobility Aircraft	JB MDL, location unknown	JB MDL and Travis AFB (California) are candidate basing locations for the Light Mobility Aircraft. These locations are candidates to bed down a single squadron consisting of 12 aircraft and approximately 100 personnel. An Environmental Assessment for this basing decision was initiated in December 2010 and the preferred alternative is expected to be announced in Mid-2011. If JB MDL is selected for this program, it would be housed near the McGuire airfield, using that airfield for primary operations, and would use either Maxfield Field or the Forest Service Coyle Field as austere airfields for training purposes.	Operations 2012 forward	Airspace, Historic Properties
C-17 Landing Zone Operations at Lakehurst Maxfield Field	JB MDL, Lakehurst Maxfield Field	The U.S. Air Force began operating a C-17 Assault Landing Zone along side runway 24 in 2009. The numbers of C-17 air operations in 2010 was far below the program's annual goals, and it is likely that these operations would increase over time to meet their goals. Therefore, air operations at Lakehurst Maxfield Field would increase, as well as noise levels, due to C-17 operations.	Operations Ongoing	Noise; Airspace

Action	Location	Description	Timeframe	Resources Potentially Affected
Joint Strike Fighter (JSF) Operational Testing at JB MDL	JB MDL, NAVAIR Test Runway and Tracks	The 2006 Final Environmental Assessment (EA)/Overseas EA, Joint Strike Fighter, System Development and Demonstration Developmental Test Program, identified and evaluated the potential effects from conducting test activities of three F-35 aircraft variants over a six year period at Department of Defense facilities and ranges uniquely equipped with assets to support tests and evaluations of military strike aircraft weapon systems. JB MDL Lakehurst was identified as an ancillary test location to conduct Jet Blast Deflector, Arresting Gear, Steam Catapult, and Barricade testing over a period of three years. Each test would last approximately 2-4 weeks. While proposed flights are minimal, the JSF would have a greater noise profile than existing Navy jets, resulting in very high levels of localized noise at the Test Runway during flights.	Operations June 2011 – June 2015 (intermittently)	Noise; Airspace
C-17 Operations at Stewart International Airport and Martinsburg ANGB	New York and West Virginia, East Coast Airspace	The Air Force began retiring 22 of its oldest C-5s in FY2011, and is replacing them with C-17s. The 105th Airlift Wing out of the New York Air National Guard, Stewart International Airport in Newburgh New York is replacing its fleet of 13 C-5s with C-17s, requiring an additional 1,620 short-field landing operations at the JB MDL Maxfield Field when compared to the number established in the Environmental Assessment, East Coast Basing of C-17 Aircraft. Similarly, the 167th Airlift Wing at Eastern West Virginia Regional Airport in Martinsburg will beddown 8 C-17s, requiring an additional 1,620 training operations per year at Lakehurst Maxfield Field. This would increase the number of landing zone operations at Lakehurst Maxfield Field by 3,240 per year (NGB, 2011a; NGB, 2011b).	Starting in 2012	Airspace
MV-22 Basing	JB MDL (potentially)	JB MDL received a strategic basing request for information in 2011 from the US Marine Corp Reserve MV-22 squadron. Langley AFB and Seymour Johnson AFB are other locations under consideration. This squadron currently resides at Norfolk Virginia and operates 12 CH-46 helicopters. The arrival date was slated for 2014 but this has been changed to 2016 or later. The squadron includes 207 personnel with 50 percent active duty.	2016 or later	Airspace, Infrastructure
Off-Base, Land Use				
Atlantic White Cedar Planting	South of JB MDL Lakehurst boundary	The Navy and New Jersey's Green Acres program preserved 246 acres of cranberry bog adjacent to the Lakehurst runways in 2007. JB MDL wants to reduce the attractiveness of the bog for large birds by restoring the site to Atlantic White Cedar. In October 2008, the base began the process by planting 6,000 Atlantic White Cedar seedlings. The restoration process is ongoing, with lessons learned from previous planting efforts helping to inform and increase the survival rate for future plantings. JB MDL plans to add a project to its upcoming INRMP revision to expand AWC restoration to the wetlands immediate west of this tract.	2007 to Present	Water resources, land use, vegetation, wetlands.
Legler Service Area Water System Improvements	Jackson Township, 3 miles north of Lakehurst Maxfield Field	This water main extension project is currently underway off-base along Bowman Road approximately 3 miles north of the Lakehurst Maxfield Field Runways. This project will connect the Legler Water System with the Jackson Municipal Utility Authority Water System.	Construction phase 2011 - 2012	Water Resources, Land Use: Infrastructure

Action	Location	Description	Timeframe	Resources Potentially Affected
Sanitary Sewer Expansion in Ocean County	Ocean County	The Ocean County planning staff is working with municipalities, the Ocean County Utilities Authority and the NJ Department of Environmental Protection to delineate sewer service area boundaries in the County. This latest update to the Ocean County Wastewater Management Plan began in November of 2008 and is ongoing. The new NJDEP sewer service area boundaries do not affect Pinelands designated Regional Growth Areas, Towns, or Villages. In Ocean County, the proposed Sewer Service Area would add areas to where new service is needed and remove areas where such service or sewer lines would conflict with wetland buffers, natural heritage priority sites, beaches, Pineland Management Areas, and coastal environmentally sensitive areas, with an anticipated net decrease of approximately 1,900 acres (7.8 percent decrease). Current plans for Manchester Township would remove several hundred acres of service area adjacent to the base, particularly southeast of the Test area. Similarly, the plan for Jackson would remove several hundred acres of existing service area.	Implementation 2012 and forward	Water Resources, Land Use; Infrastructure
Residential Development	Jackson Township	Grawtown Estates – This 493 single family home development on 304 acres will be located approximately 2.5 miles northeast of Mat 3. Miele Farms – Located approximately 2 miles northeast of Mat 3. The proposed development is along South Hope Chapel Road. The preliminary plans include 315 residential lots located on approximately 88 acres. The proposed development is within the Pinelands Preservation Area and was reviewed by the Jackson Township Planning Board on February 7, 2011.	Construction phase 2012-2013	Land Use; Pinelands Habitat, (Northern Pine Snake), Forest, Noise Receptors; Traffic; Infrastructure
	Manchester Township	River Pointe – Manchester New Jersey. Located between Route 547 and Ridgeway Road, this active adult community consists of single family homes and began construction in 2007. Due to the economic downturn, approximately half of the 504 approved homes have not been built to date (April 2011), but this additional development will continue over time.	Construction ongoing	Land Use; Noise Receptors; Traffic; Infrastructure
Commercial Development	Route 37, Toms River	A proposed Super Wal-Mart is planned near the intersection of Route 37 and Northampton Boulevard in Toms River NJ, approximately 4 miles from the Lakehurst Main Gate. The store would be built on 17 acres with another 212 acres near the site permanently preserved for Northern Pine Snake habitat and construction of five dens on that site (Manchester Times, 2011).	Construction phase 2012-2014	Land Use; Traffic; Northern Pine Snake Habitat; Infrastructure

Action	Location	Description	Timeframe	Resources Potentially Affected
Off-Base, Transportation				
Transportation projects in Ocean and Burlington County	Ocean County, Various	Three projects are planned between 2011 and 2013 along commuting routes within 10 miles of the Lakehurst main gates that could affect commuter traffic if they occur in the FY 2013 timeframe (NJTPA, 2011). • Pavement rehabilitation on Route 70 from East of North Branch Road to CR 539. This project will provide milling and asphalt overlay for approximately 7 miles through Pemberton and Manchester Townships. • Reconstruction of the bridge near Rova Farms, Cassville Road. • Realignment of County Route 571 at Francis Mills, Jackson Township. This project would provide safety improvements from 500 feet north of Leesville Road to 500 feet south of Reed Road (approximately 1 mile). It would remedy the two reverse curves in the road and replace the existing obsolete bridge in that area. It will provide two 12-foot travel lands and two 10-foot shoulders.	Construction phase 2011 - 2013	Traffic
Acquisition of land adjacent to JB MDL for open space	Jackson Township	Ocean County approved purchase of 10 acres along the Ridgeway Branch adjacent to JB MDL in January 2011. JB MDL is negotiating an easement and fee simple purchase of the Clayton Sand Mine property located 0.5 miles north of Lakehurst Maxfield Field. Approximately 380 acres would be purchased for expansion of Patriot's Park on Bowman Road. The remaining 1,400 acres would contain an easement where future land use would remain industrial or commercial in accordance with land uses approved for runway accident potential zones.	2011 - 2014	Land Use; Off-Base Noise Receptors; Pinelands Habitat
Off-Base, Airspace				
Robert Miller Airpark	Berkeley, NJ	The Robert Miller Airpark is located approximately 10 miles southeast of the Lakehurst Maxfield Field runways on Route 530 in Berkeley NJ. The Airpark is undergoing extensive improvements including a new crosswind runway (14-32) (the first runway built in NJ in 20 years), a new terminal, runway widening, a new hangar, a new fuel farm and other improvements. These improvements will increase the capacity of the airpark.	Construction phase 2011-2015; Operations ongoing	Airspace

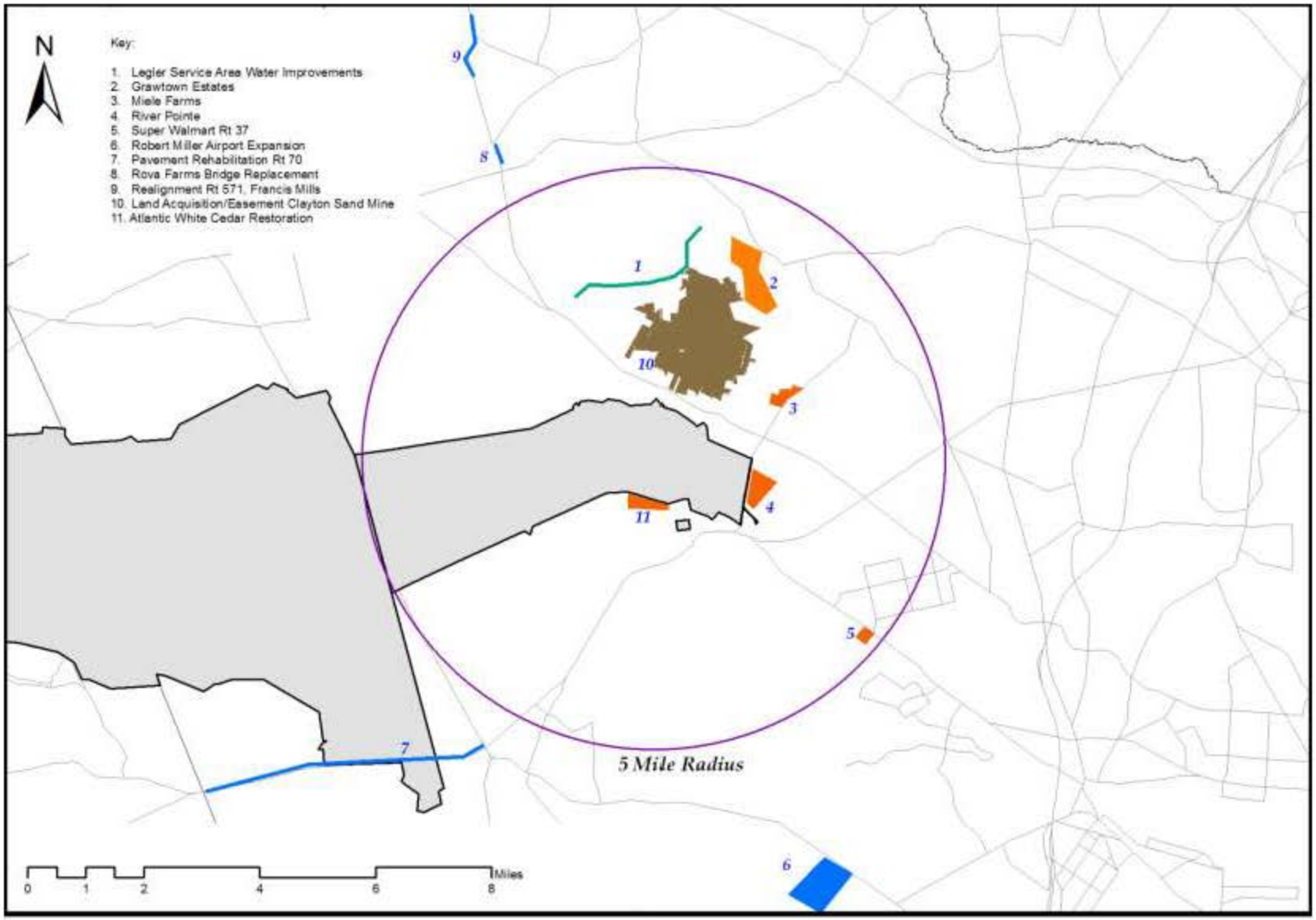


Figure 4-2. Locations of Projects Planned and Ongoing in the Region of Influence

4.17 Irreversible and Irretrievable Commitment of Resources

An irreversible commitment of resources is defined as the loss of future options. The term applies primarily to the effects of use of nonrenewable resources such as minerals or cultural resources, or to those factors such as soil productivity that are renewable only over long periods. It could also apply to the loss of an experience as an indirect effect of a "permanent" change in the nature or characters of the lands.

An irretrievable commitment of resources is defined as the loss of production, harvest, or use of natural resources. The amount of production foregone is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume production.

The Proposed Action would have minor irreversible impacts on helium supplies which are rapidly diminishing in the U.S. The removal of trees for the proposed glide slope areas would not be irreversible, as they could re-grow if those areas are later unmaintained. However, cutting of Atlantic White Cedar trees under Alternative 2 may cause irreversible effects as these trees do not re-establish easily or quickly.

The primary irretrievable impacts of the action alternatives would involve the use of energy, labor, material, and funds for program operation.

4.18 The Relationship Between Local Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The action alternatives would commit resources in the form of energy, labor, materials, and funds for the foreseeable future. The justification for these commitments at this time is described in Chapter 1, Purpose and Need for the Proposed Action. Long-term productivity associated with the Proposed Action includes the ability of USASMDC/ARSTRAT to develop and test new or improved communications systems and technologies for the warfighter. These technologies would contribute to more efficient warfighting capabilities, with the aim of reducing human and material losses associated with prolonged or inefficient engagements with the enemy.

4.19 Unavoidable Adverse Impacts

The action alternatives would require removal of between 6.8 and 77 acres of trees. This would remove minor amounts of habitat for forest birds and mammals, and convert forested wetlands under Alternative 2 to shrub wetlands. During construction there would unavoidable, although temporary, increase in construction-related noise and air pollutant emissions at the site. There would be minor levels of increased truck traffic to and from Lakehurst to deliver equipment and materials over the long-term. The proposed LEMV program would consume non-renewable helium and consume minor amounts of natural gas, potable water, and electricity for its operations.

THIS PAGE INTENTIONALLY LEFT BLANK

5. COMPARISON OF ALTERNATIVES AND CONCLUSIONS

As a result of the implementation of Alternative 1, the following impacts would be anticipated:

- Moderate adverse impacts to LEMV flight operations on Mat 3 at Lakehurst.
- Minor, short-term adverse air quality impacts due to increased mobile emissions and fugitive dust during tree clearing.
- Minor, short-term adverse noise impacts due to tree clearing.
- Minor, short-term adverse impacts to soils due to 6.8 acres of tree clearing.
- Minor, positive socioeconomic impacts due to the establishment of the LEMV integration and testing program at Lakehurst.

Under Alternative 2, the impacts of Alternative 1 would occur in addition to the following:

- Minor, long-term positive impacts to air operations by focusing LEMV and other potential airship operations on Mat 1 further from Lakehurst Maxfield Field.
- Additional minor, short-term air quality, noise and soils impacts from additional acres of tree clearing. Minor short-term impacts to soils from utility work, and the possible addition to warehouse Building 572.
- Moderate, long-term effects to streams and wetlands by removing 17.6 acres of trees and converting them to scrub-shrub wetlands.
- Minor, long-term positive impacts on base land-use by potentially co-locating warehouse activities near the Lakehurst commercial gate.

Based on the analysis presented in this EA, Alternative 2 is the Preferred Alternative for the Proposed Action. Alternative 2 was found to satisfy the purpose and need for the Proposed Action; The No Action Alternative would discontinue LEMV activities at JB MDL.

The evaluation performed within the EA concludes that, with the adherence to construction requirements in Section 2.2.5 and the BMPs described in Section 2.2.6, no significant impact to the physical environment; surface water; groundwater; air quality; biological resources; land use; socioeconomic environment; noise; materials and waste; cultural resources; infrastructure; human health and safety; and environmental justice would be anticipated as a result of the implementation of the Preferred Alternative.

This analysis determines that an Environmental Impact Statement (EIS) is not necessary for the implementation of Alternative 2 and that a FONSI/FONPA is appropriate.

Table 5-1. Summary of Impacts

Resource Area	Alternative 1 Limited Improvements	Alternative 2 Major Improvements	Alternative 3 No Action Alternative
Land Use	The action would be consistent with existing and future land use. No adverse impact.	Action would reduce open space and change use of Hangar 1 from RDT&E to operations and maintenance. Action would be consistent with existing and future land use. No adverse impact.	No impact.
Airspace and Air Operations	Lakehurst aircraft operations would increase by 1 percent. Action would interfere with current and future Mat 3 operations and LEMV take-off direction would be greatly limited. Moderate adverse impact. Airspace utilized primarily by the LEMV would be over sparsely populated areas, outside of major airport zones, resulting in negligible impacts to regional airspace.	Impacts would be the same as Alternative 1 except that this alternative also provides a dedicated LEMV airship airfield, allowing take-off in nearly any direction. This would have a positive impact on air operations over Alternative 1. Airspace utilized primarily by the LEMV would be over sparsely populated areas, outside of major airport zones, resulting in negligible impacts to regional airspace.	No impact.
Air Quality	Site improvements and LEMV operations would have a negligible effect on air quality. Emissions would fall within the Lakehurst SIP.	Air emissions would be slightly higher than Alternative 1 due to the greater number of improvements. Overall, impact to air quality would be minor.	No impact.
Noise	Temporary noise from tree clearing would have minor impact. LEMV flights would occur infrequently, with most noise generated in the first few minutes of take-off. Minor adverse impact.	Noise would be similar to Alternative 1, although the take-off area would be close to an on-base office trailer and ¼-mile closer to the Borough of Lakehurst. Moderate adverse impacts could be reduced to minor through flight planning and shielding of blower equipment noise.	No impact.
Geology and Soils	Tree clearing would have a minor effect on geology and soils with the use of soil conservation BMPs.	Effects would be the same at Alternative 1 (minor) except that larger areas of soil would be disturbed by tree clearing, utility work, and the possible warehouse addition.	No impact.
Water Resources	Site improvements and LEMV operations would have a negligible impact on water resources.	The removal of 17.6 acres of trees in wetlands for the airship airfield and tower visibility may cause minor changes in surface water levels. No hazardous materials would be used or stored at the mooring site in accordance with the base wellhead protection program. Potable water supplies would be protected from contamination form fueling activities through use of secondary containment, proper fueling procedures, and rapid spill reporting and response, resulting in negligible impacts.	No impact.

Resource Area	Alternative 1 Limited Improvements	Alternative 2 Major Improvements	Alternative 3 No Action Alternative
Biological Resources	The removal of 6.8 acres of trees would have a minor long-term impact to forest edge habitat. No wetlands would be affected. No federally-listed threatened or endangered species would be affected by this alternative. State-listed grassland bird habitat would be affected to a minor extent from touch-and-go operations in the Jump Circle, provided they occur outside the breeding season with limited support vehicle use.	Tree dwelling birds would lose an additional 77 acres of habitat and 17.6 acres of treed wetlands would be converted to scrub-shrub wetlands. This includes 7.6 acres of Atlantic White Cedar removal. No federally-listed threatened or endangered species would be affected. Project tree clearing would not affect bog-turtle habitat with the use of USFWS-recommended conservation measures (Appendix D). State-listed grassland bird habitat would be affected to a minor extent from touch-and-go operations in the Jump Circle, provided they occur outside the breeding season with limited support vehicle use.	No impact.
Cultural Resources	Use of Hangars 1, 5 or 6 for airship operations would be compatible with its original use and architecture. Tree clearing would not significantly disturb the subsurface and there would be low potential for adverse impacts to archeological resources.	Use of Hangars 1, 5 and 6 for airship operations would be compatible with their original use and architecture. Tree clearing, utility work, and possible addition to Building 572 would have a low potential for affecting intact archeological resources based on the extent of past land disturbance. Tree clearing would not have an adverse effect on the LTA district.	No impact.
Socioeconomics	This alternative would locate 60 full time LEMV jobs at Lakehurst. There would also be short-term jobs for tree clearing. The integration process would increase purchases from regional material suppliers. There would be positive impact on the regional economy.	Impacts would be the same as Alternative 1, except that there would be slightly higher short-term employment for tree clearing, utility work, and the possible addition to Building 572.	No impact.
Environmental Justice	There would be no disproportionate impacts to minority or low-income populations from the LEMV program.	Impacts would be the same as Alternative 1.	No impact.
Infrastructure	The use of Hangar 6 by LEMV would provide additional resources to fund necessary repairs, providing a positive impact on infrastructure.	Impacts would be the same as Alternative 1, except that a minor extension of electric utilities would be needed for the addition to Building 572, warning lights along Houghton Road, and electric tie-in for mooring site equipment.	No impact.
Transportation and Traffic	The additional commuter and truck delivery traffic from LEMV operations would have a negligible long-term effect on traffic levels on and off JB MDL. In the short-term, there would be minor, temporary worker vehicle and truck traffic associated with tree clearing activities.	Impacts would be the same as Alternative 1, except that short-term traffic would be slightly greater for tree-clearing activities, utility work, and the possible construction of the addition to Building 572.	No impact.

Resource Area	Alternative 1 Limited Improvements	Alternative 2 Major Improvements	Alternative 3 No Action Alternative
Materials and Waste	The LEMV program would generate minor amounts of tree removal waste in the short-term. Operations would generate minor amounts of hazardous waste and consume minor amounts of fuel. The program would have a negligible impact on helium supplies when compared to US annual production rates.	Long-term operational impacts would be the same as Alternative 1. Greater amounts of tree removal waste would be generated when compared to Alternative 1. Minor amounts of construction materials would be consumed for utility work and the possible addition to Building 572. There would be minor amounts of construction waste generated.	No impact.
Safety	Tree clearing would occur in a "use caution" UXO zone. With pre-construction UXO briefings, the safety hazard would be low. There would be a moderate fire hazard from the storage of a fueled airship in hangars that do not have fire suppression systems, but these risks can be reduced through BMPs. As an experimental airship, initial flight testing could pose a high safety risk. Flight safety risks would be reduced by obtaining airworthiness release, using transponders, and employing experienced airship pilots. The level of risk would diminish over the life of the program as the technology matures.	Impacts would be the same as Alternative 1, except that the use of a dedicated airship airfield south of Mat 1 would provide further separation from air operations on Mat 3, reducing aviation accident potential.	No impact.

6. REFERENCES

AMC, 2005 — Air Mobility Command (AMC). *2005. Environmental Assessment*, *East Coast Basing of C-17 Aircraft, Department of the Air Force, Air Mobility Command*, September 2005.

Austin, 2011 — *Monthly Excel files of Traffic Counts, Airfield Operations, Westfield Tower, January through December 2010*. Provided by AC2 Austin, March 2011.

BLM, 2011 — Bureau of Land Management (BLM). 2011. *Federal Helium Suppliers.* Website accessed September 17, 2011. Last Updated January 14, 2011.

Bolt, Beranek, and Newman, 1971. — *"Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*". Prepared by Bolt, Beranek and Newman, for the US Environmental Protection Agency. NTID 300.1 December 31, 1971.

Buckhouse, 2011. — Personal communication with Todd Buckhouse, USASMDC. August 30, 2011.

Dubé, et. al, 2005 — Dubé, S., A. P. Plamondon. 2005. Watering Up After Clear-Cutting on Forested Wetlands of the St. Lawrence Lowland. Water Resources Research, Vol. 31, No. 7. July 1995.

Gulf Times, 2011 — Gulf Times, 2011. Time Out. Time Running Out for Helium. By Anna M. Tinsley. July 27, 2011.

JB MDL, 2011 — Joint Base McGuire Dix Lakehurst. 2010. Environmental Assessment for the Airfield Safety Zone Vegetation Clearing at JB MDL. Prepared by Shaw Environmental, Inc. January 2011.

JB MDL, 2010 — Joint Base McGuire Dix Lakehurst. 2010. *Consumer Confidence Report for the Hill Public Water System at Joint Base McGuire-Dix-Lakehurst, Lakehurst, New Jersey Public Water System ID #1511010*. April19, 2010.

JB MDL, 2011 — Joint Base McGuire Dix Lakehurst. 2010. Environmental Assessment for the Airfield Safety Zone Vegetation Clearing at JB MDL. Prepared by Shaw Environmental, Inc. January 2011.

Joyce, 2011a — Personal communication with John Joyce, JB MDL Natural Resources Manager, October 24, 2011.

Joyce, 2011b — Personal communication with John Joyce, JB MDL Natural Resources Manager. September 22, 2011.

Joyce, 2012 — Personal communication with John Joyce, JB MDL Natural Resources Manager, January 9, 2012, regarding BASH program at Lakehurst.

Manchester Times, 2011 — The Manchester Times. Deal Almost Reached on New Super Wal-Mart. By Judy Smestad-Nunn. Published January 26, 2011.

NAES, 1996. — Naval Air Engineering Station Lakehurst. 1996. Focused Feasibility Study, Site 41, Ordnance Impact Area. July 31, 1996.

NAES, 2002 — Naval Air Engineering Station Lakehurst. 2002. "*Integrated Natural Resources Management Plan Naval Air Engineering Station Lakehurst, New Jersey"*. Prepared for the Atlantic Division Naval Facilities Engineering Command. Prepared by Geo-Marine, Inc. August 2002.

NAES, 2006a — Naval Air Engineering Station Lakehurst. 2005. "*Naval Air Engineering Station 2005 Air Emission Inventory for NOx and VOCs*". Dated April 2006.

NAES, 2006b — Naval Air Engineering Station Lakehurst. 2006. "*Integrated Cultural Resources Management Plan 2006-2010"*. Prepared by Gene Stout and Associates. Prepared for Naval Air Engineering Station (NAES) Lakehurst. 2006.

NAES, 2009 — Naval Air Engineering Station Lakehurst. 2009a. "*Stormwater Pollution Prevention Plan for Naval Air Engineering Station Lakehurst New Jersey"*, April 2009.

NAES, 2010 — Naval Air Engineering Station, "*Vision Plan, the Future Lakehurst Annex of Joint Base McGuire-Dix-Lakehurst"*, February 3, 2010

NBG, 2011a — National Guard Bureau (NGB). 2011a. Environmental Assessment for Conversion to the C-17Aircraft, 105 AW, Stewart International Airport, Newburgh, New York, Final. January 2011

NGB, 2011b — National Guard Bureau (NGB). 2011b. Environmental Assessment for Conversion to the C-17 Aircraft, 167th Airlift Wing, West Virginia Air National Guard, Martinsburg, West Virginia. Final, March 2011.

NIH, 2010 — National Institute of Health. 2010. *National Institute on Deafness and Other Communication s Disorders, Common Sounds, Website.* Accessed at http://www.nidcd.nih.gov/health/education/teachers/common_sounds.asp. last updated June 7, 2010

NJ Division of Banking, 2011 — NJ Division of Banking. 2011. "*Total Foreclosure Fil*ed". Data table by Month and County, January 2005 through February 2011. Accessed on March 25, 2011 at http://www.state.nj.us/dobi/division_banking/aoc_foreclosurestats.pdf

NJ Pinelands Commission, 2011 — NJ Pinelands Commission. 2011. "*Comprehensive Management Plan*", Updated February 2011.

NJDEP, 2002 — New Jersey Department of Environmental Protection (NJDEP). 2002. "Upland Sandpiper, Bartramia longicauda", fact sheet. Accessed at http://www.njfishandwildlife.com/ensp/pdf/end-thrtened/uplndsandpiper.pdf.

NJDEP, 2003 — New Jersey Department of Environmental Protection (NJDEP). 2003. "*Guidelines for Delineation of Well Head Protection Areas in New Jersey"*. Prepared for the NJDEP and the New Jersey Geological Survey. 2003.

NJDEP, 2008 — New Jersey Department of Environmental Protection (NJDEP). 2008. Wildlife Action Plan. Northern Pinelands. January 23, 2008.

NJDEP, 2010 — New Jersey Department of Environmental Protection (NJDEP). 2010. Bureau of Air Quality Planning, Regional Transport and Modeling of Air Pollutants, Website, last updated July 23, 2010.

NJDOT, 2011 — New Jersey Department of Transportation. *Roadway Information and Traffic Counts* (website). Accessed at http://www.state.nj.us/transportation/refdata/roadway/traffic_counts/ on April 19, 2011.

NJGS, 2003 — New Jersey Geologic Survey, Information Circular, Physiographic Provinces of New Jersey. http://www.state.nj.us/dep/njgs/enviroed/infocirc/provinces.pdf. Prepared in 2003, reprinted in 2006.

NJTPA, 2010 — North Jersey Transportation Planning Authority (NJTPA), 2010. "*Transportation Improvement Program Fiscal Years 2010-2013"*. Accessed at http://www.state.nj.us/transportation/capital/stip1019/pdf/stip_vol1.pdf

Ocean County, 2002 — Ocean County, 2002. "*Employment by Occupation and Worker Class*". Prepared by the Ocean Counting Department of Planning, July 2002. Accessed at http://www.planning.co.ocean.nj.us/databook/55OCCUP.pdf

Ocean County, 2006 — Ocean County, 2006. *"Number and Median Gross Rent of Renter-Occupied Housing Units, 1990 and 2000".* Compiled by the Ocean County Department of Planning, December 2006. Accessed at http://www.planning.co.ocean.nj.us/databook/34rent90-00.pdf

Ocean County, 2010 — Ocean County, 2010. *"Profile of Ocean County, New Jersey*". Prepared by the Ocean County Department of Planning, August 2010. Accessed at http://www.planning.co.ocean.nj.us/databook/00profile.pdf

Shock, 1996. — Shock, James R. 1996. American Airship Bases and Facilities.

US Census, 2009a — US Census, 2009a. "*American FactFinder. Jackson Township, Ocean County, New Jersey. S1701. Poverty Status in the Past 12 Months. 2005-2009 American Community Survey".* Accessed at http://factfinder.census.gov/servlet/STTable?_bm=y&-context=st&-qr_name=ACS_2009_5YR_G00_S1701&-ds_name=ACS_2009_5YR_G00_&-tree_id=5309&-redoLog=true&-_caller=geoselect&-geo_id=06000US3402934680&-format=&-_lang=en

US Census, 2009b — US Census, 2009b. "*American FactFinder. Jackson Township, Ocean County, New Jersey. S1901. Income in the Past 12 Months (in 2009 Inflation-Adjusted Dollars)".* Accessed at http://factfinder.census.gov/servlet/STTable?_bm=y&-context=st&-qr_name=ACS_2009_5YR_G00_S1901&-ds_name=ACS_2009_5YR_G00_&-tree_id=5309&-redoLog=true&-_caller=geoselect&-geo_id=06000US3402934680&-format=&-_lang=en

US Census, 2010a — US Census. 2010. "*State and County QuickFacts, Ocean County, New Jersey".* Last revised November 4, 2010. Accessed at http://quickfacts.census.gov/qfd/states/34/34029.html

USDA, 1980 — United States Department of Agriculture (USDA1980. "*Soil Survey of Ocean County, New Jersey".* Natural Resource Conservation Service (NRCS). April 1980.

USEPA, 2007 — United States Environmental Protection Agency (USEPA). 2007. "*Currently Designated Nonattainment Areas for All Criteria Pollutants*". http://www.epa.gov/air/oaqps/greenbk/ancl.html. 30 March 2007.

USEPA, 2010 — US Environmental Protection Agency. State Radon Contacts, website http://www.epa.gov/radon/states/newjersey.html Last updated October 2010.

USGS, 2008 — United States Geologic Survey (USGS). 2008. *"Earthquake Hazards Program, New Jersey Seismic Hazard Map".* National Seismic Hazard Mapping Project, 2008.

THIS PAGE INTENTIONALLY LEFT BLANK

7. INDEX

8. LIST OF CONTRIBUTORS

USASMDC/ARSTRAT Contributors
Mr. Todd Buckhouse, Government Flight Representative/Military Analyst
Ms. Julia Williams, Technical Center
Ms. Patricia Taylor, Senior Systems Analyst

JB MDL Contributors
Mr. Dennis Blazak, JB MDL Civil Engineer Squadron, Deputy
Mr. Robert Previte, JB MDL Civil Engineer Squadron, Asset Management, Environmental Compliance
Mr. John Joyce, JB MDL Natural Resources Manager
Mr. Michael Kon, JB MDL Civil Engineer Squadron, Air Compliance
Dr. Adrienne Lazazzera, PhD., JB MDL Staff Archaeologist
Ms. Donnamarie Grieco, JB MDL Business Office
Mr. Rich Marnin, JB MDL Airspace Manager

Northrop Grumman Contributors
Mr. John Carr, Program Manager, Advanced Programs and Technology

EHS Technologies Preparers
Ms. Dorothy Peterson, P.E., Senior Environmental Engineer. Ms. Peterson holds a B.S. in engineering, a M.S. in engineering management, a PE license in environmental engineering, and is a Leadership in Energy and Environmental Design Green Associate. She has over 10 years of NEPA experience with additional years of experience conducting DoD master planning and facility management, GIS, site remediation, pollution prevention, and clean air act conformity analysis.

Mr. Brian Taboada, Senior GIS Specialist.

9. INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING LETTERS MAILING LIST

Federal and Regional Agencies

United States Fish and Wildlife Service
New Jersey Field Office, Ecological Services
927 North Main Street, Building D
Pleasantville, NJ 08232
Attn: ESA Consultation

United States Environmental Protection Agency
Environmental Review Section
Ms. Grace Musumeci
Chief of Environmental Review
EPA Region 2
290 Broadway
New York, NY 10007-1866

State and Local Agencies

New Jersey Department of Environmental Protection
Office of Permit Coordination and Environmental Review
401 East State Street
P.O. Box 423
Trenton, NJ 08625
Attn: Mr. Scott Brubaker, Director

New Jersey Department of Environmental Protection
Division of Parks and Forestry
Mail Code 501-04
P.O. Box 420
Trenton, NJ 08625-0420

New Jersey Department of Environmental Protection
Historic Preservation Office
Mail Code 501-04B
P.O. Box 420
Trenton, NJ 08625-0420
Attn: Mr. Dan Saunders

New Jersey Historical Commission
225 West State Street
P.O. Box 305
Trenton, NJ 08625
Attn: Ms. Sara Cureton, Acting Executive Director

New Jersey Department of Environmental Protection
Division of Parks and Forestry, Office of Natural Lands Management
The NJ Natural Heritage Program
Mail Code 501-04
P.O. Box 420
Trenton, NJ 08625-0420
Attn: Mr. Roman Senyk

New Jersey Pinelands Commission
P.O. Box 359
15 Springfield Road
New Lisbon, NJ 08064
Attn: Ms. Nancy Wittenberg, Executive Director

Ocean County Soil and Water Conservation District
714 Lacey Road
Forked River, NJ 08731
Attn: Mr. David Friedman, Director

New Jersey Department of Environmental Protection
Division of Land Use Regulation
501 East State Street
P.O. Box 439
Trenton, NJ 08625-0439
Attn: Mr. Robert Piel, Assistant Commissioner

NJ Division of Fish and Wildlife
Mail Code 501-03
P.O. Box 420
Trenton, NJ 08625-0410
Attn: Mr. David Chanda, Director

10. PUBLIC DRAFT DISTRIBUTION LIST

Mr. Eric Davis
Supervisor,
NJ Ecological Services Field Office
U.S. Fish and Wildlife Service
927 N. Main Street, Building D
Pleasantville, NJ 08232

Ms. Grace Musumeci
Environmental Review Section
USEPA Region 2
290 Broadway, 25th Floor
New York, NY 10007

Ms. Ruth W. Foster, PhD
Office of Permit Coordination and Environmental Review
Department of Environmental Protection
401 East State Street
P.O. Box 420
Trenton, NJ 08625

Mr. Daniel Saunders
State Historic Preservation Officer
Historic Preservation Office
NJ Department of Environmental Protection
501 Station Plaza, Building 5, 4th Floor
PO Box 404
Trenton, NJ 08625

Mr. David Jenkins
Endangered and Nongame Species Program
NJ Division of Fish and Wildlife
NJ Department of Environmental Protection
PO Box 400
Trenton, NJ 08625-0400

Ms. Nancy Wittenberg, Executive Director
New Jersey Pinelands Commission
P.O. Box 359
15 Springfield Road
New Lisbon, NJ 08064

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

Correspondence

THIS PAGE INTENTIONALLY LEFT BLANK

Summary of Agency and Tribal Correspondence

Date	Agency	Description/ Key Discussion Items
October 17, 2011	NJDEP Natural Heritage Program	Natural Heritage Database results for proposed LEMV study areas.
November 14, 2011	USFWS	Letter recommending bog turtle survey and best management practices for Alternative 2.
December 12, 2011	USFWS	Email from Wendy Walsh, USFWS, clarifying bog turtle survey process.
December 23, 2011	State Historic Preservation Office (SHPO)	Letter requesting further consultation on Alternative 2 tree clearing and photo-renderings of proposed Building 572 addition relative to LTA district.
January 19, 2012	NJ SHPO	Letter concurring with No Adverse Effect determination for indirect effects of tree clearing on the LTA District. Conditional No Adverse Effect determination for Building 572 addition.
February 16, 2012	USFWS	Letter outlining recommended conservation measures for the Bog Turtle.
March 3, 2012	Delaware Nation	Consultation letter providing a copy of the draft EA for review.
March 3, 2012	Delaware Tribe of Indians	Consultation letter providing a copy of the draft EA for review.
May 2, 2012	JB MDL	Pinelands Exemption Letter
October 31, 2012	Delaware Nation	Section 106 letter from JB MDL to the Delaware Nation.

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Mail Code 501-04
ONLM -Natural Heritage Program
P.O. Box 420
Trenton, NJ 08625-0420
Tel. #609-984-1339
Fax. #609-984-1427

BOB MARTIN
Commissioner

October 17, 2011

Dorothy Peterson, P.E.
EHS Technologies
Joint Base McGuire Dix Lakehurst, Building 5
Lakehurst, NJ 08733

Re: LEMV Program EA

Dear Ms. Peterson:

Thank you for your data request regarding rare species information for the above referenced project site in Manchester and Jackson Townships, Ocean County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 for the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. Please see Table 1 for species list and conservation status.

Table 1 (on referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
barred owl	*Strix varia*		T/T	G5	S2B,S2N
black-billed cuckoo	*Coccyzus erythropthalmus*		SC/S	G5	S3B
blackburnian warbler	*Dendroica fusca*		SC/S	G5	S2B
black-throated green warbler	*Dendroica virens*		SC/S	G5	S3B
bog turtle	*Glyptemys muhlenbergii*	LT	E	G3	S1
brown thrasher	*Toxostoma rufum*		SC/S	G5	S3B,S4N
cerulean warbler	*Dendroica cerulea*		SC/SC	G4	S3B,S3N
common nighthawk	*Chordeiles minor*		SC/SC	G5	S3B,S3N
Cooper's hawk	*Accipiter cooperii*		T/T	G5	S2B,S4N
dotted skipper	*Hesperia attalus slossonae*			G3G4T3	S3
eastern box turtle	*Terrapene carolina carolina*		SC	G5T5	S3
eastern king snake	*Lampropeltis g. getula*		SC	G5T5	S3
great blue heron	*Ardea herodias*		SC/S	G5	S3B,S4N
least flycatcher	*Empidonax minimus*		SC/S	G5	S3B
northern pine snake	*Pituophis melanoleucus melanoleucus*		T	G4T4	S2
pine barrens treefrog	*Hyla andersonii*		T	G4	S2
red-shouldered hawk	*Buteo lineatus*		E/T	G5	S1B,S2N
upland sandpiper	*Bartramia longicauda*		E	G5	S1B,S1N
whip-poor-will	*Caprimulgus vociferus*		SC/S	G5	S4B
wood thrush	*Hylocichla mustelina*		SC/S	G5	S3B
worm-eating warbler	*Helmitheros vermivorus*		SC/S	G5	S3B

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within 1/4 mile of the referenced site. Please see Table 2 for species list and conservation status. This table excludes any species listed in Table 1.

Table 2 (additional species within 1/4 mile of referenced site).

Common Name	*Scientific Name*	Federal Status	State Status	Grank	Srank
bald eagle foraging	*Haliaeetus leucocephalus*		E	G4	S1B,S1N
Fowler's toad	*Bufo woodhousii fowleri*		SC	G5	S3
least tern	*Sterna antillarum*		E	G4	S1B,S1N

We have also checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database does not have any records for rare plants or ecological communities on or within 1/4 mile of the site.

A list of rare plant species and ecological communities that have been documented from Ocean County can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, http://www.state.nj.us/dep/gis/depsplash.htm or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 11-4007413-0073

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://www.fws.gov/northeast/njfieldoffice

In Reply Refer To:
12-CPA-0027

NOV 14 2011

Dennis Blazak, Deputy Asset Manager
87th Civil Engineer Squadron
Highway 547, Building 5
Lakehurst, New Jersey 08733

Dear Mr. Blazak:

The U.S. Fish and Wildlife Service (Service), New Jersey Field Office has received your October 7, 2011 letter regarding the *Interagency and Intergovernmental Coordination for Environmental Planning for the Environmental Assessment for the Proposed Endurance Multi-Intelligence Vehicle (LEMV) at Joint Base McGuire-Dix-Lakehurst, New Jersey*. The Proposed Action would continue and expand the operation and testing of the LEMV, a hybrid airship employed for communications, wide-area surveillance, and support of theatre operations. The U.S. Army Space and Missile Defense Command and Army Forces Strategic Command (USASMDC / ARSTRAT) are analyzing Alternatives 1 and 2 and a No Action Alternative. The Service is providing fish and wildlife review comments on the proposed action, including a determination of whether federally listed endangered and threatened species would be adversely affected.

AUTHORITY

The following comments on the proposed action are provided pursuant to Section 7 of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755; 16 U.S.C. 703-712), as amended, to ensure the protection of federally listed endangered and threatened species, and migratory birds. Additional comments are provided as technical assistance for the draft Environmental Assessment and do not preclude further comment pursuant to the National Environmental Policy Act (83 Stat. 852; 42 U.S.C. 4321 *et seq.*) (NEPA).

ALTERNATIVES UNDER CONSIDERATION

Alternative 1 – Limited Lakehurst Facility and Airfield Improvements

The USASMDC / ARSTRAT propose the removal of approximately 6.8 acres of forest to facilitate safe operation of the LEMV. Operations of the LEMV would occur within an area designated as MAT 3 in front of Hangars 5 and 6.

Alternative 2 – Major Lakehurst Facility and Airfield Improvement

The USASMDC / ARSTRAT propose the removal of 78.3 acres of forest to facilitate safe operation of the LEMV. Operations of the LEMV would occur within an area designated as MAT 1 in the vicinity of Hangar 1 with possible addition of hangar space at Building 572.

Alternative 3 – No Action.

The USASMDC / ARSTRAT would not expand integration, storage, or flight testing of the LEMV.

FEDERALLY LISTED SPECIES

Bog Turtle

There is known occupied habitat of the federally listed (threatened) bog turtle (*Clemmys muhlenbergii*) located along the southern boundary of the Lakehurst Naval Air Station. Bog turtles inhabit open, emergent and scrub/shrub wetlands such as shallow spring-fed fens, sphagnum bogs, swamps, marshy meadows, and wet pastures. These habitats are characterized by soft muddy bottoms, interspersed wet and dry pockets, vegetation dominated by low grasses and sedges, and a low volume of standing or slow-moving water which often forms a network of shallow pools and rivulets (Bourg 1992). Bog turtles prefer areas with ample sunlight, high evaporation rates, high humidity in the near-ground microclimate, and perennial saturation of portions of the ground. Threats to bog turtles include habitat loss from wetland alteration, development, pollution, natural vegetation succession, and illegal collection for the commercial pet trade (Bourg 1992).

Potential habitat and documented habitat for bog turtles is located approximately 0.4 miles and 0.65 miles from MAT 3, respectively. The area within MAT 3 proposed for logging does not appear to be hydrologically connected to bog turtle habitat. However, logging activities at MAT 1 would encroach into the buffer where bog turtles could potentially occur and even impact known occupied habitat.

The Federal Register (Volume 67, Number 61, March 29, 2002) provides the required environmental analysis of Department of the Army actions pursuant to NEPA (32 CFR Part 651-Army Regulation 200-2). Actions normally requiring an Environmental Assessment (EA) are listed under §651.33(i): actions that take place in, or adversely affect, important wildlife habitats, including wildlife refuges; and §651.33(p): an activity that [may] affect a federally listed threatened or endangered plant or animal species, a Federal candidate species, a species proposed for Federal listing, or critical habitat. As the USASMDC / ARSTRAT plan to prepare an EA, please be advised that a Finding of No Significant Impact should not be issued until consultation under Section 7 of the ESA is completed. According to guidelines set by the Council on Environmental Quality "agencies shall rigorously explore and objectively evaluate all reasonable

alternatives" [40 CFR 1502.14(a)] and "agencies shall include reasonable alternatives not within the jurisdiction of the lead agency" [40 CFR 1502.14(c)].

The Service concurs with a "not likely to adversely affect" determination for bog turtles for Alternatives 1 (MAT 3) and 3 (No Action). However, based upon preliminary review of available information, further consultation pursuant to Section 7 of the ESA will be necessary if alternative 2 (MAT 1) is selected. Through the informal consultation process, the Service will make recommendations to avoid and minimize adverse effects to listed species. The lead Federal agency has the responsibility under Section 7(c) of the ESA to prepare a Biological Assessment (BA) if the proposal is a major construction project or if the proposal may affect a federally listed species (Alternative 2). The BA should include a complete description of the project, all proposed avoidance and minimization measures, and the resulting effects of the project on listed species. The BA is then sent to this office for review. If adverse effects cannot be avoided, formal Section 7 consultation will be required.

The Service recommends against Alternative 2 based on bog turtle and other wildlife impacts. However, if Alternative 2 is selected, preliminary Service-recommended conservation measures for bog turtle would include:

(1) Employing a recognized, qualified bog turtle surveyor to conduct a field investigation looking at habitats in and adjacent to the project site to better assess likely project impacts and develop refined conservation measures.

(2) Placing and maintaining double-silt fencing along the entire project site with daily inspection and maintenance. Keep an inspection and maintenance log that can be provided upon request.

(3) Locating temporary work areas and access routes outside of wetlands.

(4) Implementing best management practices to avoid or minimize sediment release in the water column during construction.

(5) Using jute matting or other erosion control blankets on disturbed areas immediately after project completion to facilitate re-vegetation and prevent sediment from entering wetlands.

(6) Promptly re-vegetating areas of temporary disturbance with indigenous plant species.

(7) Thoroughly washing construction equipment offsite before use within 500 feet of wetlands to prevent the spread of invasive species.

(8) Using only native plant species and weed-free mulches and soils for landscaping within 500 feet of wetlands.

The Service may further request that the applicant employ a recognized qualified bog turtle surveyor to inspect the area during installation of the double-silt fence and conduct daily inspections of the fence and work area for signs of turtle activity if work takes place during the bog turtle's active season of Aril 1 to October 15. If a bog turtle is found, work should halt until authorized to resume by coordination with the Service. No bog turtles should be moved unless necessary to avoid imminent risk of injury to humans or the animal.

Other Federally Listed Species

Other than the bog turtle, no federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

MIGRATORY BIRDS

The proposed tree removal of 6.8 or 78.3 acres of forest will have an adverse impact on migratory birds if conducted during the nesting season (destruction of nests with eggs or unfledged birds). The Breeding Bird Atlas (Niles *et al.*, 2001) lists 70 species of breeding migratory birds that occur in the vicinity of MAT 3 and MAT 1. The Service requests a seasonal restriction on tree cutting between March 1 and July 31 to avoid impacts to birds protected under the MBTA for implementation of any approved Action Alternative. Pursuant to Section 704(a) of the MBTA, the Armed Forces are exempted for the incidental taking of migratory birds during military readiness activities authorized by the Secretary of Defense; however, this seasonal restriction was implemented for completion of previous projects (*e.g.*, Fort Dix Military Construction Projects, Joint Improvised Explosive Device Defeat Organization Training Facility). We would request the seasonal restriction on tree cutting. We would also recommend re-vegetating unused barren areas within Lakehurst Naval Air Station to mitigate for the loss of migratory bird tree-nesting habitat.

The Service notes that there are known occurrences at the Joint Base McGuire-Dix-Lakehurst of the State-listed upland sandpiper (*Bartramia longicauda* – endangered) and grasshopper sparrow (*Ammodramus savannarum* – threatened), which are also listed as birds of conservation concern (USFWS 2008). Both species breed in grassland, upland meadow, pasture, hayfield, and old field habitats. Nesting upland sandpipers and grasshopper sparrows may occur in agricultural lands and airports where the above-mentioned habitat occurs. As a result of population declines and severe habitat loss, the upland sandpiper was listed as endangered by the State of New Jersey in 1984 and the grasshopper sparrow as threatened in 1979.

Migratory grassland bird species have shown more consistent and steeper geographically-widespread declines than any other group of North American wildlife species. These widespread declines of many grassland birds appear strongly linked to loss and deteriorating quality of grassland habitat (Pruitt 1996, Samson and Knopf 1994). Habitat fragmentation further deteriorates the quality of remaining habitats, and bird populations in fragmented areas are likely

to be radically different from populations in unaltered areas (Bradshaw 1992). The survival of the upland sandpiper and grasshopper sparrow in New Jersey is critically linked with management practices for grassland birds on airports, agricultural lands, and pastures (New Jersey Department of Environmental Protection 2005a, 2005b).

The upland sandpiper and grasshopper sparrow are of concern because of (a) documented or apparent population declines, (b) small or restricted populations, and (c) dependence on restricted or vulnerable habitats. The Service recommends coordinating with U.S. Department of Agriculture Wildlife Services (USDAWS) prior to implementing a selected alternative. The point of contact for New Jersey is:

Janet L. Bucknall, State Director
140-C Locust Grove Road, Pittstown, NJ 08867
Phone: (908) 735-5654 FAX: (908) 735-0821
E-mail: janet.l.bucknall@aphis.usda.gov

Specifically, USDAWS should conduct sampling and monitoring of nesting upland sandpipers and grasshopper sparrows, ensure these species are not harmed by project activities, and reduce bird-related safety hazards along the runways. The USDAWS biologists at the Atlantic City International Airport conduct monitoring surveys to identify the number and location of nesting upland sandpipers and grasshopper sparrows; the data are used in airport operation decisions and bird hazard management activities, which contribute to species conservation by reduced bird/aircraft strikes involving rare birds.

Finally, the Service recommends that the proposed project be coordinated with the New Jersey Division of Fish and Wildlife, which is the lead agency in New Jersey for management of grassland birds.

Thank you for the opportunity to provide initial comments on the proposed expanded operation of the LEMV. Please contact Carlo Popolizio at (609) 383-3938, extension 32, if you require further assistance.

Sincerely,

J. Eric Davis Jr.
for Field Supervisor

5

From: JOYCE, JOHN G GS-12 USAF AMC 87 CES/CEAN
Sent: Tuesday, December 06, 2011 2:21 PM
To: (mailto:Wendy_Walsh@fws.gov)
Cc: Carlo Popolizio (Carlo_Popolizio@fws.gov); PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA
Subject: bog turtle issues at LEMV site

Hi Wendy,
The USFWS Ecological Services NJ Field Office issued bog turtle guidelines for the proposed LEMV project in a letter dated November 14, 2011. This email is to confirm clarifications to that guidance that you and I discussed in today's phone call. JBMDL shall contract with a USFWS approved bog turtle biologist to conduct a Biological Evaluation on the site to include:

- An overall analysis of effects that addresses three distinct geographic segments of the area a. Upland forest including the portions outside the proposed mooring circle and inside the eastern side of the circle b. The Paint Branch, following USFWS guidelines for Phase One bog turtle surveys c. The Manapaqua Branch, including any hydrologic effects, culvert locations, potential sedimentation problems and potential groundwater effects

- Should the contractor find potential bog turtle habitat during the Phase One survey, JBMDL will call Wendy Walsh to work out the additional conditions that USFWS will add to the project before granting approval to proceed

Is this an accurate summary of our discussion?

John

John Joyce
Natural and Cultural Resources Staff
Joint Base McGuire-Dix-Lakehurst
Office: 732-323-2911
Cell: 609-498-5702
john.joyce.7@us.af.mil

From: Wendy_Walsh@fws.gov [mailto:Wendy_Walsh@fws.gov]
Sent: Monday, December 12, 2011 3:27 PM
To: JOYCE, JOHN G GS-12 USAF AMC 87 CES/CEAN
Cc: Carlo_Popolizio@fws.gov
Subject: Re: FW: bog turtle issues at LEMV site

Hi John-

Yes, I think you got all the points we discussed. I've attached a "track changes" where I word-smithed your notes to make the language more consistent with our usual Sec. 7 jargon.

Thanks for the coordination.
Wendy

*(*See attached file: LEMV.docx)

~~~~~~~~~~~~~~~~~~~~~~~~

Wendy Walsh
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
New Jersey Field Office
927 North Main Street, Bldg. D
Pleasantville, NJ 08232
phone: (609) 383-3938 ext. 48 fax: (609) 646-0352 wendy_walsh@fws.gov
~~~~~~~~~~~~~~~~~~~~~~~~

HPO Project # 12-0034-2
HPO-L2011-160

State of New Jersey

MAIL CODE 501-04B
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL & HISTORIC RESOURCES
HISTORIC PRESERVATION OFFICE
PO Box 420
Trenton, NJ 08625-0420
TEL. (609) 984-0176 FAX (609) 984-0578

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

December 23, 2011

Mr. Dennis Blazak, GS13, DFAC
Deputy Asset Manager, 87th Civil Engineer Squadron
Department of the Air Force
Headquarters Air Mobility Command
Joint Base McGuire-Dix-Lakehurst
Highway 547, Building 5
Lakehurst, NJ 08733-5000

Dear Mr. Blazak:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40553-40555), I am providing consultation comments on the following proposed undertaking:

Joint Base McGuire-Dix-Lakehurst
Proposed Long Endurance Multi-Intelligence Vehicle (LEMV)
HPO Project # 12-0034

This letter was prepared in response to your letter of November 22, 2011. The HPO provided initial review comments for this undertaking to the New Jersey Department of Environmental Protection's Office of Permit Coordination and Environmental Review on October 25, 2011. These initial comments were issued in response to your scoping letter for the project's Environmental Assessment pursuant to NEPA. This federal undertaking is also subject to review pursuant to Section 106 of the National Historic Preservation Act.

HPO Project # 12-0034-2
HPO-L2011-160

800.4 Identification of Historic Properties

Architecture

As you are aware, the proposed work is located both within and adjacent to the boundaries of the Lighter-Than-Air Historic District, which was determined eligible for listing in the New Jersey and National Registers of Historic Places in a SHPO Opinion of Eligibility on June 27, 1995. Hangars 1, 5, and 6 are contributing elements within the historic district. Hangar 1 is also individually listed on the New Jersey and National Registers and is a National Historic Landmark.

Archaeology

Your letter states that the areas of tree removal associated with the proposed undertaking are located "within what were determined to be areas that have the potential to contain prehistoric archaeological sites. However, the proposed tree removal is expected to have no impact on the ground surface, as trees would be cut at or above the ground surface and stumps milled to the ground surface." Following consultation with Joint Base Staff Archaeologist Adrienne Duryee and based upon the proposed tree removal method, prior stream rechannelization, and prior ground disturbance, the HPO concurs with your assessment that no further archaeological survey is necessary in the area of proposed vegetation removal.

In addition, the proposed addition to Building 572 is located in an area with a low potential for the presence of archaeological resources. Therefore, no additional survey is necessary.

800.5 Assessment of Effects

LEMV operations are currently conducted within Hangar 6 (contributing to the Lighter-Than-Air Historic District). The proposed LEMV program may entail the use of additional hangars, including Hangar 1 and Hangar 5, both contributing buildings within the historic district. As your letter states, the expansion of the LEMV program into these facilities as described would entail a change in the current use. However, the reuse of the Hangars would be in keeping with their original purpose, to house and support airships. No structural changes are proposed for these buildings.

The only structural changes proposed as part of the proposed undertaking (Alternative 2) are to Building 572, which was built in 1984 and located just outside the boundary of the historic district. As currently proposed, a 45,000 square foot addition with a concrete slab foundation and steel corrugated siding and roofing (to match the existing finishes of the building) would be added to the building.

At this time, the HPO does not have sufficient information to definitively evaluate the project's potential effects upon the Lighter-Than-Air Historic District or Hangar 1.

Although, as currently proposed, none of the contributing buildings within the historic district will be physically affected by the project, indirect effects upon the

HPO Project # 12-0034-2
HPO-L2011-160

historic district that will result from the proposed undertaking must be evaluated. The two project elements that could potentially indirectly affect the historic district are:

1. Removal of trees/vegetation - The HPO understands tree lines and areas of vegetation both within and adjacent to the boundaries of the historic district have evolved over time due to prior clearing for both airship and fixed-wing aircraft operations. These changes occurred both during and following the period of significance for the Lighter-Than-Air Historic District. The HPO would like to request further consultation with Joint Base staff regarding this proposed project element to ensure that none of the proposed tree/vegetation removal (approximately 77 acres) will diminish the district's character of integrity of setting and feeling.

2. Addition to Building 572 - The proposed addition to Building 572 is located directly between Hangar 1 and Hangar 4, two contributing buildings within the historic district. While the submitted documentation states that the addition will be constructed using materials similar to those on the existing building, it does not state if the addition will be the same height as the existing building or evaluate how the addition may impact the surrounding historic structures. The HPO would like to request plans or preferably photo renderings of the proposed addition in order to evaluate its potential setting and viewshed impacts upon Hangar 4 and the remainder of the Lighter-Than-Air Historic District.

If you have any questions regarding this letter, please contact Jonathan Kinney of my staff at (609) 984-01410141 with any questions regarding historic architecture or Vincent Maresca at (609) 633-2395 with any questions regarding archaeology. If additional consultation with the HPO is needed for this undertaking, please reference the HPO project number 12-0034 in any future calls, emails, or written correspondence in order to expedite our review and response. Thank you.

Sincerely,

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc:

Ken Koschek, NJDEP OPCER

HPO Project # 12-0034-3
HPO-A2012-124 PROD

State of New Jersey
MAIL CODE 501-04B
DEPARTMENT OF ENVIRONMENTAL PROTECTION
NATURAL & HISTORIC RESOURCES
HISTORIC PRESERVATION OFFICE
P.O. Box 420
Trenton, NJ 08625-0420
TEL. (609) 984-0176 FAX (609) 984-0578

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

January 19, 2012

Mr. Dennis Blazak, GS13, DFAC
Deputy Asset Manager, 87th Civil Engineer Squadron
Department of the Air Force
Headquarters Air Mobility Command
Joint Base McGuire-Dix-Lakehurst
Highway 547, Building 5
Lakehurst, NJ 08733-5000

Dear Mr. Blazak:

As Deputy State Historic Preservation Officer for New Jersey, in accordance with 36 CFR Part 800: Protection of Historic Properties, as published in the Federal Register on December 12, 2000 (65 FR 77725-77739) and amended on July 6, 2004 (69 FR 40553-40555), I am providing continuing consultation comments on the following proposed undertaking:

Joint Base McGuire-Dix-Lakehurst
Proposed Long Endurance Multi-Intelligence Vehicle (LEMV)
HPO Project # 12-0034

These comments were prepared in response to your letter of January 4, 2012 providing additional information on two elements of the proposed project, the removal of trees and vegetation and the addition to Building 572. The HPO expressed concerns about potential indirect effects upon historic resources as a result of these two project elements in our December 23, 2011 review letter (HPO-L2011-160).

800.5 Assessment of Effects

The submitted documentation clarifies that all of the proposed tree/vegetation removal will take place outside of the boundaries of the Lighter-Than-Air Historic District. In addition, the historic aerial images illustrate that not only have the tree lines

HPO Project # 12-0034-3
HPO-A2012-124 PROD

and areas of vegetation changed throughout installation's history as a result of clearing for both airship and fixed-wing aircraft operations at various times, but also that the area was substantially cleared during the district's period of significance. As your letter states, Joint Base considers that the vegetation clearing will mimic the original setting of the hangars and the historic district and will not diminish the district's character or integrity. The HPO concurs with this assessment and has no further concerns regarding this particular element of the proposed undertaking.

The second project element, the proposed 45,000 square foot addition to Building 572 is located between Hangar 1 and Hangar 4, two contributing buildings within the Lighter-Than-Air historic district. The submitted documentation verifies that the addition will be the same height as the existing building. The preliminary photo renderings indicate that the viewsheds from points near Hangars 1 and 4 will not be substantially altered or obscured by the construction of the addition. However, as the project is still in the conceptual stage, no drawings or plans for the addition have been developed. Therefore, the HPO has concluded that the proposed undertaking will have a **conditional no adverse effect upon the Lighter-Than-Air Historic District and Hangar 1.** Compliance with the following condition will ensure that the project is designed in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties:

- The Air Force shall prepare final plans and specifications for the addition to Building 572. The plans and specifications shall be submitted to the HPO for review and comment in order to ensure that the design of the addition remains in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties and will not impact the character and setting of the surrounding historic resources.

If you have any questions regarding this letter, please contact Jonathan Kinney of my staff at (609) 984-01410141 with any questions regarding historic architecture or Vincent Maresca at (609) 633-2395 with any questions regarding archaeology. Please reference the HPO project number 12-0034 in any future calls, emails, or written correspondence in order to expedite our review and response. Thank you.

Sincerely,

Daniel D. Saunders
Deputy State Historic
Preservation Officer

Cc:
Ken Koschek, NJDEP OPCER

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609-646-9310 Fax: 609-646-0352
http://www.fws.gov/northeast/njfieldoffice

IN REPLY REFER TO:
12-CPA-0027

John Joyce, Natural and Cultural Resources Staff
Joint Base McGuire, Dix, Lakehurst
Environmental Office, Building 5, Route 547
Lakehurst, New Jersey 08733
Fax Number: (732) 323-5223

FEB 16 2012

Reference: Approximately 77 acres of vegetation clearing, including 18 wetland acres, to allow for mooring, take-off, and landing of the Long Endurance Multi-Intelligence Vehicle (LEMV) airship at the Joint Base McGuire-Dix-Lakehurst, Manchester Township, Ocean County, New Jersey

The U.S. Fish and Wildlife Service (Service) has reviewed the above-referenced proposed project pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) (ESA) to ensure the protection of federally listed endangered and threatened species. The following comments do not address all Service concerns for fish and wildlife resources and do not preclude separate review and comment by the Service as afforded by other applicable environmental legislation.

A known occurrence or potential habitat for the following federally listed or candidate species is located on or near the project's impact area. However, the Service concurs that the proposed project is not likely to adversely affect federally listed or candidate species for the reasons listed below.

Species	Basis for Determination
bog turtle (*Clemmys [Glyptemys] muhlenbergii*), threatened	A January 12, 2012 bog turtle Phase 1 survey report, which indicates that no suitable habitat is present along Paint Branch; and your February 6, 2012 email adopting the attached conservation measures.

Except for the above-mentioned species, no other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the proposed project's impact area. Therefore, no further consultation pursuant to the ESA is required. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Please refer to this office's web site at http://www.fws.gov/northeast/njfieldoffice/Endangered/ for further information including federally listed and candidate species lists, procedures for requesting ESA review, the National Bald Eagle Management Guidelines, and contacts for obtaining information from the New Jersey Natural Heritage and Endangered and Nongame Species Programs regarding State-listed and other species of concern.

Reviewing Biologist: Wendy Walsh
Wendy Walsh

Authorizing Supervisor:
Ron Popowski

nltaa.doc 06/02/2009

Conservation Measures for the LEMV Project, Joint Base McGuire-Dix-Lakehurst

1. No vegetation clearing or other work associated with the LEMV project will take place south of the patrol road.

2. Work will be carried out between October 16 and March 31.

3. Prior to the start of work, a recognized, qualified bog turtle surveyor (http://www.fws.gov/northeast/njfieldoffice/pdf/BogTurtleSurveyors.pdf) will flag in the field any areas to be cleared that exhibit suitable characteristics of hibernation habitat, plus a 50' buffer.

4. No motor vehicles will be used within the flagged areas OR within 3 feet of streams (from top of bank). Cutting in these areas will take place on foot with hand-carried equipment (*e.g.*, chain saws).

5. Tree falls will be directed away from streams using accepted logging methods.

6. No brush piles will be left that could provide cover to predators.

7. Tree stumps will be left in wetland areas at a height of 3 inches above grade. Stumps in wetlands will NOT be pulled out by the roots.

8. The LEMV project will not include any new impervious surface, changes to stormwater hydrology, or in-stream work.

9. In addition to the above-listed measures, the Joint Base will provide for inspection and additional erosion control as follows.

   a. Before and during clearing, "likely erosional areas" (*e.g.*, slopes, erosion-prone soils) proposed for clearing will be identified.

   b. Each day, areas cleared during the previous 24 hours will be inspected for erosion.

   c. Promptly following heavy or prolonged rains, areas cleared within the previous 5 days will be inspected for erosion, as will identified "likely erosional areas" that had been cleared >5 days previously.

   d. After completion of clearing, all "likely erosional areas" and any "known erosional areas" (as identified during previous inspections) will be inspected promptly following heavy or prolonged rains. Inspections will continue until all likely and known erosional areas have been re-vegetated or otherwise permanently stabilized, and the Service concurs in writing or via email.

   e. If any erosion problems are observed during or after clearing, the Joint Base will use silt fence, hay bales, jute mats, geotextile fabric, seeding with native vegetation, and/or other accepted erosion control practices (alone or in combination) to promptly contain sediment near its source. The Joint Base will contact the Service if it proposes any ground-disturbing erosion control measures (*e.g.*, grading, rip-rap), or seeding with non-native species, within 3 feet of streams.

   f. If any conspicuous sediment load is observed in Paint Branch during or after clearing, the Joint Base will notify the Service to determine if the known bog turtle habitat along Manapaqua Branch should be inspected for impacts.

10. Access routes and skid trails will be located in uplands and will not cross wetlands or streams. Access routes and skid trails will avoid likely and known erosional areas, and will follow all applicable provisions of the New Jersey Forestry and Wetlands Best Management Practices Manual (http://www.state.nj.us/dep/parksandforests/forest/nj_bmp_manual1995.pdf).

11. Prior to the first instance of vegetative maintenance following the initial clearing (*i.e.*, to maintain open conditions), the Joint Base will reassess the wetlands to be mowed or otherwise re-cleared regarding their suitability as bog turtle habitat, and will contact the Service to determine if any Conservation Measures are necessary during maintenance activities.

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

3 April 2012

Dennis Blazak
87th Civil Engineering Squadron
Highway 547/Building 5
Lakehurst, NJ 08733

Ms. Tamara Francis
Cultural Preservation Director
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Subject: Consultation regarding Environmental Planning for the Environmental Assessment (EA) for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV) at the Joint Base McGuire-Dix-Lakehurst (JBMDL), Lakehurst, New Jersey

Dear Ms. Francis,

The US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) proposes to continue and expand the operation and testing of the Long Endurance, Multi-intelligence Vehicle (LEMV) at the JB MDL, New Jersey. JB MDL is conducting an Environmental Assessment addressing the potential environmental, socioeconomic, and cultural impacts of this proposal at the JB MDL. The Proposed Action is necessary to provide facilities to integrate, operate, maintain, test and train with the LEMV.

USASMDC/ARSTRAT conducts space and missile defense operations and provides planning, integration, control and coordination of Army forces and capabilities in support of U.S. Strategic Command missions (strategic deterrence, integrated missile defense, and space operations); serves as the Army force modernization proponent for space, high altitude and global missile defense; serves as the Army operational integrator for global missile defense; and conducts mission-related research and development. The LEMV is an optionally manned, long-endurance hybrid airship intended to enable continuous over-the-horizon communications, wide area surveillance and protection to support uninterrupted theatre operations in urban and mountainous terrain. The airship is a hybrid craft, meaning it combines the natural lift of helium with the aerodynamic lift and control of an airplane. The LEMV is 305 feet long, 145 feet wide and 85 feet high.

In furtherance of developing our Government-to-Government relationship with the Delaware Nation and and in accordance with Section 106 of the National Historic Preservation Act, we are seeking comment on the enclosed draft Environmental Assessment (EA). The EA considers alternative actions for implementing the Proposed Action (See Figure 1). This EA evaluates the individual and cumulative effects of the following alternatives with respect to land use, airspace,

air quality, noise, geology, water resources, biological resources, cultural resources, socioeconomics, infrastructure, transportation, materials/waste, and safety:

- **Alternative 1 – Limited Lakehurst Facility and Airfield Improvements Alternative.** Under Alternative 1, continued integration, testing and basing of the LEMV would occur on JB MDL Lakehurst, in central NJ with primary mooring and air operations on Mat 3 with limited touch-and-go flights at the Lakehurst Jump Circle. About 6.8 acres of trees would be cleared to facilitate safe operation of the LEMV from Mat 3. Test flights would be conducted over land and sea, within 100 nautical miles of Lakehurst.

- **Alternative 2 – Major Lakehurst Facility and Airfield Improvements Alternative.** Alternative 2 includes all the aspects of Alternative 1, but would include an expansion of Lakehurst Mat 1, with 78.6 acres of tree clearing, for LEMV mooring, take-offs, and landings.

- **Alternative 3 - No Action Alternative.** As required under NEPA and 32 CFR 989, the No Action Alternative (Alternative 3) is retained in this EA for comparative analysis. Under this alternative, no further LEMV integration, storage or flight testing would take place at JB MDL after LEMV-1.

Alternatives 1 and 2 both involve tree clearing in areas that have previously been disturbed and thus we believe there is a low potential they contain Native American cultural resources (See Figures 2 and 3). In case you do have concerns, however, we are sending you the preliminary draft Environmental Assessment for your information and comment. The public comment period will begin in mid-April 2012 and we will begin to incorporate comments received into the final EA. In order for us to be able to address your concerns, please provide comments by May 25, 2012.

On behalf of the JBMDL, I look forward to your participation in this NEPA review process. Please mail responses to my attention at JB MDL, 87th Asset Management Fligtht, Building 5, Lakehurst, NJ 08733. If you have any questions, do not hesitate to contact me at (732) 323-7544. If preferable, you may fax your response to my attention at (732) 323-5223.

DENNIS BLAZAK, GS-13, DAFC
Deputy Asset Manager, 87th Civil Engineer Squadron

Attachments:
(1) Figure 1 - LEMV Alternatives
(2) Figure 2 – Land Clearing, 1930's aerial
(3) Figure 3 – Land Clearing, 1954 aerial
(4) Preliminary Draft Environmental Assessment, LEMV Program (CD-Rom)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

3 April 2012

Dennis Blazak
87th Civil Engineering Squadron
Highway 547/Building 5
Lakehurst, NJ 08733

Bryce Obermeyer, Tribal Historic Preservation Officer
Delaware Tribe of Indians
1420 C of E Street Suite 190
Emporia, Kansas 66801

Subject: Consultation regarding Environmental Planning for the Environmental Assessment (EA) for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV) at the Joint Base McGuire-Dix-Lakehurst (JBMDL), Lakehurst, New Jersey

Dear Mr. Obermeyer,

The US Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) proposes to continue and expand the operation and testing of the Long Endurance, Multi-intelligence Vehicle (LEMV) at the JB MDL, New Jersey. JB MDL is conducting an Environmental Assessment addressing the potential environmental, socioeconomic, and cultural impacts of this proposal at the JB MDL. The Proposed Action is necessary to provide facilities to integrate, operate, maintain, test and train with the LEMV.

USASMDC/ARSTRAT conducts space and missile defense operations and provides planning, integration, control and coordination of Army forces and capabilities in support of U.S. Strategic Command missions (strategic deterrence, integrated missile defense, and space operations); serves as the Army force modernization proponent for space, high altitude and global missile defense; serves as the Army operational integrator for global missile defense; and conducts mission-related research and development. The LEMV is an optionally manned, long-endurance hybrid airship intended to enable continuous over-the-horizon communications, wide area surveillance and protection to support uninterrupted theatre operations in urban and mountainous terrain. The airship is a hybrid craft, meaning it combines the natural lift of helium with the aerodynamic lift and control of an airplane. The LEMV is 305 feet long, 145 feet wide and 85 feet high.

In furtherance of developing our Government-to-Government relationship with the Delaware Nation and and in accordance with Section 106 of the National Historic Preservation Act, we are seeking comment on the enclosed draft Environmental Assessment (EA). The EA considers alternative actions for implementing the Proposed Action (See Figure 1). This EA evaluates the individual and cumulative effects of the following alternatives with respect to land use, airspace, air quality, noise, geology, water resources, biological resources, cultural resources, socioeconomics, infrastructure, transportation, materials/waste, and safety:

- **Alternative 1 – Limited Lakehurst Facility and Airfield Improvements Alternative.** Under Alternative 1, continued integration, testing and basing of the LEMV would occur on JB MDL Lakehurst, in central NJ with primary mooring and air operations on Mat 3 with limited touch-and-go flights at the Lakehurst Jump Circle. About 6.8 acres of trees would be cleared to facilitate safe operation of the LEMV from Mat 3. Test flights would be conducted over land and sea, within 100 nautical miles of Lakehurst.

- **Alternative 2 – Major Lakehurst Facility and Airfield Improvements Alternative.** Alternative 2 includes all the aspects of Alternative 1, but would include an expansion of Lakehurst Mat 1, with 78.6 acres of tree clearing, for LEMV mooring, take-offs, and landings.

- **Alternative 3 - No Action Alternative.** As required under NEPA and 32 CFR 989, the No Action Alternative (Alternative 3) is retained in this EA for comparative analysis. Under this alternative, no further LEMV integration, storage or flight testing would take place at JB MDL after LEMV-1.

Alternatives 1 and 2 both involve tree clearing in areas that have previously been disturbed and thus we believe there is a low potential they contain Native American cultural resources (See Figures 2 and 3). In case you do have concerns, however, we are sending you the preliminary draft Environmental Assessment for your information and comment. The public comment period will begin in mid-April 2012 and we will begin to incorporate comments received into the final EA. In order for us to be able to address your concerns, please provide comments by May 25, 2012.

On behalf of the JBMDL, I look forward to your participation in this NEPA review process. Please mail responses to my attention at JB MDL, 87th Asset Management Fligtht, Building 5, Lakehurst, NJ 08733. If you have any questions, do not hesitate to contact me at (732) 323-7544. If preferable, you may fax your response to my attention at (732) 323-5223.

DENNIS BLAZAK, GS-13, DAFC
Deputy Asset Manager, 87th Civil Engineer Squadron

Attachments:
(1) Figure 1 - LEMV Alternatives
(2) Figure 2 – Land Clearing, 1930's aerial
(3) Figure 3 – Land Clearing, 1954 aerial
(4) Preliminary Draft Environmental Assessment, LEMV Program (CD-Rom)

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

2 May 2012

Alice Veneziani, Esq.
87 ABW/JA
2901 Falcon Lane, Room 217
Joint Base McGuire-Dix-Lakehurst NJ 08641

Nancy Wittenberg, Executive Director
The Pinelands Commission
Post Office Box 359
New Lisbon NJ 08064

Re: Facility Improvements for the Long-Endurance Multi-Intelligence Vehicle (LEMV) at Joint Base McGuire-Dix-Lakehurst (JB MDL), Lakehurst Area

Dear Ms Wittenberg

The Army plans to integrate and test LEMV hybrid airships on JB MDL. To increase available hangar space for LEMV, the JB MDL may construct a 45,000 square-foot addition on an existing warehouse building. Up to 77 acres of trees will be cleared and electric utilities will be installed to provide a new unpaved airship airfield south of Mat 1. These improvements will increase the efficiency and safety of the LEMV program that will significantly advance emerging technology in the area of information warfare and intelligence systems.

Based on the requirement to provide facility improvements for safe and efficient LEMV operations this area, it has been determined that an application to the Pinelands Commission for approval of this project would be incompatible with national defense requirements. Because there is no waiver of sovereign immunity set forth in 16 USC §471i for the establishment and administration of the Pine Barrens Area, the Pinelands Commission review of this project is hereby waived.

Although an application for the Pinelands Commission will not be submitted, an Ocean County Soil Erosion and Sediment Control Plan will be submitted to the Soil Conservation District. An environmental assessment (EA) for the project, required by the National Environmental Policy Act, is being prepared and will undergo a 30-day public comment period. JB MDL will provide a copy of the draft EA to the Commission at that time. Please contact Mr. Dennis Blazak, at (732) 323-7544, for any additional information regarding this project.

Sincerely

ALICE VENEZIANI, Chief
Environmental and Real Property Law

cc:
87 CES/CEAN

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

31 October 2012

Mr. Christopher A. Archer
87th Civil Engineer Squadron
2401 Vandenberg Avenue
Joint Base McGuire-Dix-Lakehurst, NJ 08641

Ms. Tamara Francis
Cultural Preservation Director
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Subject: National Historic Preservation Act Section 106 Compliance for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV)

Dear Ms. Francis

On 3 April and 18 June 2012, Joint Base McGuire-Dix-Lakehurst (JB MDL) wrote to the Delaware Nation regarding the subject proposal. These letters included background information on the cultural resources at the base and a detailed description of the proposed undertaking. In accordance with the provisions of 36 CFR 800.4(d)(1) and as supported by the documents sent previously to the tribe, the base finds that there will be no historic properties affected by the LEMV proposal. As you have been designated by the Delaware Nation on 28 October 2009 as the competent tribal authority in such matters, the Air Force requests your concurrence on the determination of no effect to historic properties within thirty days of receipt of this letter.

We appreciate your attention to this important national defense matter and are ready to answer any questions you may have. We also look forward to discussions with you on the potential to establish a formal government to government relationship between JB MDL and the Delaware Nation.

Please mail responses to Mr John Joyce, Cultural Resources Manager, Route 547 Building 5, Joint Base McGuire-Dix-Lakehurst NJ, 08733. If you have any questions, please contact Mr. Joyce at 732-323-2911. If preferable, you may fax your response to 732-323-5223.

CHRISTOPHER A. ARCHER, GS-14, DAF
Deputy Base Civil Engineer

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B

Conformity Rule Compliance

Record of Non-Applicability

THIS PAGE INTENTIONALLY LEFT BLANK

Conformity Rule Compliance

Record of Non-Applicability

Project/Action Name: **Long Endurance Multi-Intelligence Vehicle (LEMV) Program**

Action Duration: **Permanent**

Conformity under Clean Air Act, Section 176, has been evaluated for the above-described project per 40 CFR Part 51. The requirements of this rule are not applicable to this action because:

Total direct and indirect emissions increases from the Proposed Action have been estimated at:

Alternative 1 (Limited Facility Improvements)

Annual Recurring Emissions

- 6.59 tons per year (tpy) of Volatile Organic Chemicals (VOCs); and
- 5.73 tpy of Oxides of Nitrogen (NOx).

One time Construction Emissions

- 0.02 tons VOCs; and
- 0.17 tons of NOx.

Alternative 2 (Major Facility Improvements)

Annual Recurring Emissions

- 6.59 tons per year (tpy) of Volatile Organic Chemicals (VOCs); and
- 5.73 tpy of Oxides of Nitrogen (NOx).

One time Construction Emissions

- 0.12 tons VOCs; and
- 1.28 tons of NOx.

The emission increases from the Proposed Action are below the *de minimis* threshold established at 40 CFR 51.853(b) of 50 tpy VOCs and 100 tpy NOx, and the Proposed Action is not considered "regionally significant" under 40 CFR 51.853(i).

The supporting documentation and emissions estimates are attached.

Prepared by:
Dorothy S. Peterson, P.E.
Senior Environmental Engineer
EHS Technologies, Inc.

Record of Non-Applicability (RONA) Supporting Documentation

Long Endurance Multi-Intelligence Vehicle (LEMV) Program

1.0 Overview of Considered Project Alternatives

The referenced EA considers three alternatives:

- Alternative 1 – Limited JB MDL Lakehurst Facility Improvements Alternative. Under Alternative 1, integration, testing and basing of the LEMV would occur on JB MDL Lakehurst, in central NJ with primary mooring and air operations on Mat 3 with limited touch and go flights in the Lakehurst jump circle. Test flights would be conducted over land and sea, primarily within airspace between Lakehurst and the Warren Grove Gunnery Range, shown in Figure 2-1 of the EA.
- Alternative 2 – Major JB MDL Lakehurst Facility and Airfields Improvements Alternative. Alternative 2 includes all the aspects of Alternative 1, but would include an expansion of Lakehurst Mat 1, with tree clearing, for LEMV mooring, take-offs, and landings, plus the ability to use additional hangar space on Lakehurst. It may include construction of a 45,000 square foot addition to an existing warehouse building to move Navy storage out of Hangar 6.
- Alternative 3 - No Action Alternative. As required under NEPA and 32 CFR 989, the No Action Alternative (Alternative 3) is retained in this EA for comparative analysis. Under this alternative, no further LEMV integration, storage or flight testing would take place at JB MDL after LEMV-1. Under this alternative, there would be no new emissions of NOx and VOCs.

2.0 Purpose of the Record of Non-Applicability

In compliance with the General Conformity Rule (40 CFR Part 51, Subpart W) and the National Environmental Policy Act (NEPA; 42 USC 4321 et seq.), a Record of Non-Applicability be prepared in cases where the proposed increases in emissions are clearly de minimis.

The action would be located in Ocean County, NJ, which is a designated moderate non-attainment area for ozone according to the National Ambient Air Quality Standards (NAAQS) and EPA's green book.

de minimis is defined as "so small or minimal in difference that it does not matter or the law does not take it into consideration".

Atmospheric ozone occurs when nitrogen oxides (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs) react in the atmosphere in the presence of sunlight, a photochemical reaction. NOx and VOCs are called ozone precursors. Motor vehicle exhaust, industrial emissions, and chemical solvents are the major anthropogenic sources of these chemicals. Although these precursors often originate in urban areas, winds can carry NOx hundreds of kilometers, causing ozone formation to occur in less populated regions as well.

Therefore, VOCs and NOx emissions are regulated as a means of controlling ozone production.

Ocean County is in attainment with the NAAQS for all other criteria pollutants. Lakehurst has a State Implementation Plan (SIP) emission budget of 129 tpy of VOC and 793 tpy of NOx.

3.0 Methodology

This applicability analysis evaluates all stationary and mobile sources of VOCs and NOx emitted from commuter vehicles, LEMV integration and operations, airfield improvements, and related construction projects. Emission factors were obtained from EPA sources where possible. See Section 5.0 for a list of references.

3.1 Commuter Emissions

Under both alternatives, an average of 60 employees was assumed to commute 50 miles round trip each day to Lakehurst for 50 weeks out of a year (see Table 1).

Table 1. Annual LEMV Commuter Emissions

Vehicle type	Annual Vehicle Miles	NOx Emission Factor (gram/mile)	Tons of NOx annually	VOC Emission Factor (gram/mile)	Tons of VOCs annually
Light Duty Gasoline Vehicles	750,000	0.95	0.78	1.36	1.12

Source: USEPA, 2005. Conversion factor 1 pound = 453.592 grams; 1 ton = 2000 pounds.

3.2 Tree Clearing and Construction Emissions

Tables 2 and 3 provide the assumptions and results for air emissions from tree clearing/construction road vehicles for Alternatives 1 and 2 respectively. Tables 4 and 5 provide assumptions and air emission results for non-road construction equipment for Alternatives 1 and 2 respectively.

Table 2. Road Vehicle Emissions – Alternative 1

Vehicle type	Annual Vehicle Miles	NOx Emission Factor (gram/mile)	Tons of NOx annually	VOC Emission Factor (gram/mile)	Tons of VOCs annually
Light Duty Gasoline Vehicles	2,000	0.95	0.002	1.36	0.003
Light Duty Gasoline Trucks	500	1.22	0.001	1.61	0.001
Heavy Diesel Trucks	640	13.43	0.009	1.43	0.001
Total	**3,140**		**0.012**		**0.005**

Source: USEPA, 2005. Conversion factor 1 pound = 453.592 grams; 1 ton = 2000 pounds.

Table 3. Road Vehicle Emissions – Alternative 2

Vehicle type	Annual Vehicle Miles	NOx Emission Factor (gram/mile)	Tons of NOx annually	VOC Emission Factor (gram/mile)	Tons of VOCs annually
Light Duty Gasoline Vehicles	102,000	0.95	0.107	1.36	0.153
Light Duty Gasoline Trucks	33,000	1.22	0.044	1.61	0.059
Heavy Diesel Trucks	38,400	13.43	0.568	1.43	0.061
Total	173,400		0.720		0.272

Source: USEPA, 2005. Notes: Conversion factor 1 pound = 453.592 grams; 1 ton = 2000 pounds.

Table 4. Diesel Construction Equipment Emissions Worksheet – Alternative 1

Equipment Type (quantity)	Total Hours of Operation	Horse Power	Load Factor	Emission Factor – VOC (gram/HP-hour)	Emission Factor – NOx(gram /HP-hour)	VOC Emissions (tons)	NOx Emissions (tons)
Tree Clearing (2 weeks duration)							
Chipping Machine	50	99	37	1.2	8	0.002	0.016
Backhoe	20	77	55	1.4	10.1	0.001	0.009
Loader	30	158	54	0.84	10.3	0.002	0.029
Feller Buncher	70	220	62	0.86	11.3	0.009	0.119
Totals						**0.015**	**0.174**

Source: USEPA, 1991. Notes: HP = horsepower, Conversion factor 1 pound = 453.592 grams; 1 ton = 2000 pounds.

Table 5. Diesel Construction Equipment Emissions Worksheet – Alternative 2

Equipment Type (quantity)	Total hours of operation	Horse Power	Load Factor	Emission Factor – VOC (gram/HP-hour)	Emission Factor – NOx(gram/ HP-hour)	VOC Emissions (tons)	NOx Emissions (tons)
Tree Clearing (6 weeks duration)							
Chipping Machine	360	99	37	1.2	8	0.017	0.116
Backhoe	60	77	55	1.4	10.1	0.004	0.028
Loader	240	158	54	0.84	10.3	0.019	0.232
Feller Buncher	420	220	62	0.86	11.3	0.054	0.714
Utility Work and B572 Addition Construction (24 weeks)							
Loader	24	158	54	0.84	10.3	0.002	0.023
Backhoe	24	77	55	1.4	10.1	0.002	0.011
Roller	12	99	56	0.8	9.3	0.001	0.007
Crane	100	194	43	1.26	10.3	0.012	0.095
Loader	18	158	54	0.84	10.3	0.001	0.017
Air Compressor	90	37	48	1.2	8	0.002	0.014

Equipment Type (quantity)	Total hours of operation	Horse Power	Load Factor	Emission Factor – VOC (gram/HP-hour)	Emission Factor – NOx(gram/ HP-hour)	VOC Emissions (tons)	NOx Emissions (tons)
Scissor Lifts	25	43	46	1.57	14	0.001	0.008
Gas Powered Generator	250	11	68	1.2	8	0.002	0.016
Totals						**0.117**	**1.282**

Source: USEPA, 1991. Notes: HP = horsepower, Conversion factor 1 pound = 453.592 grams; 1 ton = 2000 pounds.

3.2.3 Construction Emission Summary

Tables 6 and 7 provide summaries of construction emissions estimated for Alternatives 1 and 2 respectively.

Table 6. Summary of Construction Emissions – Alternative 1

Source	Tons of NOx	Tons of VOCs
Road Vehicles	0.012	0.005
Construction Diesel Equipment	1.282	0.117
Construction Vehicles	0.358	0.015
Total in Tons	**1.64**	**0.13**

Table 7. Summary of Construction Emissions – Alternative 2

Source	Tons of NOx	Tons of VOCs
Road Vehicles	0.720	0.272
Construction Diesel Equipment	6.261	0.692
Construction Vehicles	0.81	0.71
Total in Tons	**7.07**	**1.43**

3.3 Operational Emissions

3.3.1 Flight Operations

It may be feasible for LEMV to conduct all flight testing from Lakehurst in the future. This would include 90 test flights over 630 hours of operation. This would represent the high case of operations and actual operations may be less as the design becomes more mature and available test data reduces the need for risk-reduction testing. This analysis assumes that up to three LEMVs would be constructed and flight tested in any one year.

Each LEMV would have four 350-HP, JP-8 (similar to diesel) engines. The emission factors were provided from EPA AP-42 for Uncontrolled Gasoline and Diesel Industrial Engines (EPA, 1996) and the maximum percent of horsepower used for power modes for take-offs, climb-out, cruise, approach and taxi were provided or derived from an emission report from the Swiss Federal Office of Civil Aviation (FOCA) in 2007. Table 8 provides the assumptions for time and horsepower per flight mode. Table 9 provides the estimated NOx and VOC emissions for annual flight testing.

Table 8. Power and Duration of Flight Modes

Mode	Percent of Maximum Horsepower	Times in Mode (minutes)
Take-off	100	0.6
Climb out	85	5
Cruise	65	Per test plan
Approach	45	6
Taxi	Operator's manual (assumed to be 30%)	12

Source: Horsepower values are from FOCA, 2007. Time in Mode values for the LEMV were doubled from FOCA values to account for slower airship operations, with the exception of Taxi values.

Table 9. Air Emissions from LEMV Flight Testing – Alternatives 1 and 2

Mode	HP	Number of Events	Total Time (hrs) per Event	NOx Emissions (pounds)	VOC as Total organic carbon (pounds)
Take-off	350	90	0.3	292.95	23.72
Climb out	298	90	2.5	2,078.55	168.30
Cruise	228	NA	630	4,452.84	360.54
Approach	158	90	3	1,322.46	107.08
Taxi	105	90	6	1,757.70	142.32
Total in Pounds				9,904.5	801.96
Total in Tons				**4.95**	**0.40**

NOx emission factor 0.031 pounds/HP-hour; VOC as total organic carbon emission factor of 2.51 E-03 pounds/HP-hour from EPA, 1996.

3.3.2 Chemical and Paint Usage

The VOC emissions associated with program chemical and paint usage is based on the quantities of materials used for LEMV-1. Total annual emissions were estimated by assuming up to three LEMVs would be integrated in one year and therefore multiplying the LEMV-1 material amounts by 3. The analysis assumes that the entire VOC content of each material would be released to the environment. VOC contents are those listed on Material Data Safety Sheets for actual material purchased under LEMV-1. Table 10 lists the assumed material quantities and potential emissions.

Table 10. VOC Emissions from Material Use – Alternatives 1 and 2

Material	LEMV-1 Material Use (gallons)	Quantity for 3 LEMVs/year (gallons)	VOC content (pounds/gallon)	Tons of VOC emissions
MEK	105	315	6.72[a]	1.06
Paint	185	555	4.52[b]	1.25
Adhesive	232	696	4.84[b]	1.68
Solvent	100	300	7.21[b]	1.08
Total				**5.07**

Notes: (a) Tarr, 2007, (b) VOC content based on the highest value across one or more vendors.

3.3.4 Operational Annual Emission Summary

A summary of all operations-related emission sources is provided in Table 11.

Table 11. Operational Annual Emissions – Alternative 1 & 2

Source	Tons of NOx	Tons of VOCs
Commuter Vehicles	0.78	1.12
Flight Testing	4.95	0.40
Paint and Chemicals	0	5.07
Total	**5.73**	**6.59**

3.4 Lakehurst SIP Budget Analysis

Table 12 provides the annual stationary, on-road, non-road, aircraft, and test program emissions for operations at Lakehurst. These emissions were derived from annual reports, or as predicted and calculated by their respective program NEPA analysis or NOx and VOC modeling conducted to support the 2006 SIP budget.

Table 12. Lakehurst Emission Sources

Source	NOx (tpy)	VOC (tpy)
Stationary Sources (Title V), 2010	13.57	3.67
C-17 Landing Zone Operations CY 11 and Beyond (Full Operational Capability)	622.48	13.50
Naval Aircraft Testing at the Test Runway (Maximum – Highest Year of JSF Testing)[1]	11.14	0.58
NJ Army National Guard Aviation Support Facility	14.41	7.78
Electromagnetic Aircraft Launching System	7.23	6.75
Other Aircraft and Jet Track Emissions	10.64	12.55
NJ Army National Guard Consolidated Logistics and Training Facility[1]	4.78	4.48
Proposed CERDEC FAF Emissions – Recurring[2]	1.43	0.08
Proposed CERDEC FAF Construction Emissions (Fall 2012-Fall 2013)[2]	7.07	1.43
Lakehurst Area Source Emissions	12.09	12.08
Mobile Emissions	1.99	0.85
Non-Road Emissions	33.71	9.40
Annual Emissions	740.54	73.15
Proposed LEMV Emissions – Recurring (Alt 2, Max)	5.73	6.59
Proposed LEMV Construction Emissions	1.28	0.12

Source	NOx (tpy)	VOC (tpy)
Total	**747.55**	**79.86**
Lakehurst SIP Budget	**793**	**129**

Source: NAES, 2006.
Note: VOC is not a criteria pollutant. However, VOC is reported because, as an ozone precursor, it is a controlled pollutant.
(1) Aircraft testing does not occur all years. The next JSF testing is planned for 2015.
(2) The CERDEC FAF emissions would be greatest during the construction phase. Recurring operational emissions would be much less (1.43 tpy NOx and 0.08 tpy of VOCs). Both values are included to be conservative.

4.0 Results and Conclusions

Since the General Conformity Rule requires analysis only for emissions of criteria pollutants and their precursors for which an area is designated a "non-attainment" or maintenance area, emissions were calculated only for the precursors of ozone, VOCs and NOx, as part of this RONA documentation.

This analysis revealed Alternative 1 would emit 5.9 tons of NOx and 6.61 tons of VOCs in the first year, but then emit slightly less in subsequent years of operation. Alternative 2 would emit 7.01 tons of NOx and 6.71 tons of VOCs in the first year, and also emit slightly less in subsequent years.

Based on the above, either Alternative 1 or 2 (in the first year or subsequent years) is expected to have total emissions well below the *de minimis* threshold levels and when added to other Lakehurst sources, would not exceed the Lakehurst SIP budget; therefore, this RONA satisfies the General Conformity Rule. As such, this RONA documents JB MDL's decision not to prepare a written conformity determination for the Proposed Action.

5.0 References

Federal Office of Civil Aviation (FOCA). 2007. Aircraft Piston Engine Emissions Summary Report. FOCA Environmental Affairs, Swiss Confederation. June 2007.

Tarr (Tarr LLC). 2007. Material Safety Data Sheet, Methyl Ethyl Ketone, Issued 7/21/2005, Revised 9/10/2007.

United States Environmental Protection Agency (USEPA). 1991. EPA 460/3-91-02. "*Nonroad Engine and Vehicle Emission Study – Repor*t". November 1991.

United States Environmental Protection Agency (USEPA). 1996. "*AP-42, Fifth Edition, Volume I, Section 3.3,* Gasoline and Diesel Industrial Engines*"*.

United States Environmental Protection Agency (USEPA). 2005. "*Emission Facts. Average Annual Emissions and Fuel Consumption for Gasoline-Fueled Passenger Cars and Light Trucks*". EPA420-F-05-022. Office of Transportation and Air Quality. August 2005.

APPENDIX C

Bog Turtle Phase I Survey

See Bog Turtle report pdf file

APPENDIX D

Bog Turtle Conservation Measures,

Alternative 2 Tree Clearing

Bog Turtle Conservation Measures for the LEMV Project (Alternative 2), at Joint Base McGuire-Dix-Lakehurst

(provided by the USFWS, February 16, 2012)

1. No vegetation clearing or other work associated with the LEMV project will take place south of the southern patrol road.
2. Work (site clearing) will be carried out between October 16 and March 31.
3. Prior to the start of work, a recognized, qualified bog turtle surveyor will flag in the field any areas to be cleared that exhibit suitable characteristics of hibernation habitat, plus a 50 foot buffer.
4. No motor vehicles will be used in the flagged areas OR within 3 feet of streams (from top of bank). Cutting in these areas would take place on foot with hand-carried equipment (e.g., chain saws).
5. Tree falls will be directed away from streams using accepted logging methods.
6. No brush piles will be left that could provide cover to predators.
7. Tree stumps will be left in wetland areas at a height of 3 inches above grade. Stumps in wetlands will not be pulled out by the roots.
8. The LEMV project will not include any new impervious surface, changes to stormwater hydrology, or in-stream work.
9. In addition to the above-listed measures, the Joint Base will provide for inspection and additional erosion control as follows:
    a. Before and during clearing, "likely erosional areas" (e.g., slopes, erosion-prone soils) proposed for clearing will be identified.
    b. Each day, areas cleared during the previous 24 hours will be inspected for erosion.
    c. Promptly following heavy or prolonged rains, areas cleared within the previous 5 days will be inspected for erosion, as will identified "likely erosion areas" that had been cleared >5 days previously.
    d. After completion of clearing, all "likely erosional areas" and any "known erosional areas" (as identified during previous inspections) will be inspected promptly following heavy or prolonged rains. Inspections will continue until all likely and known erosional areas have been re-vegetated or otherwise permanently stabilized, and the Service concurs in writing or via email.
    e. If any erosion problems are observed during or after clearing, the Joint Base will use silt fence, hay bales, jute mats, geotextile fabric, seeding with native vegetation, and/or other accepted erosion control practices (alone or in combination) to promptly contain sediment near its source. The Joint Base will contact the Service (USFWS) if it proposes any ground-disturbing erosion control measures (e.g., grading, rip-rap), or seeding with non-native species, within 3 feet of streams.
    f. If any conspicuous sediment load is observed in the Paint Branch during or after clearing, the Joint Base will notify the Service to determine if the known bog turtle habitat along the Manapaqua Branch should be inspected for impacts.
10. Access routes and skid trails will be located in uplands and will not cross wetlands or streams. Access routes and skid trails will avoid likely and known erosional areas, and will follow all applicable provisions of the NJ Forestry and Wetlands Best Management Practices Manual.
11. Prior to the first instance of vegetative maintenance following the initial clearing (i.e., to maintain open conditions), the Joint Base will reassess the wetlands to be mowed or otherwise re-cleared regarding their suitability as bog turtle habitat, and will contact the Service to determine if any Conservation Measures are necessary during maintenance activities.

APPENDIX E

Newspaper Public Notice Affidavits

THIS PAGE INTENTIONALLY LEFT BLANK

State of New Jersey
County of Burlington } **SS.**

EHS TECHNOLOGIES
1221 N CHURCH ST., SUITE 106
MOORESTOWN, NJ 080571245

7323234396
0006275823-01

Laurie Clark being duly sworn or affirmed according to law, deposes and says that she is the Legal Billing Coordinator of the BURLINGTON TIMES, INC. Publisher of the "Burlington County Times" and that a copy of a notice published in such paper on

May 17, 2012

appears hereto, exactly as published in said newspaper

Laurie Clark
LEGAL BILLING CO-ORDINATOR

Sworn and subscribed to before me this 17th day of May 2012 A.D.

Ad Content Proof

Notice of Availability

Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI)/Finding of No Practical Alternative (FONPA) for the Long-Endurance Multi-Intelligence Vehicle (LEMV) Program at Joint Base McGuire-Dix-Lakehurst, New Jersey

JB MDL announces the availability of and invites public comments on the Draft EA and Draft FONSI/FONPA for the proposed Army LEMV airship program. Under the Proposed Action, the Army would integrate and test up to three LEMV airships at Lakehurst annually. The program would use existing hangar space and conduct flight operations primarily between Lakehurst and the Warren Grove Gunnery Range. Two alternative airship airfields were evaluated. Under Alternative 1, LEMV would use an existing aircraft mat and remove 6.8 acres of trees for airfield safety but allow limited take-off and landing directions. Under Alternative 2, the Preferred Alternative, a new unpaved airfield would clear 77 acres of trees for airfield safety with 17.6 acres within wetlands, providing full take-off and landing capability. The EA analyzes related construction and operational aspects of these alternatives. The Draft EA was prepared in accordance with the National Environmental Policy Act. Copies are available for review at the Ocean County Library, 21 Colonial Drive, Manchester, NJ 08759. Written comments should be submitted by June 18, 2012 to Mr. Dennis Blazak, 87 CES/CEA, JB MDL, Hwy 547, Bldg 5, Lakehurst, NJ 08733.

Adv. Fee: $44.28
BCT: May 17, 2012
Aff. Chg.: $20.00

RECEIVED

Affirmed and subscribed to me before me this 17th day of May 2012 A.D.

Ann Clark
My Commission expires on
May 04, 2015

Affidavit of Publication

State of New Jersey} SS.
MONMOUTH/OCEAN COUNTIES

Personally appeared by Marissa DellaPietro

of the **Asbury Park Press,** a newspaper printed in Freehold, NJ and published in NEPTUNE, in said County and State, and of general circulation in said county, who being duly sworn, deposeth and saith that the advertisement of which the annexed is a true copy, has been published in the said newspaper (1) ONE times, once in each issue, as follows

Thursday May 17, 2012

2012

JENNIFER L. FAGAN
NOTARY PUBLIC OF NEW JERSEY
MY COMMISSION EXPIRES APRIL 14,2013

Notary Public of New Jersey

Sworn and subscribed before me this
17th day of May 2012

Notice of Availability

Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI)/Finding of No Practical Alternative (FONPA) for the Long-Endurance Multi-Intelligence Vehicle (LEMV) Program at Joint Base McGuire-Dix-Lakehurst, New Jersey

JB MDL announces the availability of and invites public comments on the Draft EA and Draft FONSI/FONPA for the proposed Army LEMV airship program. Under the Proposed Action, the Army would integrate and test up to three LEMV airships at Lakehurst annually. The program would use existing hangar space and conduct flight operations primarily between Lakehurst and the Warren Grove Gunnery Range. Two alternative airship airfields were evaluated. Under Alternative 1, LEMV would use an existing aircraft mat and remove 6.8 acres of trees for airfield safety but allow limited take-off and landing directions. Under Alternative 2, the Preferred Alternative, a new unpaved airfield would clear 77 acres of trees for airfield safety with 17.6 acres within wetlands, providing full take-off and landing capability. The EA analyzes related construction and operational aspects of these alternatives. The Draft EA was prepared in accordance with the National Environmental Policy Act. Copies are available for review at the Ocean County Library, 21 Colonial Drive, Manchester, NJ 08759. Written comments should be submitted by June 18, 2012 to Mr. Dennis Blazak, 87 CES/CEA, JB MDL, Hwy 547, Bldg 5, Lakehurst, NJ 08733.

APPENDIX F

Public Comments and Responses on the Draft EA

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW
P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420
Phone Number (609) 292-3600
FAX NUMBER (609) 292-1921

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

June 18, 2012

Mr. Dennis Blazak
Department of the Air Force
87th Civil Engineer Squadron
Highway 547/Building 5
Lakehurst, NJ 08733

RE: Proposed Long Endurance Multi-Intelligence Vehicle Program
At Joint Base McGuire Dix Lakehurst (JB MDL), New Jersey
Comments on the Environmental Assessment

Dear Mr. Blazak:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed, for review and comment, the environmental assessment (EA) for the proposed Long Endurance Multi-Intelligence Vehicle (LEMV) Program at Joint Base McGuire Dix Lakehurst (JB MDL), New Jersey. On behalf of the Department, we offer the following comments for your consideration.

While the Department's comments are specific to the review of the above-referenced environmental assessment, it is necessary to comment that there are presently four separate environmental assessments (see below) under review by the Department that involve tree clearing that include the removal of trees within wetlands and riparian zones at the Lakehurst Naval Air Station (LNAS).

LEMV Program (this project) – 77 acres (approximate)
CERDEC Flight Activity Project – 37 acres
Forestry and Tree Clearing Project – 35.9 acres
Solar fields project – 28 acres (approximate)

The Department is concerned that while individually the impacts from the above identified projects may seem less significant and short-term, that the cumulative impacts from all four projects and any future projects that involve deforestation will decrease suitable habitats for listed wildlife species and impair wetland functionality. For the Department to appropriately comment on the level of the impacts and possible measures of avoidance or mitigation we are requesting that you provide us with a five year plan that identifies the overall area of habitat modification activities and discusses the overall project effects and what mitigation measures will be implemented to offset or improve forested and wetland habitats. This information is necessary for the Department to adequately and effectively respond to the significance of impacts from the 77-acres of trees proposed as the Department of Defense's preferred alternative.

Below are specific program comments:

Division of Fish and Wildlife:
The Department's Division of Fish & Wildlife (DFW) remains concerned with the amount of tree clearing occurring at the Lakehurst Naval Air Station (LNAS). The 77 acre clear cut will remove several forest and early successional patches important to many species specifically Northern Pine Snake. Without an understanding of the planned activities over the course of the next five years, DFW cannot effectively know if the impacts will be all adverse. Reviewing a plan for the LNAS for the next 5 years, would determine if mitigation can reduce project impacts.

The DFW's Endangered and Non-game Species Program (ENSP) would like to know how loss or degradation of the forested habitats and wetlands will be addressed and mitigated for at-risk species. How much of the total forested area is LNAS losing and how will the habitats be improved?

Natural Lands Management:
The Department's Office of Natural Lands Management offers the following comments. The proposed clearing areas for the LEMV project (6.8 ac in Alternative 1, or 77 ac in Alternative 2) are forest fragments within LNAS (now JB MDL), and do not support documented rare species occurrences or high quality occurrences of rare ecological communities. A population of Pityopsis falcate does occur about 0.23 of a mile north of one proposed clearing, and critical habitats for rare Lepidoptera (in the Manapaqua Lowlands & Dry Burn Priority Sites) do occur over 0.5 of a mile to the west of proposed clearings. Some of the proposed clearings include wetlands, and this activity may enhance habitat for some of the local rare Lepidoptera.

Cultural Resources:
The Department's Historic Preservation Office (HPO) previously reviewed this proposed undertaking pursuant to Section 106 of the National Historic Preservation Act and determined that it will have a Conditional No Adverse Effect upon the Lighter-Than-Air Historic District and Hangar 1. A copy of the HPO review letter (HPO-A2012-124 PROD) is incorporated in the EA document in Appendix A (Correspondence). If additional consultation is required for this undertaking, please reference the HPO project # 12-0034 in any future calls, emails, or written correspondence in order to expedite our review and response.

Land Use:
Alternative 1- "*Alternative 1 tree removal area does not include any wetland areas. There is a channelized wetland southwest of the proposed ground run area under Alternative 1 where vegetation is periodically mowed or cut to promote airfield safety for helospot 2 and to allow the Lakehurst tower to adequately view aircraft movements on Mat 3.*"

Response Comment: The description above indicates that the only wetland area within Alternative 1 is prior-maintained such that the intended activity should pose no further disturbance. If there are no discharges of fill (as described in "Note" below), there is no Freshwater Wetlands Protection Act permit requirement. There is no indication of a regulated waterway per the Flood Hazard Area Control Act, so it would appear that there is no permit requirement under that Act.

Alternative 2 – "*The proposed Alternative 2 tree removal area includes 17.6 acres of wetlands along the Paint Branch (a tributary of the Manapaqua Brook). The Paint Branch was channelized by the Navy sometime between 1930 and 1943 based on historic aerial photographs. The mix of vegetation in this area is shown in Table 3-6 and depicted in Figure 3-7. Some portions of these wetlands include man-made channels to direct stormwater.*"

Response Comment: Further information than what is stated above [from Table 3-6] indicates that 17.6 acres of Alternative 2 area wetlands shall undergo tree removal. Provided there is no associated discharge of fill accompanying tree removal, this activity is not regulated under the Freshwater Wetlands Protection Act. Tree removal within a riparian zone associated with Paint Brook is, however, a regulated activity under the State's Flood Hazard Area Control Act (permit requirement).

Note: Wetlands disturbance clarification: NJDEP does not regulate the removal of above ground vegetation within the Pinelands unless there is an associated discharge of fill (removal of tree stumps, grading, placement of structures or machinery operating in the wetlands that churns the soil profile would be construed as discharges of fill). NJDEP does regulate tree removal in wetlands and wetland transition areas in just about all other areas of the State outside the Pinelands because it is deemed to have an adverse impact to the wetland ecosystem.

Alternative 3 – No Action Alternative (no permitting applies)

Please be advised that activities within NJDEP's regulatory jurisdiction will require departmentally issued approvals.

Thank you for the opportunity to comment on the Environmental Assessment. The Department recognizes the national level needs of your projects; but we must also do our due diligence during our reviews to ensure that necessary environmental protections are applied to reduce long term project impacts. The request for a five-year plan as outlined above is integral to our environmental review and will assist us in our reviews of your future projects. Please feel free to contact me or Donna Mahon of my staff (at the above number) if you would like to further discuss this request.

Sincerely,

Scott Brubaker

Scott Brubaker, Director

c: Jonathan Kinney, NJDEP-HPO
Ken Koschek, NJDEP – PCER
Donna Mahon, NJDEP- PCER
Shelley Coltrain, NJDEP - Natural & Historic Resources
Andrew Windisch, NJDEP – NLM
Kelly Davis, NJDEP-DFW
David Fanz, NJDEP -LUR

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

July 3, 2012

Dennis Blazak
87th Civil Engineering Squadron
Highway 547/Building 5
Lakehurst, NJ 08733

Mr. Scott Brubaker
Office of Permit Coordination and Environmental Review
Department of Environmental Protection
401 East State Street
P.O. Box 420
Trenton, NJ 08625

Subject: Proposed Long Endurance Multi-Intelligence Vehicle at Joint Base McGuire-Dix-Lakehurst (JB MDL), NJ

Dear Mr. Brubaker:

Thank you and the Department for your comments on the Draft Environmental Assessment (EA) for the Long Endurance Multi-Intelligence Vehicle (LEMV) at JB MDL. As you indicated in your letter, JB MDL has several projects undergoing the National Environmental Policy Act (NEPA) process. We understand that the Department is concerned about the cumulative impacts of projects that would involve tree clearning, and their effects on decreasing habitats for listed wildlife species and potential impairment on wetland functionality. In your letter, you requested a five year plan that identified the overall area of habitat modification activities with a discussion of overall project effects and what mitigation measures would be implemented to offset or improve forested and wetland habitats. This five year plan would allow the Department to adequately and effectively respond to the significance of impacts from the proposed 77-acre tree removal proposed under the LEMV EA's preferred alternative.

The nature of military activities and funding often results in unanticipated projects that arise quickly with short execution timeframes. Regretfully, there were some newer projects not captured in the Draft LEMV EA cumulative impacts analysis section. The most current list of projects undergoing NEPA review is provided below:

- LEMV Program (subject project) – 77 acres of tree removal (59.4 acres within upland area and 17.6 acres within wetland areas) under the Preferred Alternative.
- CERDEC Flight Activity Facility – 37 acres of tree removal within upland areas.
- Forestry and Tree Clearing Prjoect – 35.9 acres of clear cut tree removal (33.9 acres within upland areas; 2 acres within wetland/ channelized stream areas); tree thinning over 501 acres to improve forest health and minimize fire hazard.
- Solar Panel Projects – Removal of 16.8 acres of mixed pine, 6 acres of scrub/shrub, and 5.2 acres of grassland (all upland).

- Radio Receiving and Transmission Site (RRATS) – 7 acres of tree removal with an additional 5 acres of tree removal for a replacement gravel mine site that would be closed restored after 10 years of use. Most of the RRATS site would be planted with native warm season grasses that would be suitable grassland bird habitat.

Other projects that could occur within 5 years at Lakehurst include:

- Aircraft Carrier Aviation Integrated Test Facility – would clear 4 acres of mixed forest, where 2.4 acres would be convered to maintained grassland. This project is on hold.
- Expeditionary Air Field at Lakehurst Test Runway – may require tree removal along the edge of the existing runway clear zone and would slightly decrease grassland habitat. Details of this project are not available yet.

Additionally, JB MDL has plans to pursue Enhanced Use Lease energy projects or other beneficial use projects on up to seven (7) 100-acre parcels on Lakehurst and Dix. These projects could a include combined cycle gas turbine power plant, a waste-to-energy plant, renewable energy projects, a biofuels plant, or technology parks. Other land uses would be open to consideration. The Air Force plans to have an Industry Day Open House event for potential commercial partners in the Fall. Potential projects could be selected for further consideration in early 2013. Depending on the types of projects offered and the preferred locations, there could be up to 700 acres of land converted from forest/natural lands to industrial or commercial use. Individual projects would undergo either an Environmental Assessment or Environmental Impact Statement depending on the anticipated level of impact. Appropriate mitigation measures would be discussed with the various regulatory agencies at that time.

JB MDL will also shortly begin an Installation Development EA (or IDEA) that will analyze upcoming changes to the base Master Plan and the construction and demolition projects programmed for the next 5 years. The IDEA would be finalized within 18 months. However, the majority of the proposed actions under the IDEA would not require noticable habitat modification, as projects would primarily be sited in existing built-up areas. Some long-term conceptual goals in the new Master Plan, such as extending runways, may require significant wetland alteration, but these types of projects would undergo individual Environmental Impact Statements when and if they are deemed military essential.

To the extent possible, JB MDL seeks to limit forest and habitat disturbance when siting new projects. The LEMV requires a fairly large airfield and existing building obstructions and environmental constraints severely limited viable site alternatives. The Lakehurst Jump Circle was considered a potential mooring site, but due to military need for its use as a jump circle and drop zone, as well as the presence of state-listed grassland birds, it was ruled out except for limited touch-and-go air operations. Other locations on Lakehurst were considered, but were eliminated as they would have required even more forest and wetland disturbance. The preferred airfield alternative south of Mat 1 was identified for consideration as most of this area was the location of an airship mooring site in the 1920's and underwent significant clearing and wetland channelization from the 1920's through the mid-1940's. While most of the site has been reforested since the airship era, the site was deemed preferable based on the levels of past

disturbance and its location closer to the Pinelands Regional Growth Area and further from the Pinelands Preservation Area.

JB MDL is updating its Integrated Natural Resource Management Plan to replace the former three separate plans developed prior to standup of the Joint Base. The current Lakehurst INRMP provides buffers around Northern Pine Snake hibernacula and nest sites, and this provision will continue in the new INRMP. None of the aforementioned projects, including LEMV, would interfere with known hibernacula or nest sites or their buffers. The proposed LEMV airfield would convert forest habitat to grassland, providing additional foraging habitat for the Northern Pine Snake, as well as potential state-listed grassland bird habitat when not disturbed by LEMV takeoffs and landings.

The Northern Pine Snake is encountered in relative abundance in nearly every area of Lakehurst. They have a fairly large range and most, if not all, of the Lakehurst base is considered foraging habitat based on the frequency and extent of sightings (sightings, hibernacula and nest sites have been actively tracked and placed in our Geographic Information System over the last 15 years). The Lakehurst management practices for the Northern Pine Snake would be expanded to the rest of Joint Base under the new INRMP. In previous years, Lakehurst has created artificial hibernacula to encourage Northern Pine Snake survival. For the CERDEC FAF project, Lakehurst will be creating a new artificial hibernacula north of the Maxfield airfield as a mitigation measure, as an offset for loss of foraging habitat.

While not connected to the projects cited above, JB MDL endeavors to protect and enrich forest and wetland habits where such efforts help sustain military readiness. The revised INRMP will include new and continued land conservation measures and programs to protect and enrich wildlife habitat and listed species. Preliminary goals include, but are not limited to:

- Monitoring for forest pests, including pheromone traps from the US Forest Service
- Continue restoration of Atlantic White Cedar
- Improve wetland delineation on JB MDL
- Perform Phase II Pine Snake Survey at former Dix ranges; continue PIT tag program base-wide
- Place survey boards at appropriate locations to search for timber rattlensnake.
- Conduct baseline bat surveys
- Update bog turtle surveys
- Perform flora/fauna survey (Phase II) on former Dix area
- Conduct grassland bird surveys on an annual basis; continue management efforts on base grasslands for NJ listed T&E species
- Continue successful nest box programs
- Identify vernal pools
- Continue native warm season grass restoration efforts in base areas of clear-zones.
- Monitor lespedeza and phragmites and control where practical

In addition, JB MDL has actively partnered with the State, NJ Pinelands, Ocean and Burlington Counties, and several non-governmental agencies to preserve land surrounding the base to prevent encroachment. In 2007, the Navy and the NJ Green Acres Program preserved 246 acres

of cranberry bog adjacent to the Lakehurst runways. The base began the process of converting this area to Atlantic White Cedar and planted 6,000 seedlings in 2008. JB MDL plans to continue this project and expand the restoration on the western portion of this tract. JB MDL won the Governor's Environmental Excellence Award for Land Conservation in 2008, for its accomplishment of working with a variety of agencies and non-profit organizations to preserve over 1,300 acres of land surrounding the base between 2007 and 2008. Most recently, DoD contributed funding for the purchase of 387 acres on the Clayton Property in Jackson, with another 1,415 acres preserved with a conservation easement.

If you require additional information to consider the impacts of the proposed LEMV alternatives or wish to discuss additional mitigation measures for the LEMV program, please contact me by July 13, 2012. We would welcome the opportunity to speak with your staff at a time of your convenience to discuss ongoing and planned actions at the base, and potential cumulative environmental effects. Please contact me at (732) 323-7544 at your earliest covenience to make arrangements. On behalf of the JB MDL, thank you for your participation in the NEPA review process.

DENNIS BLAZAK, GS-13, DAFC
Deputy Asset Manager, 87th Civil Engineer Squadron

From: PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA
Sent: Wednesday, July 18, 2012 2:33 PM
To: 'Korth, Kim'
Cc: Davis, Kelly; Mahon, Donna; BLAZAK, DENNIS GS-13 USAF AMC 87 CES/CEA; TAKACS, PAUL E CIV USAF AMC A7/A7PI
Subject: RE: LEMV review
Signed By: dorothy.peterson.ctr@us.af.mil

Both requests will be implemented. I will add the low pressure tire requirement to Section 2 in the Final LEMV EA.

Thanks again for your quick reply.
Sincerely,
Dorothy

-----Original Message-----
From: Korth, Kim
Sent: Wednesday, July 18, 2012 2:29 PM
To: PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA
Cc: Davis, Kelly; Mahon, Donna
Subject: LEMV review

Hi Dorothy,
Thank you for sending me the project shapefiles. Based on a review of both the shapefiles and the letter you recently submitted clarifying the activities you will undertake in the LEMV project, I have a few comments:

1. To avoid potential adverse impacts to Northern pine snakes, we recommend tree clearing take place between November 1 and March 1
2. To avoid potential adverse impacts to Northern pine snakes, we also recommend using low pressure equipment to avoid crushing unknown hibernaculum.

I believe that your plan to conduct the clearing during the winter will address my first concern and many of the foresters we work with do have low pressure equipment available.

Kim
Kim Korth
Senior Zoologist
Div. of Fish & Wildlife
Endangered & Nongame Species Program
Mail Code 501-03
P.O. Box 420
Trenton, NJ 08625-0420

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Jersey Field Office
Ecological Services
927 North Main Street, Building D
Pleasantville, New Jersey 08232
Tel: 609/646 9310
Fax: 609/646 0352
http://www.fws.gov/northeast/njfieldoffice

In Reply Refer To:
12-CPA-0027a

Dennis Blazak, Deputy Asset Manager
87th Civil Engineer Squadron
Highway 547, Building 5
Lakehurst, New Jersey 08733

JUN 14 2012

Dear Mr. Blazak:

The U.S. Fish and Wildlife Service (Service), New Jersey Field Office has received your May 15, 2012 letter regarding the *Draft Environmental Assessment (Draft EA) for the Long Endurance Multi-Intelligence Vehicle at Joint Base McGuire-Dix-Lakehurst, New Jersey*. Our comments and recommendations have been included in the Draft EA; the Service has no additional comments or recommendations to offer.

Please contact Carlo Popolizio at (609) 383-3938, extension 32, if you require further assistance.

Sincerely,

J. Eric Davis Jr.
Field Supervisor

To: Dennis Blazak

cc: Tamara Francis-Fourkiller

Date: May 15, 2012

Re: Consultation regarding Environmental Planning for the Environmental Assessment (EA) for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV) at the Joint Base McGuire-Dix-Lakehurst

Mr. Dennis Blazak,

This e-mail is in regards to the Consultation regarding Environmental Planning for the Environmental Assessment (EA) for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV) at the Joint Base McGuire-Dix-Lakehurst (JBMDL) letter we received on April 9, 2012.

We are requesting a copy of the Cultural Resource Survey, as well as the Archeology Assessment for the project stated above.

Thank you for your cooperation regarding this matter.

Thank You,
Corey Smith
Archive Assistant
Delaware Nation Cultural Preservation
P.O. Box 825
Anadarko, OK 73005
Phone: (405) 247-2448
Fax: (405) 247-8905

From: PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA

Sent: Monday, June 18, 2012 12:06 PM

To: 'csmith@delawarenation.com'

Cc: 'tfrancis@delawarenation.com'; BLAZAK, DENNIS GS-13 USAF AMC 87

CES/CEA; DURYEE, ADRIENNE J CTR USAF AMC 87 CES/CEAN

Subject: FW: Consultation regarding Environmental Planning for the Environmental Assessment for the Proposed Long Endurance Multi-Intelligence vehicle at the Joint Base McGuire-Dix-Lakehurst

Attachments: Letter to Delaware Nation June 18 2012 re LEMV EA.pdf

Dear Mr. Smith,

Thank you for your inquiry regarding cultural resource surveys as they relate to the proposed LEMV airship program and Environmental Assessment. Mr. Blazak mailed you a letter and some supporting documentation this morning (see cover letter attached). This package will include a hard copy of the Lakehurst Integrated Natural Resource Management Plan that provides a good overview of the Lakehurst cultural resources program. We are in the process of scanning a copy of an earlier document, the 1994 Lakehurst Cultural Resources Survey, that we will send under separate cover (by mail, and if file size permits, electronically).

Very respectfully,
Dorothy Peterson

Environmental Engineer, EHS Technologies
Joint Base McGuire-Dix-Lakehurst
Building 5, CEAN
Lakehurst NJ 08733
732-323-4396
DSN 624-4396

From: PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA

Sent: Wednesday, June 20, 2012 2:13 PM

To: 'csmith@delawarenation.com'

Cc: 'tfrancis@delawarenation.com'

Subject: Lakehurst Cultural Resource Survey

Attachments: lakehurst crs.PDF; lakehurst crs part 2.PDF

Signed By: dorothy.peterson.ctr@us.af.mil

Dear Mr. Smith,

As promised, attached is the Lakehurst Cultural Resources Survey.

If you have any questions, don't hesitate to call either myself or Dennis Blazak.

Sincerely,

Dorothy Peterson, P.E.
Environmental Engineer, EHS Technologies
Joint Base McGuire-Dix-Lakehurst
Building 5, CEAN
Lakehurst NJ 08733
732-323-4396
DSN 624-4396

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR MOBILITY COMMAND
JOINT BASE MCGUIRE-DIX-LAKEHURST

18 June 2012

Dennis Blazak
87th Civil Engineering Squadron
Highway 547/Building 5
Lakehurst, NJ 08733

Corey Smith, Archive Assistant
Delaware Nation
P.O. Box 825
Anadarko Oklahoma 73005

Subject: Consultation regarding the Long Endurance Multi-Intelligence Vehicle (LEMV) Environmental Assessment (EA) at Joint Base McGuire-Dix-Lakehurst (JB MDL), NJ

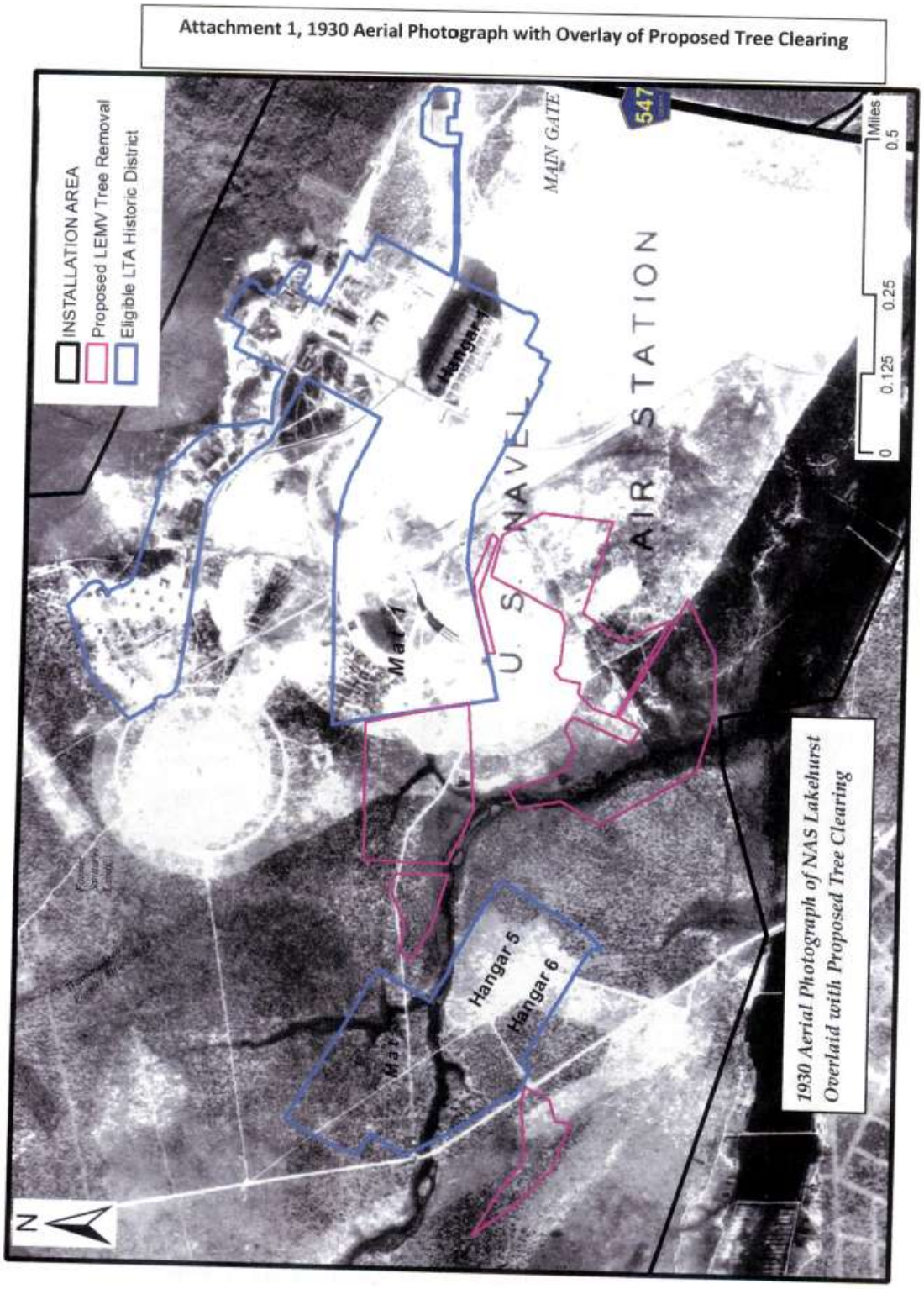
Dear Mr. Smith:

Thank you for your email of May 15, 2012 regarding the subject project. The proposed LEMV airfield under Alternative 2 in the EA would be located in an area previously cleared and disturbed from 1920's through 1950's Naval airship operations (see Attachments 1 through 3). The proposed project would remove trees to provide a safe takeoff and landing zone for the LEMV airship and require some minor utility work, but otherwise would not disturb the subsurface.

Based on past disturbance in the area, and a lack of evidence of cultural artifacts found in the Lakehurst area, we feel the potential for Native American or other cultural resources is low in this area. As such, we will not be performing a site-specific archeological assessment. However, we attached a copy of the Lakehurst Integrated Cultural Resources Management Plan (ICRMP) for your records. As indicated in the draft EA, in the case of inadvertent discovery of prehistoric or historic artifacts or their remnants during tree clearing or site construction activities, all land disturbing activities would cease and the site would be secured. The JB MDL Cultural Resource Manager would then contact the NJ State Historic Preservation Office and your tribe.

If you have any questions on the project or ICRMP, do not hesitate to contact me by phone at (732) 323-7544 or by email at Dennis.Blazak@us.af.mil. Please let me know by July 1, 2012 if you have any concerns about the project.

DENNIS BLAZAK, GS-13, DAFC
Deputy Asset Manager, 87th Civil Engineer Squadron

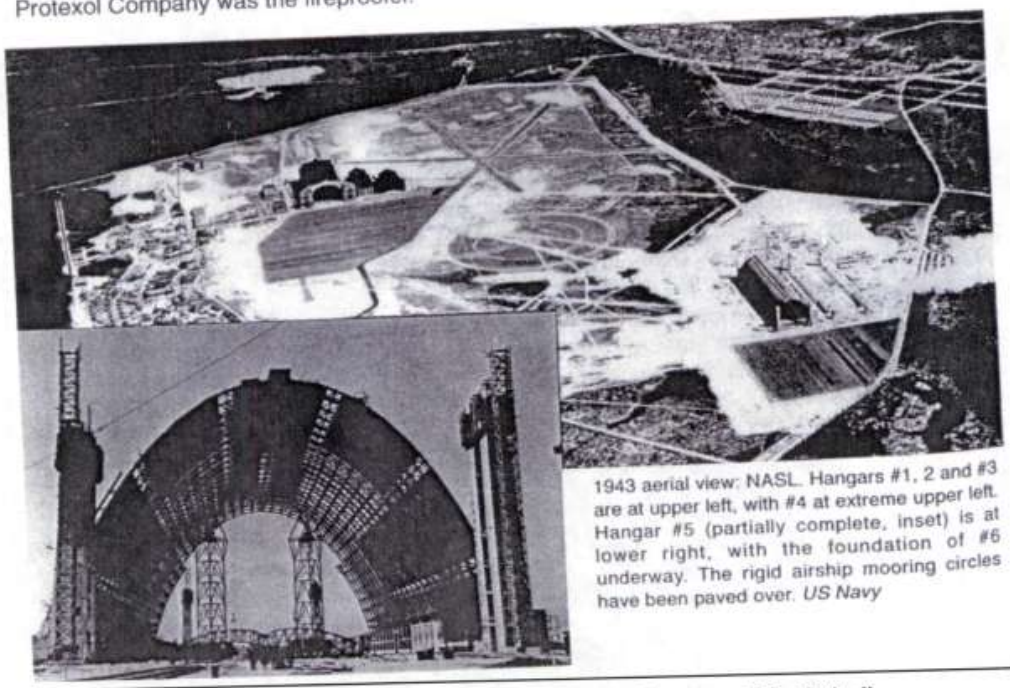

Attachment 1, 1930 Aerial Photograph with Overlay of Proposed Tree Clearing
INSTALLATION AREA
Proposed LEMV Tree Removal
Eligible LTA Historic District
MAIN GATE
547
U.S. NAVEL AIR STATION
Hangar 1
Mar A
Hangar 5
Hangar 6
Miles
0
0.125
0.25
0.5
N
1930 Aerial Photograph of NAS Lakehurst
Overlaid with Proposed Tree Clearing

Attachment 2, 1943 Aerial Photograph

Lakehurst was primarily a training center and no organized patrol squadrons existed until ZP-12 was established on 2 January 1942 with LCDR Raymond F. Tyler commanding. On this same date, Headquarters, Fleet Airship Patrol Group One was also formed with CDR George H. Mills commanding. Hangars No. Five and Six are the World War II design and were authorized 3 July 1942. Construction on Hangar No. Five was completed 1 July 1943, and Hangar No. Six completed on 15 August 1943. The two identical side-by-side hangars are located on the opposite side of the field (southwest) from Hangar No. One.

Dimensions:	Exterior Length (Maximum)	1,086 Feet
	Exterior Width (Maximum)	297 Feet
	Exterior Height (Maximum)	183 Feet
	Interior Length, Floor	1,026 Feet
	Interior Width, Floor	235 Feet
	Interior Height	157 Feet
	Clear Door Height	120 Feet
	Clear door Width	220 Feet
	Hangar Floor Area	241,110 Sq. Feet

Hangars No. Five and Six were erected by joint general contractors Karno-Smith Company of Trenton, New Jersey, and Duffy Construction Company of New York City. The Phoenix Bridge Co. erected the arches. The track-mounted triangular travelers used to erect the arches had been used previously in the construction of the George Washington Bridge over the Hudson River at New York City. Truss members were pre-cut on the west coast by Timber Structures, Inc., shipped in specially heated railroad cars and fire-proofed in transit. Protexol Company was the fireproofer.

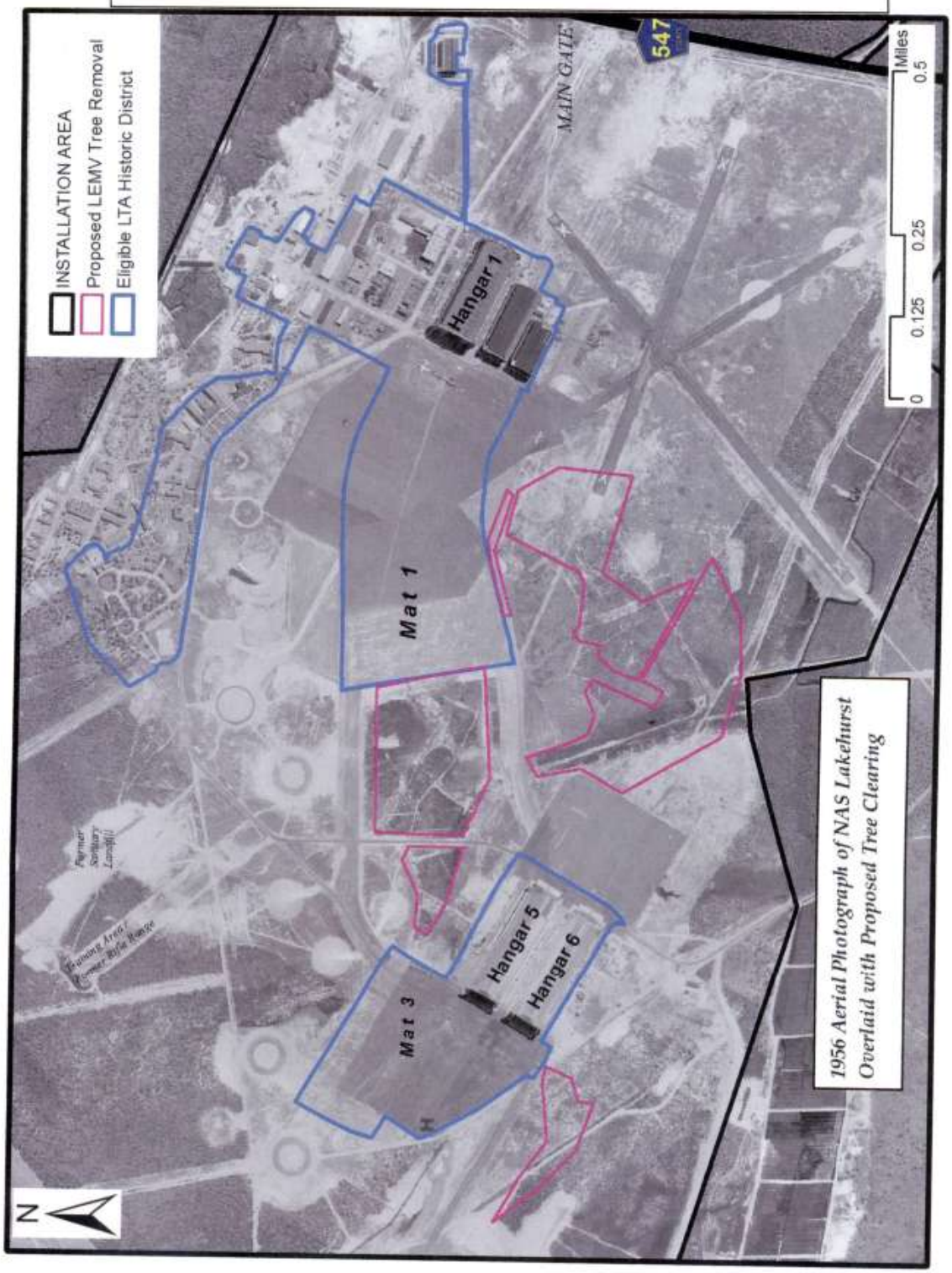


1943 aerial view: NASL. Hangars #1, 2 and #3 are at upper left, with #4 at extreme upper left. Hangar #5 (partially complete, inset) is at lower right, with the foundation of #6 underway. The rigid airship mooring circles have been paved over. *US Navy*

Aerial photograph, 1943, from "American Airship Bases and Facilities"

James R. Shock, 1996.

Attachment 3, 1956 Aerial Photograph with Overlay of Proposed Tree Clearing



From: DURYEE, ADRIENNE J CTR USAF AMC 87 CES/CEAN

Sent: Tuesday, August 14, 2012 3:50 PM

To: PETERSON, DOROTHY S CTR USAF AMC 87 CES/CEA

Subject: Delaware Tribe concerns with LEMV

Hi Dorothy,

I reached Bryce Obermeyer of the Delaware Tribe today by phone. He stated that he did review the LEMV project and had no concerns.

Adrienne Lazazzera, Ph.D.

Staff Archaeologist

Contractor (ASN Corporation)

-----Original Message-----

From: Jason Ross [mailto:JRoss@delawarenation.com]

Sent: Wednesday, November 14, 2012 12:45 PM

To: ARCHER, CHRISTOPHER GS-14 USAF AMC 87 CES/CD

Subject: re: Long Endurance Multi-Intelligence Vehicle (LEMV)

Delaware Nation

Jason Ross

Section 106/Museum Manager

To: Christopher Archer, Deputy Base Civil Engineer

cc:

Date: November 14, 2012

Re: Long Endurance Multi-Intelligence Vehicle (LEMV)

Hello Mr. Archer,

The Delaware Nation recently received your correspondence regarding the National Historic Preservation Act Section 106 Compliance for the Proposed Long Endurance Multi-Intelligence Vehicle (LEMV).

The Cultural Preservation Director, Mrs. Tamara Francis-Fourkiller has reviewed the project information and the Delaware Nation's Area of Interest and has determined that the project is a pass and to please continue with the work as planned. If you have any questions please do not hesitate to contact us at anytime.

Thank you again for taking the time and effort to properly consult with the Delaware Nation.

Best Regards,

Jason Ross
Section 106/Museum Manager
Cultural Preservation Department
The Delaware Nation
P.O. Box 825
Anadarko, OK 73005
PH# 405) 247-2448
FAX# 405) 247-8905
www.delawarenation.com <http://www.delawarenation.com>