
VOLK FIELD HARDWOOD RANGE JOINT LAND USE STUDY

December 2011



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Photos
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Volk Field and Hardwood Range Joint Land Use Study

December, 2011

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- B. Yellow River Focus Area (USFWS)
- C. Volk Field Land Use Analysis (AICUZ)
- D. State Natural Areas
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- F. Readiness and Environmental Protection Initiative (10 USC §2684a)
- G. 2005 Wisconsin Act 26
- H. Eglin AFB – Escribano Point, Shoal River
- I. Recommendations AICUZ/RCUA

Acronyms and Abbreviations

ACMI	Air Combat Maneuvering Instrumentation	LWCF	Land and Water Conservation Fund
128 ACS	128th Air Control Squadron	MIPD	Military Influence Planning District
ACTS	Air Combat Training System	MOA	Military Operations Area
AICUZ	Air Installation Compatible Use Zone	NCWRPC	North Central Wisconsin Regional Planning Commission
ANG	Air National Guard	NEPA	National Environmental Policy Act
ANGB	Air National Guard Base	NNWR	Necedah National Wildlife Refuge
APZ	Accident Potential Zone	RCUA	Range Compatible Use Assessment
ATSO	Ability to Survive and Operate	REPI	Readiness & Environmental Protection Initiative
BASH	Bird/Wildlife Aircraft Strike Hazard	RPA	Remote Piloted Aircraft
BRAC	Base Realignment and Closure	SNA	State Natural Area
CRTC	Combat Readiness Training Center	SRI	Sustainable Range Initiative
CTH	County Trunk Highway	TAC	Technical Advisory Committee
CZ	Clear Zone	US	United States
dB	Decibel	USAF	United States Air Force
DNL	Day-Night Average Sound Level	USC	United States Code
DNR	Dept. of Natural Resources	USFWS	United States Fish and Wildlife Service
DOA	Dept. of Administration	USGS	United States Geological Survey
DOT	Department of Transportation	YRFA	Yellow River Focus Area
EIS	Environmental Impact Statement		
EPA	U.S. Environmental Protection Agency		
FAA	Federal Aviation Administration		
FCC	Federal Communication Commission		
FY	Fiscal Year		
HUD	Department Housing and Urban development		
Hz	Hertz		
INRMP	Integrated Natural Resource Management Plan		
JLUS	Joint Land Use Study		

Executive Summary

A Joint Land Use Study (JLUS) is a collaborative effort between the military, local government, business, property owners, and other stakeholders. Since it was first established as a Military Reservation by the State of Wisconsin in 1888, what is now known as Volk Field has played an important role in state history, the economy of Central Wisconsin, and national security. A grant was approved by the Department of Defense in order to develop a JLUS that would address current and potential future encroachment that may threaten the mission of the Base, and as a way of fostering communication between the military and the community.

The JLUS examines the areas around Volk Field and Hardwood Range, defined as the Military Influence Planning District (MIPD). A Policy Committee, made up of elected officials from participating local governments, is the governing body of this JLUS process, which oversaw the preparation of the study documents, solicited public input, and adopted the recommendations that are the most important products of the process. A Technical Advisory Committee, made up of agency representatives, business interests, property owners and stakeholders provided review and advice on research and composition of the study. Public participation has been and will be encouraged throughout the planning process.

Background

After beginning in the 19th century as a training facility for the Army National Guard, the first hard surface runway was installed in 1935. Designated a Permanent Field Training Site in 1954, it was named in 1957 for 1st Lt. Jerome Volk, the first Wisconsin National Guard pilot killed in the Korean conflict. Hardwood Air-to-Ground Gunnery Range opened in 1955. The Base was designated a Combat Readiness Training Center in 1989. Over two hundred Air National Guard units and civilian organizations a

year train here. In recent years, acting as the transportation depot for Fort McCoy, tens of thousands of troops have been deployed overseas through Volk Field.

The Volk Field Air Installation Compatibility Use Zone Study (AICUZ) and the Hardwood Range Compatible Use Assessment (RCUA) examine the operations of the Base and how it impacts surrounding areas. A number of other plans prepared both by the military and local governments look at current conditions and likely future developments in the areas around the Base. The Comprehensive Conservation Plan & Environmental Assessment prepared by the Necedah National Wildlife Refuge (NNWR) provides an overview of the extensive range of wildlife habitats to the west and north of Hardwood Range. Particular emphasis is put on what is called the Yellow River Focus Area, some of which is immediately adjacent to the Range.

Land Use Assessment

Land use around Volk Field is analyzed in the AICUZ. Although some incompatible uses are identified, no need for remedial action is identified. In the area surrounding Hardwood Range a number of factors affect land use. Cranberry cultivation has grown significantly in recent decades, in spite of a price collapse in the late 1990s, and some increase in the acreage can be anticipated as worldwide demand for the fruit continues a long-term, growth trend. Perhaps the dominant land use in the area is public lands, most notably the NNWR. The unique geography of the Glacial Lake Wisconsin basin offers a range of habitats especially accommodating to migratory birds and other threatened and endangered species. Such areas as the Yellow River bottomlands, Sandhill-Meadow Valley, and a number of State Natural Areas provide habitats rare in southern Wisconsin, and some, such as pine-oak barrens,

are globally rare and support endangered species like the Karner Blue butterfly.

The demographics of the area reflect steady growth, which is likely to continue, if at a slower pace, in the future. In the area surrounding Volk Field population has grown by nearly twenty percent over the last twenty years, and is projected to grow 8.3 percent by 2030. Around Hardwood Range the twenty-year growth was just over 19 percent, and is projected to be almost 25 percent by 2030, however, actual population growth reflected in the 2010 Census is 7.2 percent below what had been projected¹ for 2010. Three-quarters of residents in the area around Hardwood Range live in the three towns adjoining the Wisconsin River, but the area most affected by the operation of the Range are to the north and west of the Range. In this area actual population in 2010 was slightly above (.076%) projections, but is expected to be negative (-1.1%) by 2030. Most relevant to the compatibility in this area, residential density is almost certain to remain below four residents per square mile.

In classifying existing land uses in the area around Volk Field, nearly two-thirds (64.3%) of the land is woodlands and a fifth (21.1%) is in agriculture, while just under sixty percent of land surrounding Hardwood Range is woodlands and about eight percent is cultivated (agriculture and cranberry marshes). Open lands make up 27 percent of land around Hardwood Range, but only four percent around Volk Field. Residential uses occupy about two percent of land around Volk Field, but take up only a tenth (.25%) that amount of space around Hardwood Range. Little change in land use is anticipated in either the Wood County or Juneau County comprehensive plans. Land use controls are minimal in both areas.

¹ These are the same projections that the 2030 population is based on, therefore, the projections are likely to be readjusted in light of the 2010 Census figures.

Technical Information

Operational impacts from Volk Field-Hardwood Range are addressed by a number of tools that are described here. At the federal level there are methods for assessing the effects of operations, such as the AICUZ and RCUA reports, but also programs directed at land acquisition that mitigate these effects such as the Land & Water Conservation Fund. The Readiness and Environmental Protection Initiative (REPI) may be especially well adapted to the situation around Hardwood Range, because of its focus on partnership with conservation-oriented organizations, or state and local governments to meet the dual goal of preserving habitat and natural resources, and protecting the military mission. Although it does not require partnership like the REPI program, the Knowles-Nelson Stewardship Fund has similar conservation goals on the state level.

Compatibility Analysis

The concept of compatibility can have a number of meanings and is subject to different interpretations in different circumstances. In the context of military airports and bombing ranges it can be boiled down to a number of factors that can be addressed individually or in combination. Some, such as light and glare and frequency interference, are minor considerations because of the relatively sparse development around the Base. Public safety from crashes or ordnance release is generally dealt with by restrictions on land uses within narrowly defined geographical areas. Vertical obstruction around Volk Field is governed by fairly straightforward FAA regulations, but the issue is complicated at Hardwood Range due to a lack of regulation on vertical structures between one and two hundred feet above ground level.

The most complex issue is the compatibility of the Range with the large area of wildlife habitat that surrounds it. Especially the NNWR, which exists to protect the habitat of migratory birds,

poses a dilemma since one of the possible threats to Range operations is Bird Aircraft Strike Hazard (BASH). The converse of the BASH threat is the question of the effect of aircraft noise on wildlife. The scientific evidence on the effects of aircraft noise and overflights on wildlife is mixed. The same factors that make Hardwood Range an appropriate location for military training – the lack of significant human settlement – also make it an exceptional habitat for wildlife. In the spirit of the Sikes Act, that required cooperation between the Department of Defense and U.S. Fish & Wildlife Service on the management of natural resources on military land, communication between agencies, and by extension with local communities, is the most effective tool for protecting both wildlife and the military mission, as well as the quality of life for residents.

Recommendations

The previous studies completed in recent years at Volk Field and Hardwood Range (AICUZ & RCUA) provide an empirical basis for policies that can be pursued to strengthen the viability of the military mission and protect the quality of life of surrounding residents. A number of suggested strategies came out of these earlier efforts, and these have been incorporated into the recommendations made here, along with suggestions from ANG and input received from citizens. Although no specific implementation steps were adopted as part of the JLUS process, an organizational framework has been left in place that can be reinvigorated to address encroachment threats as they present themselves.

1 Study Purpose

1.1 Introduction

The roots of Volk Field go back to the late 1800s, when the State of Wisconsin established a Military Reservation, and over the years the installation has gradually increased its profile to where today it represents one of the major training assets of the Air National Guard (ANG) in the Midwest. Hardwood Range has existed for half a century, and in that time it has become intrinsic to the training function of the installation. This study seeks to assess how surrounding land uses impact the military mission of these facilities, and identify any encroachment on that mission that may develop in the future.

Volk Field is near Camp Douglas, Wisconsin, adjacent to Interstate 90/94, while Hardwood Range is some twenty-five miles north, just south of the Juneau-Wood county line. (See Map 1) Together these facilities fulfill an important training function. As one of four Air National Guard Combat Readiness Training Centers, Volk Field is unique because it is not associated with a civilian airport and is available 24 hours a day, seven days a week with no restrictions from commercial air uses.

The Department of Defense (DoD) has two major programs designed to address potential conflicts between military and civilian land uses. In 1983, the Army established the Installation Compatibility Use Zone program to identify noise-affected areas around installations and to develop cooperative approaches for reducing adverse impacts. Adapting a similar model the Air Force created the Air Installation Compatible Use Zone (AICUZ) program. An AICUZ has been done for Volk Field. More recently a Range Compatible Use Assessment (RCUA) was completed for Hardwood Range.

In 1985, the DoD initiated the Joint Land Use Study (JLUS) program to create a parti-

cipatory, community-based framework for land use planning around military installations. A JLUS is implemented, essentially, to protect the residents' quality of life, the property owners' rights, and the mission of the base.

While there are not significant encroachment issues at either Volk Field or Hardwood, this is the right time to consider future challenges, before they arrive. Even seemingly small levels of incompatible development in critical areas today may have tremendous impacts on training operations. A JLUS is a tool to ensure that through continuing communication between the military and the community it will be possible to protect the health and safety of residents, the economic benefits that flow from having the base, and the vital national security function that it fulfills. Conducted in an open and accessible manner, it is hoped that a JLUS will go a long way toward resolving any remaining questions about the future of Volk Field and Hardwood Range, and improve relations with the surrounding communities.

1.2 Study Goals

The Volk Field/Hardwood Range JLUS creates a context for the public, private and military sectors to act together to achieve the following goals:

- increase communication between the military and the community;
- evaluate the potential impact of current and future military operations on surrounding communities; and
- evaluate the potential impact of growth and development on the long-term viability of Volk Field/Hardwood Range's mission.

The ultimate goal is to reduce potential land use conflicts, accommodate growth and sustain the regional economy.

1.3 Chronology of Events

Volk Field's previous AICUZ studies were prepared in 1993 and 2001, with the most recent revision released in May 2008. These studies identified some incompatible uses, but did not anticipate that this constituted an insurmountable threat to the base mission. Because Hardwood Range is so intrinsic to the mission at Volk Field the ANG approved the preparation of the first ANG-RCUA in the country, completed in 2009. Volk Field and Hardwood Range were nominated by the Air Force for a JLUS on May 15, 2008. After considerable discussion among local governments NCWRPC, acting as Study Sponsor, submitted an application on behalf of Juneau and Wood Counties and several local governments, which was approved and funded in September of 2010.

Having secured Resolutions of Participation from twelve local governments², a Policy Committee made up of elected officials, was formed to provide guidance to the process. A Technical Advisory Committee (TAC) made up of agency and business representatives provided peer review of the JLUS report. Both groups held regular meetings during the JLUS process (see below). A public meeting to solicit input from citizens was also held.

Policy Committee:

- Wednesday, October 20, 2010 – Organizational meeting
- Wednesday, July 27, 2011 – Review draft document
- Tuesday, September 20, 2011 – Public, open-house meeting
- Thursday, October 27, 2011 – Adopt Recommendations

Technical Advisory Committee:

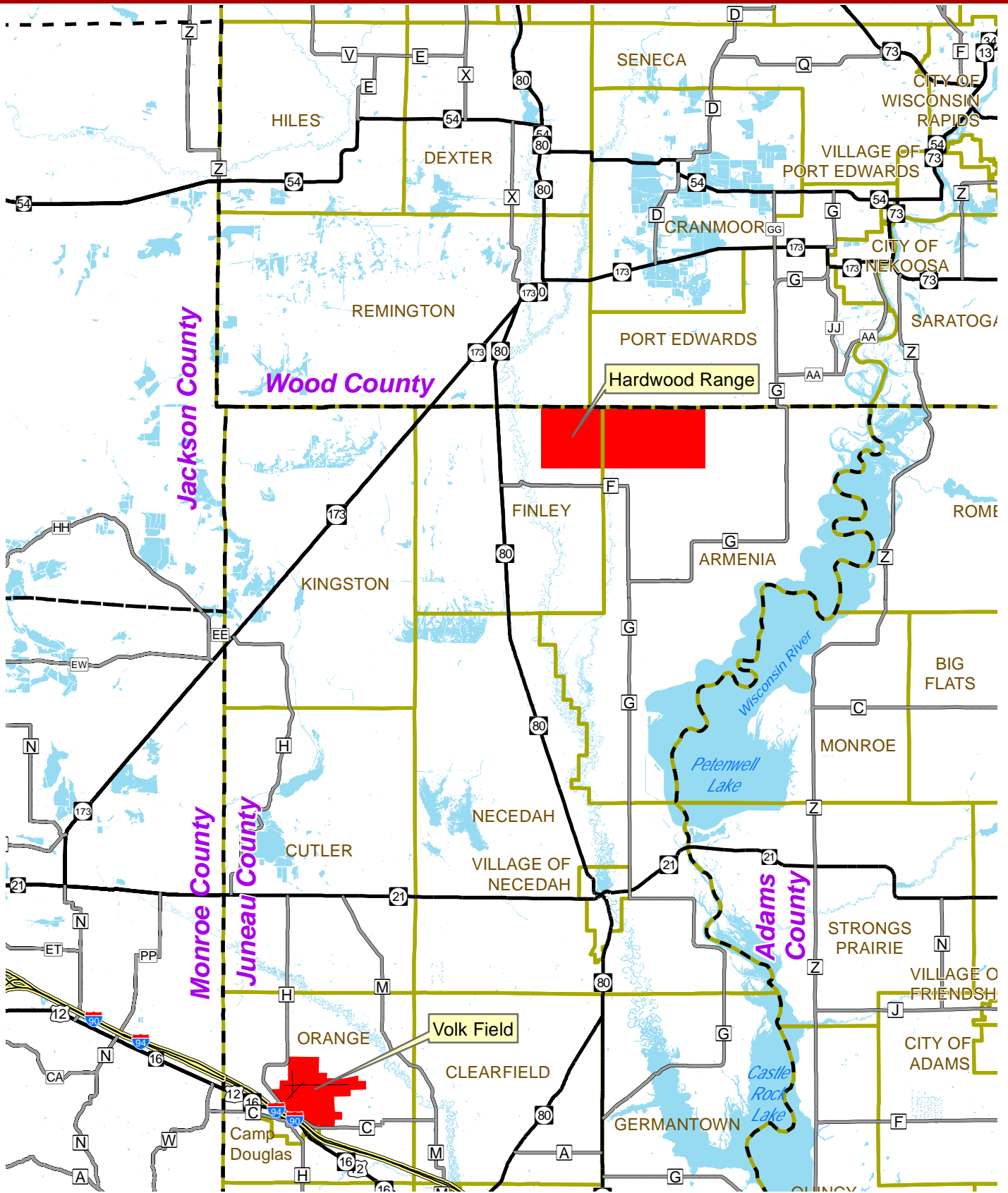
- Monday, November 8, 2010 – Introduction to JLUS process
- Wednesday, March 30, 2011 – Review draft document, Public lands, Land use, Demographics, Technical information, Recommendations
- Wednesday, May 11, 2011 – Compatibility analysis

Records of all meetings are posted on the JLUS website: <http://www.ncwrpc.org/juneau/jlus>.

At its October 27th meeting the Policy Committee adopted a list of Recommendations for actions that should be taken by the military and by local governments. The actions of the Committee and the recommendations it makes are advisory only, and require further action by local government in order to take effect. No specific Implementation measures were adopted, but adoption of the JLUS report was made “reviewable upon request” and the Policy Committee did not disband after its October 27th meeting. No further meetings were scheduled. NCWRPC considers its work completed when the final document is printed and distributed. The Policy Committee and TAC could be reconstituted if an encroachment threat becomes apparent, or as part of a larger implementation program as part of the JLUS process being undertaken at Fort McCoy, but it is up to local units of government and the Volk Field ANGB to implement its recommendations.

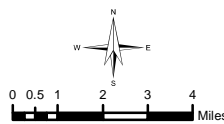
² Juneau and Wood Counties, the Village of Camp Douglas, and the Towns of Armenia, Cranmoor, Cutler, Dexter, Finley, Necedah, Orange, Port Edwards, and Remington.

Volk Field & Hardwood Air-to-Ground Gunnery & Bombing Range Map 1



Legend

- County Border
- US Highways
- State Highways
- County Highways
- Runways
- Areas of Interest
- Water



This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Source: WI DNR, NCWRPC



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2. Organization

2.1 Planning Area

The JLUS focuses on Volk Field and Hardwood Range and the surrounding communities. The JLUS boundaries include a broad area around both installations. Around Volk Field the Military Influence Planning District (MIPD) seeks to include the majority of the flight paths delineated in the AICUZ. Although small sections of the APZ II extend beyond its boundaries, the MIPD has been confined to the Town of Orange for administrative simplicity. At Hardwood Range a more widely drawn MIPD is defined to include the noise contours, as well as operational zones and the flight safety zone the surrounds the Range. (See Map 2) Overall this creates a rectangular box that encompasses 279 square miles, and includes parts of four counties. Because these boundaries extend beyond one county NCWRPC, a regional organization, has become Sponsor of the JLUS process.

2.2 Participating Stakeholders

One of the most critical goals of the JLUS process is to create a community-based plan that builds consensus from varied interests, including residents and property owners, local elected officials, businesses, and military representatives.

Policy Committee: This group was made up of elected officials from participating local governments. The Policy Committee oversaw the process, reviewed drafts and final written reports, approved policy recommendations and implementation measures. The area around Volk Field was represented by the Town of Orange and the Village of Camp Douglas³, and the area surrounding Hardwood Range was represented by the Towns of Armenia, Cutler, Cranmoor, Dexter, Finley, Necedah, Port

Edwards, and Remington⁴. Wood County had a representative on the Policy Committee, and because of the importance of Volk Field to the economy, and to represent the interests of residents not directly adjacent to the base, Juneau County had three representatives on the Policy Committee. The commander of Volk Field and the state representative from District 50 acted as *ex officio* members.

Technical Advisory Committee (TAC): This group was made up of experts, agency representatives and stakeholders who addressed technical issues that affected possible encroachment on Volk Field or Hardwood Range. In addition to staff from NCWRPC, Volk Field, Juneau and Wood Counties, there were representatives from Wisconsin Department of Natural Resources (DNR), Department of Transportation (DOT), U.S. Fish & Wildlife (USFWS), and Corp of Engineers. Cranberry growers, realtors, land owners, environmentalists, recreational users, and citizens were also represented on the Technical Committee.



Policy Committee meeting

2.3 Public Participation Opportunities

A Public Participation Plan was adopted by the Policy Committee on October 20, 2010. (See Attachment A) All meetings of the Policy

³ The Town of Clearfield, just off the eastern end of the runway, chose not to participate.

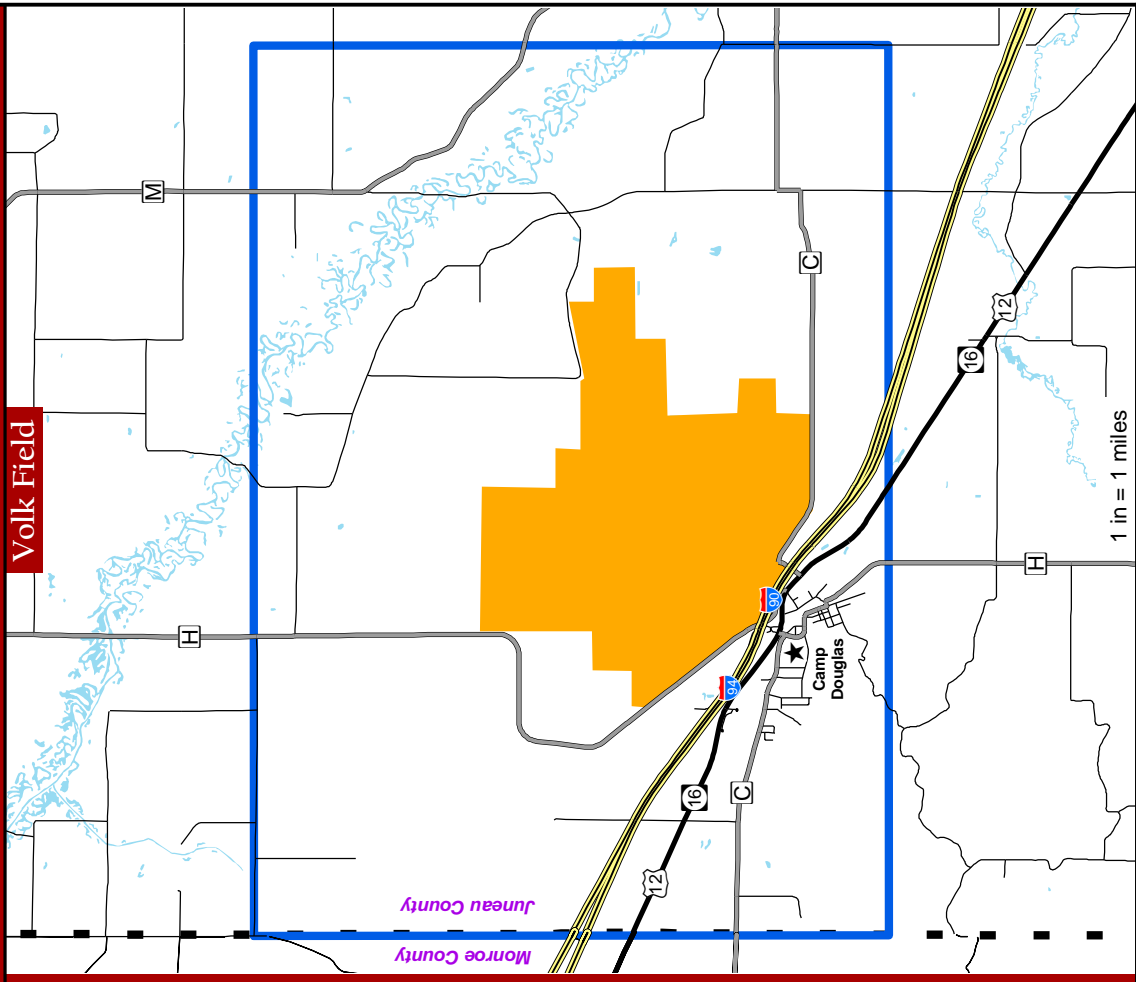
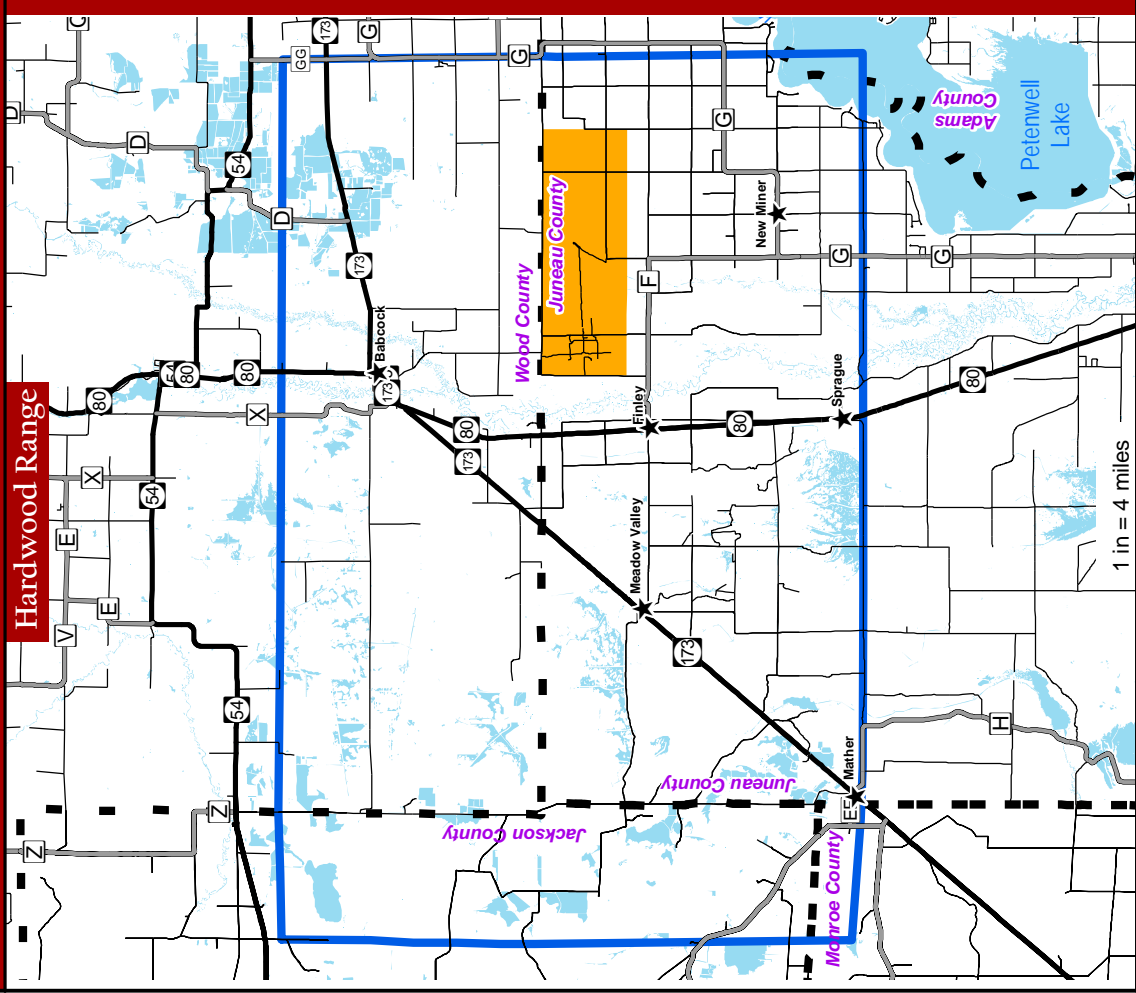
⁴ The Towns of Kingston (Juneau County) and Scott (Monroe County) chose not to participate.

Committee were properly posted and open to the public, as were the TAC meetings. All documents and drafts are available on the JLUS website (www.ncwrpc.org/juneau/jlus). An informational open house was conducted to provide citizens with an opportunity to learn about the JLUS process and provide input. All participating jurisdictions (two counties, nine towns and one village) adopted Resolutions of Support, and an educational outreach effort was undertaken to gain support for the Volk Field/Hardwood Range JLUS effort. A number of public meetings were held before the formal start of the JLUS process, including three general meetings, two meetings with the Juneau County Board, and four at town halls.⁵ All were posted, open to the public and involved considerable dialogue.

⁵ 9-3-08 Necedah Refuge, 3-12-09 & 12-28-09
Necedah Village Hall, 10-9-09 & 12-14-09
Juneau County Courthouse, and 6-8-08 Town of
Orange, 3-8-10 Towns of Finley & Remington,
and 4-28-10 Town of Dexter

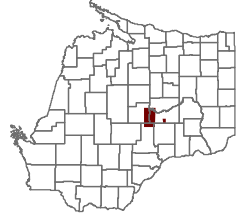
Military Influence Planning Area

Map 2

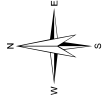


Hardwood Range

Volk Field



- County Border
- State Highways
- County Highways
- Local Roads
- Study Area
- Military Installations
- Populated Place
- Water



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Source: WI DNR, NCWRPC



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3 Background

3.1 Military History

The first military reservation was established in 1888 at a site near the symbolically significant Castle Rock, a butte-like formation that resembles a medieval fortress. A Log Cabin was built to house an officers' club in 1896. This building currently serves as the Wisconsin National Guard Museum. By 1903 the camp had been expanded, with authorization from the state legislature, to 800 acres. It was often visited by officials from around the country, as a model training camp for National Guard units. It was from here that in 1917 the famous 32nd "Red Arrow" Division mustered for World War I. It was named Camp Williams in honor of Lieutenant Colonel Charles Williams, who was Chief Quartermaster until his death in 1926. The first hard surface runway was begun in 1935.

In 1954 the federal government leased the field from the State of Wisconsin for use as a permanent field training site. That same year work began on the air-to-ground gunnery range near Finley, Wisconsin, and the Wisconsin Legislature officially designated the facility a Permanent Field Training Site. Later it was named in memory of 1st Lt. Jerome A. Volk, the first Wisconsin National Guard pilot killed in combat in the Korean conflict.

In 1989 the site was re-designated a Combat Readiness Training Center. The 128th Air Control Squadron, Air Combat Maneuvering Instrumentation system (ACMI), Air Base Operability and Ability to Survive and Operate (ATSO) training missions were added in 1991

3.2 Economic Impact of the Installation

If the employees of the Department of Defense and the Wisconsin Department of Military Affairs are taken together Volk Field/Camp Williams is the second largest employer in Juneau County. There are 450 full-time

employees and 400 part-time personnel that work there. The total impact on the county's economy is estimated to be \$44 million, based on \$25 million annual payroll, \$10 million in direct spending, and \$6 million in secondary impacts generated.⁶

3.3 Current and Future Military Mission

Volk Field is a Combat Readiness Training Center (CRTC). It offers Local Flyer Support, training opportunities for several units in the area (Madison, Milwaukee, Minneapolis, Duluth, Des Moines). Volk Field also serves as Deployed User Support, a training site for over two hundred units per year. Currently there are no aircraft stationed at Volk Field.

Encompassing 2,336 acres with a 9,000 foot-long landing strip Volk Field is a full service military readiness training complex. When considered along with nearby Fort McCoy and Hardwood Range it is one of the most valuable national defense training facilities in the country. It is also base to the 128th Air Control Squadron and Air Traffic Control services that extend ATC support to eight local civilian airports. The Base also manages over 10,000 square miles of Special Use Airspace that stretches from Eau Claire to over Lake Michigan. Volk Field is also site of the Air Combat Maneuvering Instrumentation system computerized three-dimensional tracking and recording system, the most powerful training aid for combat aircrews, and one of only twenty such systems in the world.

Volk Field serves as the Aerial Port of Embarkation/Debarcation for Fort McCoy, which has in recent years seen deployment of tens of thousands of troops to Afghanistan, Iraq and other overseas locations, along with millions of pounds of cargo. Camp Williams (Army National Guard) is home to the U.S. Property & Fiscal Office for the State of

⁶ These figures are estimated fiscal year 2011 economic impact.

Wisconsin. Also located on base are training facilities for police, fire, EMS, and first responders.

Recently a number of Army National Guard Remotely Piloted Aircraft (RPA) have been stationed at Camp Williams. This is likely to be an increasing part of the installation's mission in the future. There will be more RPAs, and as a result there will be a greater need to train more operators in more areas of the country. There is also likely to be more simulator training, but also a greater need for more realistic, efficient live fly training. There will be less ordnance actually dropped as part of that training, but from much greater standoff distance with a need for more realistic target arrays. New aircraft, such as the F-35 and F-22, will come on-line in the future and are expected to deploy to the base for training.

3.4 Past Planning Efforts

Volk Field Air Installation Compatibility Use Zone Study (AICUZ), 2008

This is an update of the AICUZ done in 2001. After laying out the general background, including the methodology employed, the AICUZ recounts the history, mission and economic impact of Volk Field, and a detailed description of aircraft operations. This provides the basis for analysis of compatible land uses in the area surrounding the base. Accident Potential Zones (APZ) are delineated in the areas off the ends of the runway. Noise contours are mapped based on the Day/Night Average Noise Level (DNL) which shows what areas outside the base boundaries are affected by higher levels of sound originating from base operations. Height restrictions, based on "Imaginary Surfaces" surrounding the runway, are also described.

Certain land uses are seen as compatible or incompatible with the APZ and Noise Zones that are described. The level of regulation in the area is examined – neither Juneau County nor

the local municipalities exercises zoning powers – and future land use plans described. Using data developed by NCWRPC as a basis, the AICUZ analyses the compatibility of the current land uses that occupy the defined zones. Specific incompatible land uses are identified. Although there are incompatible uses surrounding the base, especially in the eastern APZ I in the historic settlement of Lone Rock, no direct action is recommended to alter land use in the area. The AICUZ makes a series of recommendations to the Air National Guard and to local governments, most prominently to continue communication in the future and integrate conditions affecting the mission of Volk Field into future planning studies.



Volk Field

Hardwood Range Compatible Use Assessment (RCUA), 2010

This is the first RCUA report prepared for ANG, which speaks to the importance put on Hardwood Range.

The RCUA delineates several zones affected by the operation of Hardwood Range:

- **Operational Zones:** These three zones are defined by:

- 1)** The area directly affected by air-to-ground weapons delivery training, includes the area within the boundary of the Hardwood Range where ordnance has its initial impact and any potential ricochet.

2) A five-mile radius around the center of the impact area representing the potential for weapons impact during the period when they are armed for delivery (OPZ II).

3) The flight tracks commonly used by aircraft during run-ins for flight training and weapons delivery.

- **Flight Safety Zone:** An area roughly equivalent to OPZ II that conforms to the restricted airspace around Hardwood Range.
- **Noise Exposure Areas:** Based on sound contour mapping by five decibel (dB) DNL increments which show the areas affected by airplane noise. Sixty-five dB DNL is seen as the lower limit of noise annoyance and only a few small areas outside the Range boundaries are identified to experience sound above these levels.

Starting with a description of general operations and airspace the RCUA lists the types of aircraft and ordnance that utilize Hardwood Range, then goes on to discuss environmental constraints, and future airspace needs. Using the Operational, Flight Safety, and Noise Zones (described above) as a basis, a more detailed analysis of the impacts of Range operations is employed. Four Range Compatibility Zones are identified, consisting largely of the three Operational Zones plus the areas which experience noise levels above 65 dB DNL that are outside the Range boundaries.

These impacts provide a basis for assessing the compatibility of land uses in the areas within the identified zones. Lists of land uses are given for each zone. Acreages in various land uses are recounted for both Juneau and Wood Counties, and demographic and economic trends examined. Few incompatible land uses were identified in the area surrounding Hardwood Range. The communities of Finley and Babcock are located in OPZ II, as is a private airport. A

community church is located in the Flight Safety Zone.

A number of possible strategies that can be employed to prevent land use incompatibility are suggested, including: various forms of property acquisition (such as easements), public outreach, land use controls, and continued monitoring of local planning efforts. The forms that land use control actions can take are discussed in detail. Finally a series of recommendations are made. These provide a good basis for the recommendations that are made in this study.

Integrated Natural Resource Management Plan (INRMP)

Arising from the requirements of the Sikes Act (see p.36), the INRMP “is a practical guide for the management and stewardship of all natural resources present on Volk Field CRTS and Hardwood Range, while ensuring the successful accomplishment of its mission.” The plan is a product of a joint effort between Volk Field, Hardwood Range, U.S. Fish & Wildlife, and Wisconsin Department of Natural Resources (DNR). Biodiversity is dealt with on four levels: genetic diversity, species diversity, ecosystem diversity, and landscape diversity. These overlapping layers of diversity constitute what is called “a mosaic of habitats that supports the greatest variety of life and its processes,” that is the best way to safeguard environmental integrity that will ensure the sustainability of these lands and protect the long-term viability of military operations.

A number of issues are addressed: habitat fragmentation, invasive species, rare species, unique environments, maintaining natural processes, genetic diversity, ecosystem restoration, and monitoring biodiversity. The existence of Karner Blue butterflies, whooping cranes and other listed species present a particular challenge and the threat of aircraft strikes is real. Recommendations are made and, “In some cases the implementation of some of these recommendations sacrifices the

improvement of the installations' natural resources in deference to the safety and efficiency of the flying mission."

Juneau County Comprehensive Plan

Adopted in 2009, this plan satisfies the requirements of the Wisconsin Comprehensive Planning Law, which states that a comprehensive plan must be adopted by any local government that seeks to regulate land use in certain enumerated ways. Juneau County has no general zoning, but does enforce state-mandated shoreland zoning. The Plan looks at the nine required elements, including natural resources, transportation, housing, and land use. Using population and employment forecasts it projects future demand for developable land.

In a section on Development & Volk Field it is stated, "Maintaining low-intensity land uses around the field will prevent conflicts and allow the base to expand in the future if that becomes necessary." (p. 2-23) In the Transportation chapter it is acknowledged that because of "noise levels and risk of accidents" (p. 6-7) the operation of Volk Field has implications for land use. The Plan lists nine State Natural Areas that exist in the areas surrounding Volk Field and Hardwood Range. The densest concentration of endangered species is around the Necedah Wildlife Refuge.

Existing land use for the county is catalogued and future land use is mapped as a guide to where future development should take place. Most development is anticipated to take place around existing cities and villages, but private agricultural and forest lands are labeled Open Space. Restricted Development is the designation of lands with significant environmental constraints. "All of these areas (Restricted) are anticipated to remain the same with no additional growth or development." (p. 4-11)

Wood County Comprehensive Plan

Like the Juneau County Plan this document satisfies the requirements of the statutes that counties with land use regulations (primarily zoning and land division controls) adopt a comprehensive plan. Also like Juneau County, Wood County has a simple zoning scheme⁷ and the bulk of land use regulation is affected by the cities, villages and 11 towns that have comprehensive zoning and land division ordinances.

The Plan points out that, "Wood County is the top producer of cranberries in the top producing cranberry state in the country." In all there are over 5,500 acres in cranberries in the county and 1.2 million barrels produced annually, the second largest agricultural product. In looking at the natural resources of the county, the Plan lists endangered species present including the red-shouldered hawk, eastern Massasauga rattlesnake and Karner Blue butterfly.

Possible encroachment around Hardwood Range, which borders on Wood County, is singled out as a consideration in dealing with the federal government in the section on Intergovernmental Cooperation. In discussing land use issues associated with continued operations at Hardwood Range, including the need to coordinate aerial spraying of cranberry marshes with training operations, are seen as important. Although there is less and less aerial spraying each year, most is done with rotary aircraft. The JLUS is offered as a way of addressing these questions.

Land & Water Resource Management Plans

The purpose of this plan is to identify and prioritize the major natural resource issues and concerns, develop a coordinated effort to

⁷ The Wood County zoning ordinance was adopted in 1934 and has only two districts, forestry & recreation and general purpose. The ordinance is still in effect, but "has never been updated to modern standards." (p. 8-5)

resolve them, and identify roles of agencies and implement the plan.

Juneau County: This plan was adopted in 2006. Plans are required to be updated every five years, so a revised plan is due in 2012.

Wood County: The current plan was adopted in 2007. The plan will be revised in 2013.

Outdoor Recreation Plans

These plans are required of local governments in order to qualify for funding from a number of sources, most notably the Wisconsin Stewardship program or the federal Land & Water Conservation Fund. This plan identifies recreation needs based on public input, past plans and recreational standards.

Juneau County:

Primarily deals with recreational facilities, mainly in the southern part of the county. Lists recommendations for county forest units, most of which (New Minor North & South, Yellow River, Cutler North & South, Clearfield, and Germantown) are in the northern part of the county and in some proximity to Volk Field or Hardwood Range. No incompatible uses are suggested.

Wood County:

The County has recently updated the Plan. It makes some recommendations involving Lake Dexter and the Dexter County Park. No incompatible uses are suggested.

County Forest Comprehensive Land Use Plans

This is a 15-year plan for forests under the County Forest Law whose primary purpose is to integrate planning for forests with other efforts "to enable and encourage the planned development and management of the County Forests for optimum production of forest products together and recreational opportunities, wildlife, watershed protection, and stabilization of stream flow."

Juneau County:

Although this plan has several years before a required update the County is considering revisions to address the various kinds of forestland under its control. Juneau County Forestry manages 15,000 acres of forestland, of

which 4,000 acres are Community Forests and 2,000 acres are scattered forest blocks. Although these scattered blocks are managed for timber production they are not registered under the state's County Forest Law. Whether it makes sense to register some of these Community Forests or the County's scattered holdings is under study. There is a consensus to retain land near Hardwood Range. The County continues to hold timber rights on the Range itself.

Wood County:

The plan makes reference to permitting military exercises on County forests land. Forest blocking boundaries are also laid out as a way of delineating future expansion of existing County forest blocks. There are also references to Drainage Districts that overlap with County forests.

NNWR Comprehensive Conservation Plan & Environmental Assessment

The Necedah National Wildlife Refuge (NNWR), managed by the U.S. Fish & Wildlife Service, was established in 1939 by an executive order from Franklin Roosevelt. In the early 1930s the U.S. Government acquired 114,964 acres of land in Juneau, Wood, Monroe, and Jackson Counties, using the authority of the National Industrial Recovery Act of 1933 and the Emergency Relief Appropriation Act of 1935. The purpose for these acquisitions was to assist farmers living within the area, and to develop the area for wildlife.

The Yellow River and the Wisconsin River attracted European settlers to the Refuge area around 1850. When they arrived, they began logging, draining, and farming the surrounding land. Fires in peat and logging slash occasionally burned uncontrollably. By the 1930s, the peat was mostly gone and many farmers were looking for land with richer soils and a longer growing season. Many farmsteads were abandoned. Although most agriculture proved to be economically unsuccessful, more than 94 miles of ditches and intermittent streams were left behind.

The Refuge is an important wildlife viewing area and destination for nearly 150,000 visitors annually, which forms part of a sprawling 43,600-acre mix of wetlands, uplands, bottomland forests and grasslands, and boasts more than 230 species of birds and some rare grassland, wetland and forest species, including Karner Blue butterflies, the Massasauga rattlesnake and bald eagles.



The new Visitors Center at NNWR

This plan is directed at laying out a conservation strategy for the Refuge that includes the Yellow River Focus Area (YRFA), a corridor several miles wide that runs from just north of Necedah to just south of Dexterville. The area is described as having extraordinary habitat value, "the Yellow River Area represents one of the few remaining quality bottomland hardwood forest ecosystems in the Midwest." In addition to that, some of the higher sandy ridges in the area, "were once oak and pine savannas, one of North America's most endangered habitats, with only .02 percent of its pre-settlement acreage remaining." These are particularly high quality habitats for the federally endangered Karner Blue butterfly. In fact, "The Refuge is home to the world's largest remaining population of Karner Blue butterflies, providing habitat for 12 population complexes."

A program of land acquisition within the YRFA was recommended in the Refuge Strategic Plan. (See Attachment B) The Fish and Wildlife Service planned to seek lands to acquire from willing sellers near the Yellow River from above the impoundment behind the Necedah dam

north to the Wood County line. The Wisconsin DNR has proposed a similar land acquisition program in their Draft Master Plan for the Sandhill – Meadow Valley Work Unit (May 2011) for an 11,789 acre corridor along the Yellow River from the Wood County line north to State Highway 54. Through a program known as Partners for Wildlife the Fish and Wildlife Service has entered into voluntary Wildlife Management Agreements with private landowners in the YRFA. These agreements offer technical assistance and funding to promote habitat for targeted species on private land.

Acquisition of property rights, either through fee-simple or conservation easement ownership, offered a more permanent form of habitat protection. Several landowners had contacted USFWS with a desire to sell their property for conservation purposes, but which involved impacts of concern to some stakeholders. Diminishing local property tax receipts was seen as the most troubling, although there was a generalized concern about the loss of control over private property, too. Largely as a result of these concerns USFWS has pulled back its emphasis on the YRFA.

The habitat values identified in the YRFA represent an important factor in controlling encroachment around Hardwood Range. There can be some question about the effects of Range operations on habitat values, but generally such habitat preservation is not incompatible with the Range's mission. Although land acquisition within the YRFA as part of a strategy to expand the Refuge is not a priority for USFWS, the analysis of the habitat value of the area is still valid. The potential of partnership for the preservation of natural resources, as envisioned by the REPI program (see p. 29), is strengthened in the Yellow River area by the fact that it is directly adjacent to Hardwood Range. Land that is adjacent to the Yellow River that is managed for conservation purposes would have the effect of buffering military operations and securing compatibility

with surrounding land uses, and could have a salutary effect both on the Range and on the surrounding community. No interest has been expressed by USFWS in pursuing the land acquisition program in the YRFA envisioned in the Strategic Plan as released in 2004. In current economic times with declining Federal budgets, the Fish and Wildlife Service is only interested in examining parcels adjacent to an existing Refuge boundary for fee title acquisition and there is no plan to pursue other easement rights. But to the extent that the goals of that approach overlap with the protection of the military mission that is the focus of this study process, the unique habitat qualities and natural resource assets that are identified provide a useful basis for assessing the relative value of land adjacent to the Range for buffering purposes.

4 Land Use Assessment

4.1 Analysis of Current Land Use

Volk Field and Hardwood Range are located in the Central Sand Plain area of Wisconsin. The dominant feature of this landscape is the vast, remarkably flat, sandy plain that was once the bed of Glacial Lake Wisconsin – the enormous body of water fed primarily by glacial runoff. This lake was 70 to 150 feet deep and covered over 1,800 square miles. Streams and rivers draining from the glacier into the lake carried a load of sand, silt and clay that settled into the lake bottom. The lake is believed to have drained catastrophically when the ice dam along its southern end failed. This flood of water carved out the spectacular geology of the Wisconsin Dells.

Volk Field

Land use in the area surrounding Volk Field is dominated by agriculture and forestry. Over thirty percent of the land in the Town of Orange is in agricultural use, while another 45 percent is woodlands. The Town of Clearfield is dominated by woodlands, including tracts of county forest and several school forests. Residential development is focused on the Village of Camp Douglas and Lone Rock in Orange. Other residential use is spread along local roads.

AICUZ Land Use Analysis

As part of the AICUZ process analysis of compatible land uses in the area around Volk Field was performed. Based on land use coverage developed by NCWRPC, the compatibility of existing uses within the Accident Potential Zones off the ends of the Volk Field runway revealed the existence of some incompatible and some potentially incompatible uses. (See Attachment C)

Within the Clear Zone there are 1.7 acres of residential, generally defined as an

incompatible use.⁸ Nearly 36 acres of residential use exist in APZ I, off both the east and west ends of the runway, and just over five acres of residential in APZ II on the west side. Residential is potentially incompatible in APZ I and APZ II. There are three acres of commercial use in APZ II on the west, also potentially incompatible.

The potentially incompatible uses to the west of the runway constitute two percent of the land in APZ I & II. To the east, virtually all of the residential uses are associated with the historic settlement of Lone Rock. This site has been occupied since the mid-19th century, when Lone Rock was founded by a group of Danish settlers. The two churches in the community were founded in the 1870s, and until World War I services were conducted in Danish. Lone Rock Baptist Church remains, within APZ I. Places of assembly are clearly incompatible with location within an Accident Potential Zone, but Lone Rock, and the church, are on the extreme northern edge of the APZ and thus somewhat less susceptible to accidents.



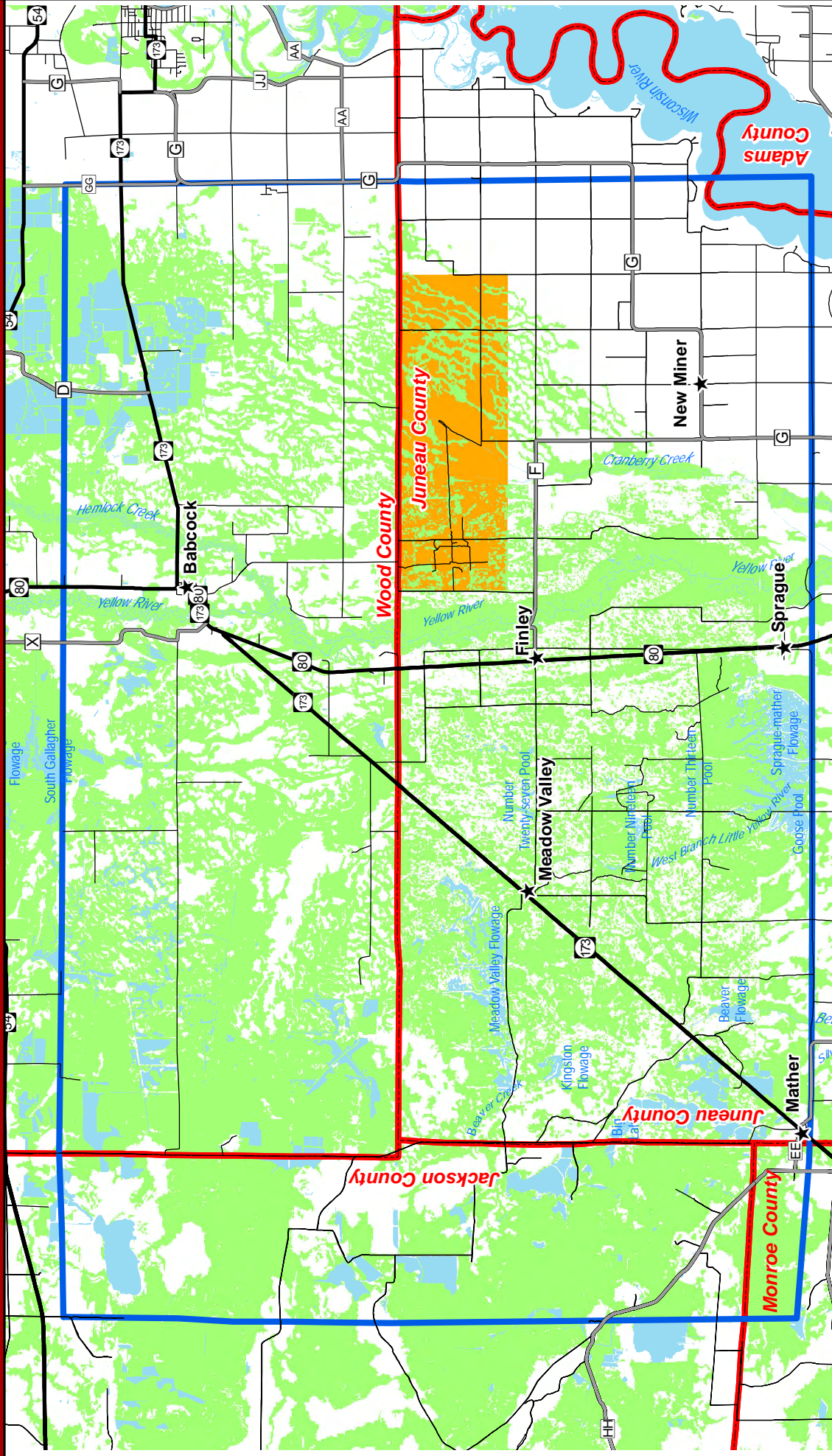
Lemonweir River near Volk Field

The AICUZ states that, "Land use areas to the east of Volk Field ANGB are incompatible with base operations." The implementation steps suggested include actions taken by ANG to lessen the impacts of base operations on the surrounding community and ways that compatibility considerations can be integrated into local regulations. No recommendations are made to take direct action on the identified incompatible uses.

⁸ See map Attachment C p. 5-9

Wetlands

Map 3



- County Boundaries
- Study Area
- State Highways
- County Highways
- Local Roads
- Wetlands
- Hardwood Range
- Populated Place
- Water

Source: WI DNR, NCRWPC
WISCLAND Wetlands

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Hardwood Range

The area around the Range is dominated by wetlands. (See Map 3) Public lands constitute a substantial portion of the area west of the Range, with the Necedah National Wildlife Refuge and Central Wisconsin Conservation Area together occupying over 100,000-acres. There are scattered unincorporated settlements at Finley, New Minor, Mather, Warrens, and Babcock, with widely dispersed individual residences. Woodlands is the overwhelming land cover interspersed with open lands and some farming closer to the Wisconsin River in the Towns of Necedah and Port Edwards, and a rather extensive agricultural areas in the northern section of Armenia. The majority of new development has taken place in the areas close to the Wisconsin River, especially in Armenia and Necedah.

Cranberries

Cranberries have been grown as a crop in Wisconsin since before statehood. Today Wisconsin is the top producing state for cranberries, accounting for more than 55 percent of the nation's production. As a plant native to the state, the cranberry is the most important fruit crop. Although it was traditionally limited to holiday meals, in recent decades, scientific evidence has pointed to a number of positive health effects from cranberries that have significantly increased worldwide demand. In addition a number of new products, such as diet supplements, fruit juice mixes, and applications for the processed product, as in sweetened, dried cranberries (sold by Ocean Spray under the brand name *Craisins*®) have significantly increased demand.

Because of the prevalence of wetlands in the area the center of the industry has been in the Cranmoor area since the 1890s. Conditions in this area are ideal for cranberry growing. In addition to the high water table important to constructing cranberry beds the area has the sandy, acidic soils that the crop requires. Cranberries are a very capital-intensive crop. Cranberry beds cost \$30,000 to \$40,000 per

acre to construct because of the extensive site preparation required. Overlying soils must be removed, dikes built, inlet and outlet bulkheads constructed, beds leveled to assure proper drainage, and sprinkler systems installed. It can take five to seven years before a bed will reach its maximum production, but once in production they can work for a long time. There are some vines that have been producing for over 100 years.



Cranberry bogs in Jackson County

Evidence of the role of cranberries in preventing urinary tract infections and the popularity of cranberry-fruit juice mixes increased demand significantly. This led to a run-up in prices in the mid-1990s, which in turn, led to an increase in production capacity. It was during this period that Wisconsin passed Massachusetts as the top producing state. Between 1991 and 1995 the number of "bearing acres", that is the actual cranberry marshes, increased by 32 percent in the southern growing area (which includes Juneau, Wood, Jackson, and Monroe Counties) and the number of growers increased by 74 percent. (Jesse, 1997) The effect on prices was predictable. After reaching a high of \$65 per barrel⁹ in 1997, the price plummeted to \$21 per barrel in 1999.

Because of the high "sunken costs" in preparing land for cranberry cultivation and the long lead time to produce a crop, and the fact that a cranberry vine will put out berries every year thereafter, means that production is fairly

⁹ Cranberries were traditionally shipped in wooden barrels containing 100 pounds of berries each. This standard of measurement is still used.

inelastic. In 2000 and 2001 USDA invoked a long unused allotment authority to limit the portion of the crop growers could make available to processors to 85 percent. Since then prices have recovered, though not to the high levels of the 1990s. Wisconsin cranberry revenues had returned by 2007 to the previous record levels of 1997.

Including production, processing and supporting businesses, the cranberry industry supports about 7,200 jobs statewide, and had a total economic impact of nearly \$350 million. After expanding aggressively in the 1990s the amount of land in cranberry production has remained relatively stable for the last decade. It has been estimated that an increase of 1,000 acres under cranberry cultivation could create \$15 million in industrial output annually and more than 223 jobs. (Jesse, 2008) The cranberry continues to be the subject of scientific research which shows the health benefits of the fruit, including the statement that it is the best source of the anti-oxidant phenol, five-times the amount in broccoli. (sciencedaily.com, 2008) Experts have estimated that market demand over the next 5-10 years would require an increase of about 1.5 to 2.0 million barrels, which is equivalent to about 5,000 acres of cranberry production. The industry, primarily Ocean Spray, hopes to increase capacity by adding new acres planted, renovating older unproductive plantings or increasing per acre yields. (wiscran.org, 2010)

Manmade cranberry marshes are subject to a number of permitting constraints. If a grower is proposing to impact a wetland they have to obtain a permit under Section 404 of the Clean Water Act from the Army Corp of Engineers and a water quality certification under Section 401 from Wisconsin DNR. The Corp will require avoidance, minimization and compensatory mitigation for unavoidable loss of wetlands. DNR does not require mitigation. Adding cranberry acreage in wetlands, while not an insurmountable task, is a very difficult and rare occurrence.

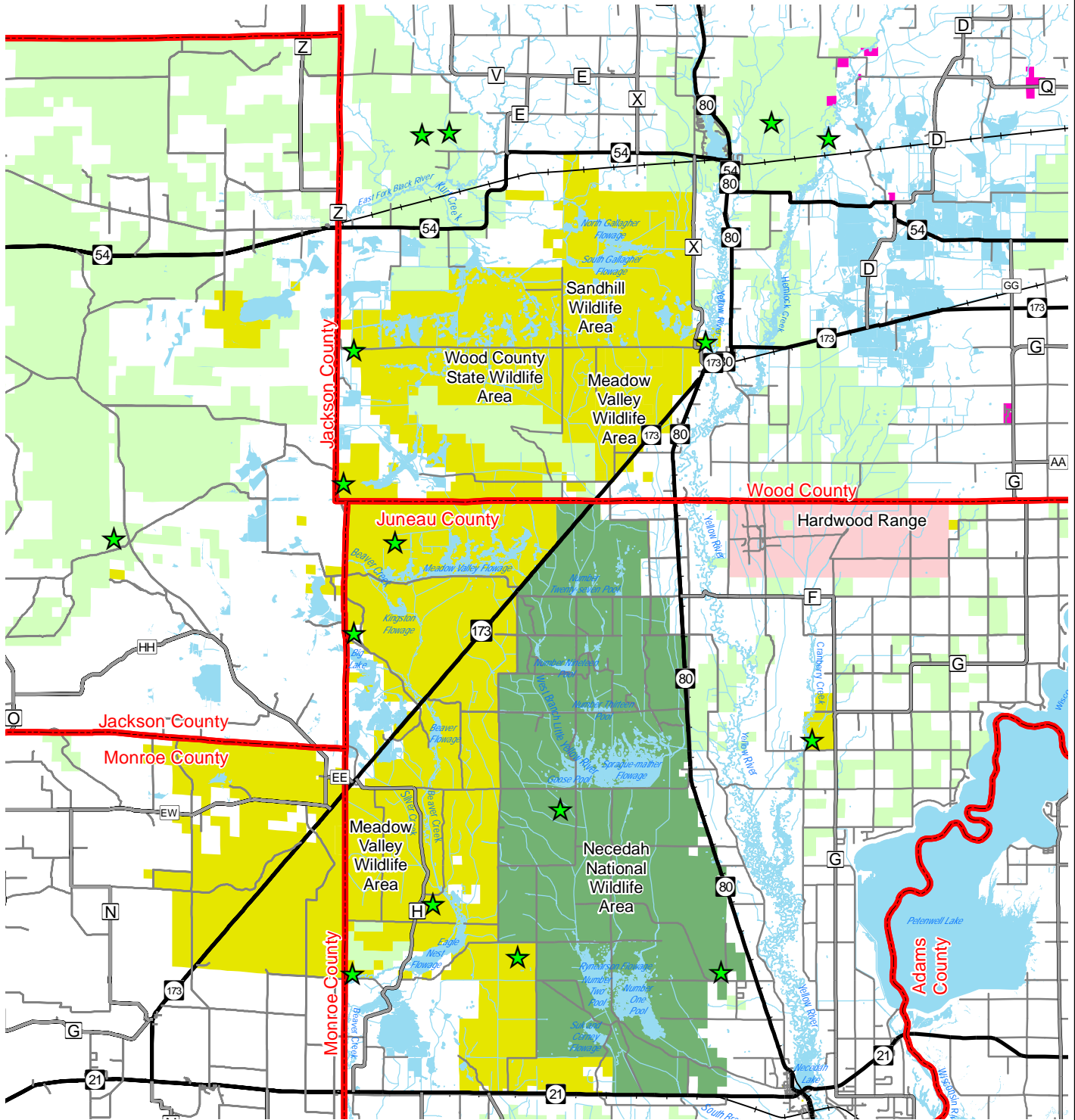
Cranberry marshes in upland (non-wetland) areas generally do not require permits, although they do need a reliable source of the water that is crucial to the growing process. Depending on the time of year, the groundwater table can range from 18 inches below the plant root zone to 30 inches above ground level. Growers use impounded or inventoried surface water for irrigation, frost protection, flooding for pest control, harvest, severe weather and winter. Some growers use groundwater or high capacity wells to supplement their surface water inventories

Cranberry cultivation in the area around Hardwood Range in Wood, Monroe, Jackson and Juneau Counties¹⁰ has increased significantly in the last two decades. After a deep price correction resulting from over-supply in the late 1990s, prices have stabilized and worldwide demand is once again increasing. As noted, there is a projected market for increased output and a rise in the acreage in cranberry production. Although there are regulatory constraints that limit the increase in land under cultivation within the wetlands that surround the Range, these obstacles are not insurmountable and some increase in cranberry marshes as a land use within this area can be expected in the future.

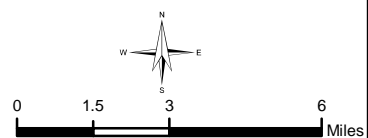
Necedah National Wildlife Refuge

The Necedah National Wildlife Refuge is an important wildlife viewing area and destination for nearly 150,000 visitors annually. The history of the Refuge dates back to the early 1930s when the U.S. Government acquired 114,964 acres of land in Juneau, Wood, Monroe, and Jackson Counties, using the authority of the National Industrial Recovery Act of 1933 and the Emergency Relief Appropriation Act of 1935. The purpose for these acquisitions was to assist farmers living within the area, and to develop the area for wildlife. On March 14,

¹⁰ Approximate acreage in cranberries by county:
Wood 5,500; Monroe 4,300; Jackson 3,300;
Juneau 1,800.



- | | |
|---------------------|-----------------------|
| US Highway | Land Ownership |
| State Highways | Federal Land |
| County Highways | County Land |
| Local Roads | Military Land |
| Railroad | State of Wisconsin |
| State Natural Areas | Tribal Lands |
| | Water |



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1939, Franklin D. Roosevelt signed an executive order authorizing 43,696 acres of this land be set aside as the Necedah Migratory Waterfowl Refuge for the purpose of "a refuge and breeding ground for migratory birds and other wildlife..." (Executive Order 8065) and "...for use as an inviolate sanctuary, or for any other purpose, for migratory birds" (Migratory Bird Conservation Act of 1929). (See Map 4)

One year later, the Necedah Migratory Waterfowl Refuge became formally known as the Necedah National Wildlife Refuge. Around this same time, the management of 55,000 acres of this Federal land was transferred to the State of Wisconsin with the signing of a Cooperative and License Agreement. Today this land is known as Necedah Wildlife Management Area, which includes parts of the Central Wisconsin Conservation Area (parts of Meadow Valley State Wildlife Area, parts of Wood County Wildlife Area, and parts of Sandhill State Wildlife area) and scattered parcels in Jackson County. They are part of the National Wildlife Refuge System, but managed cooperatively with the Wisconsin Department of Natural Resources.

Today the Refuge consists of pine, oak, and aspen forests, grasslands and savannas, and wetlands and open water areas, all of which support a rich diversity of fish and wildlife. The majority (57%) of the area of the Refuge is made up of wetlands. This is the area that supports the migratory waterfowl that are the core of the mission of the Refuge. The Refuge boasts more than 230 species of birds and some rare grassland, wetland and forest species, including the Karner Blue butterfly, the Massasauga rattlesnake and bald eagles. Forests are the second most common habitat available in the Refuge. Currently upland forests comprise 15,047 acres, or 34.4 percent of the total area. Refuge forests provide excellent habitat for many neo-tropical migratory birds such as the scarlet tanager, eastern wood-pewee, and ovenbird.

A smaller part of the Refuge, less than 8 percent, is grasslands and savanna. Some of this land is the remains of inactive farms established early in the last century. Willow-dogwood communities are invading old farm fields and wet meadows in places where disturbance is rare. Refuge grasslands provide important nesting habitat for many migratory birds including ducks, geese, and Sandhill cranes. The savanna areas are also known as barrens, because fire and tree diseases such as oak wilt are more common in the droughty, sandy soils. These disturbances keep the trees small and scattered. Oak savanna has been defined as having at least one tree per acre, but less than 50 percent cover. Refuge savannas/barrens support Massasauga rattlesnakes, phlox moths, Blandings turtles, Karner Blue butterflies, and over 110 species of birds.

USFWS has policies on the review of compatibility of land uses proposed for National Wildlife Refuges. Refuge managers are compelled to exercise sound professional judgment to determine if a use will materially interfere with or detract from the fulfillment of the mission of the refuge. DoD over-flights are specifically exempt from compatibility review, with the suggested solution of, "active communication and cooperation between the refuge manager and the local base commander will be the most effective way to protect refuge resources."

After attempts early in the last century to develop this land for farming the decision by the federal government in the 1930s to assemble over 100,000 acres as an "...inviolable sanctuary...for migratory birds" fundamentally defined the dominant land use in the area for the future. The unique geography as the remnant wetlands of the giant, glacial lake that occupied this area limits the uses that can be pursued here. Wildlife habitat is at a premium in southern Wisconsin and many types, including wetlands and pine-oak savanna are under severe development pressure. The

Necedah National Wildlife Refuge lies at the center of a wetland complex and large-block forest area that offers a range of habitat types for a number of threatened and endangered species.

Sandhill-Meadow Valley Work Unit

The Sandhill-Meadow Valley Work Unit covers nearly 90,000 acres and includes three major units: the Meadow Valley Wildlife Area is a 58,000-acre property; the 9,150-acre Sandhill State Wildlife Area was named for a series of gently rolling sandy ridges crisscrossing the property; and the Wood County Wildlife Area covers 21,000 acres. While the Wisconsin DNR has management responsibility for all three properties, only Sandhill is entirely under DNR ownership. Wood County Wildlife Area is on a long-term lease to Wood County, and Meadow Valley is managed under a cooperative agreement with USFWS, currently in the second of three 15-year leases.

During the late 1800's, settlers logged the large white and red pine that dominated the upland forest. The land clearing was completed and numerous ditches were dug in an attempt to farm the area after the turn of the century. Following the farming era, much of the land became tax delinquent and reverted to County ownership. By the late 1930's, most of the land was deserted and natural vegetation reclaimed the area. Repeated wild fires maintained the fields and openings as grasslands. These areas resembled the vast treeless prairies of the western states, and prairie chickens flourished. During this period (late 1930's and early 1940's), "Wood County" became famous for superb prairie chicken hunting. The Civilian Conservation Corps installed numerous ditch plugs and several areas were forested. Natural forest growth has reclaimed most of the remaining uplands. Many of the camping areas on the Meadow Valley are remnant farm fields.

A short unpredictable growing season, poor soil, and excessive drainage taxes caused most of the farms to be abandoned. The federal

government purchased the tax delinquent land under the Jones-Bankhead Farm Tenant Act. In 1940, the 90-square mile Meadow Valley Wildlife Area (Central Wisconsin Conservation Area) was leased to the state of Wisconsin. Most of the flowage areas on the property were constructed during the 1950's and 60's.

In 1939, the State Conservation Department negotiated a long-term lease with Wood County. The lease transferred management responsibility to the DNR for which the County received an annual lease payment. This lease dedicates the property as an area to be managed for wildlife production and public recreation.

These large acreages of land under public control support some of the largest and least fragmented blocks of forest and wetland habitat remaining in the southern half of the state. The interface between upland forest and wetland communities are of ecological significance for the rich edge habitat created. The sandy, wet soils of this area may limit forest growth potential, yet are suitable for early succession species such as aspen, jack pine and scrub oak. Large blocks of early succession forest are declining statewide and are of ecological importance for the game and non-game species supported.

The Central Sand Plains is one of only three ecological landscapes in the state where extensive and large-scale management for oak and pine-barrens communities and associated species may be possible. The ecological landscape is an important place to manage for them because of the amount of suitable habitat, the extensive public land holdings, and the significant restoration opportunities that are present. While not as extensive, the Sandhill-Meadow Valley Work Unit's pine and oak barrens contribute to the overall protection and restoration efforts of this globally rare community type.

The Central Sand Plains in Wisconsin offer one of the best opportunities in North America for preserving and restoring the rare and globally imperiled pine and oak barrens. One consistent element of all barrens is they depend on fire. In the absence of fire, barrens proceed through successional stages from savanna to closed-canopy forests. Maintenance and expansion of barrens habitats is needed if many of the associated sensitive species are to persist in this landscape. Although the Karner Blue butterfly has been federally endangered since 1992 it is relatively common in Wisconsin, especially where pine-barrens, oak savanna, and mowed corridors support wild lupine, the only known food of Karner Blue larvae. Active restoration efforts within the Sandhill-Meadow Valley Work Unit include Sandhill Barrens, a 411-acre where a captive herd of bison, in addition to mowing, burning and herbicides, help maintain the semi-shade to full sunlight condition preferred by wild lupine. The 800-acre Broadhead Barrens, in the Town of Cutler, is part of this strategy of protection, management and restoration of this globally rare savanna community.

Lands in this region, including the Sandhill-Meadow Valley Work Unit, provide critical habitat for many species for breeding, feeding, migrating and wintering birds. The landscape context of both rare and common communities here offers better opportunities for long-term population and habitat viability than almost any other location in southern Wisconsin. At the same time the Sandhill-Meadow Valley Work Unit offers opportunities for a range of nature-based recreational activities, including hunting, berry picking, hiking, wildlife viewing, and cross-country skiing. The Sandhill Wildlife Area has a unique 9,150-acre fenced-in area that allows for research on controlled animal population, especially white-tail deer. Together the Sandhill-Meadow Valley Work Unit constitutes a multi-faceted resource for educational, recreational and conservation purposes.

Yellow River

The Yellow River is noted in the DNR's Land Legacy report for its conservation significance. Originating in the farmland west of Marshfield, the Yellow River flows southward through the flat sand plains in southwest Wood County and central Juneau county. From the Dexterville Dam to the upper reaches of the flowage at Necedah, the river corridor is characterized as having nearly level topography, sandy soils and relatively low human population density. Stream gradient is very low with abundant main channel meanders, oxbow lakes, cut-offs and running sloughs, and numerous ponds.

Floodplain forest is the predominate natural community, which is also known as bottomland hardwoods. Also present are scattered populations of native conifers in a lowland hardwood ecosystem. This situation is extremely rare in Wisconsin and adds much diversity to the floodplain.

Many rare, uncommon and declining animal species have been documented in the Yellow River Bottoms. In the past twenty years significant populations of the little white tiger beetle, four-toed salamander, Red-shouldered Hawk, Acadian Flycatcher, and Cerulean Warbler have been documented. Among other species of interest are Species of Greatest Conservation Need such as Veery, Wood Thrush, and Golden-winged Warbler that have good populations in the floodplain.

The Yellow River Bottoms represents a rich complex of natural features within the Central Sand Plains Ecological Landscape. Documented occurrences of high quality natural communities harboring many rare and declining species inhabit the site. Public ownership in this ecological landscape only protects a small portion of this unique resource.

The Yellow River Floodplain Forest SNA is situated along the meandering Yellow River within the Sandhill Wildlife Area. This mature, intact floodplain forest is dominated by silver

maple with river birch, basswood, and red oak. The canopy is composed of large trees with a good mix of size and age classes. Protection of intact stands of bottomland forest is a high priority along this river corridor, and opportunities are increasingly scarce on this landscape.

State Natural Areas

State Natural Areas (SNA) protect outstanding examples of native natural communities, significant geological formations, and archaeological sites. They harbor natural features essentially unaltered by human-caused disturbances or that have substantially recovered from disturbance over time. SNAs also provide the last refuges in Wisconsin for rare plants and animals. In fact, more than 90% of the plants and 75% of the animals on Wisconsin's list of endangered and threatened species are protected on SNAs.

The SNA system represents the wealth and variety of Wisconsin's native landscape. They contain outstanding examples of native biotic communities and are often the last refuge in the state for rare and endangered plant and animal species. The SNA system represents the wealth and variety of Wisconsin's native landscape. The concentration of State Natural Areas around Hardwood Range is an indication of the unique quality of the natural environment in that area. (See Attachment D)

The State Board for the Preservation of Scientific Areas was created in 1951 as the first state-sponsored natural area protection program in the nation. That first board evolved into today's State Natural Area Program. By 2002, its 50th Anniversary year, the SNA Program had grown to nearly 400 sites encompassing more than 150,000 acres of land and water. SNAs are found in 70 of Wisconsin's 72 counties and range in size from less than one acre to more than 7,700 acres.

Protected natural communities and their thousands of plant and animal species are

irreplaceable, genetic reservoirs of potential benefit to humans, and are important in their own right. SNAs are vital to scientific research because they provide some of the best examples of natural processes acting over time with minimal human interference. They are valuable benchmarks against which we can judge the impact of our society on Wisconsin's natural landscape.

County Forests

Both Wood and Juneau County have county forest holdings in the area around Hardwood Range. Wood County manages 37,606 acres of county forest, the 19th largest in the state, including three units (Dexter, Port Edwards and South Bluff Blocks) that are in proximity to the Hardwood Range. Juneau County forests cover 15,186 acres, including the Cutler South Block, located in the Yellow River Focus Area just south of the Range. Generally, county forest tracts are smaller and more widely distributed in Juneau County. There are also 7,389 acres of community forests, mostly school forests. Jackson County manages 121,067 acres, the 7th largest county forest in the state.

Private Landing Strips

There are a number of other landing strips in the area of Hardwood Range. Necedah Airport (DAF) has two 2,700-foot runways, and is located one mile northwest of the Village of Necedah. Classified as a Small General Aviation airport, it primarily supports single-engine, general aviation aircraft, but may also accommodate small twin-engine, general aviation aircraft and occasional business aircraft activity.

This Basic Utility-A airport is designed to accommodate aircraft of less than 6,000 pounds gross weight, with approach speeds below 91 knots and wingspans of less than 49 feet. Such aircraft are typically single-engine piston, or ultralights.

There are seven other landing strips in proximity to Hardwood Range. Potter Landing

Strip in Juneau County, and six in Wood County: Gottschalk Field, Speedwing Field, Cranmoor Airstrip, Whittlesey Cranberry Co. Airport, Brazeau Landing Strip, and Bennet Landing Strip. All of these are involved in agriculture and are bases for crop spraying operations.

4.2 Regional Demographics and Growth Patterns

Population growth in the areas around Volk Field and Hardwood Range has been uneven. The area surrounding Volk Field is primarily agricultural and woodlands. After losing population during the 1980s there has been a partial rebound, especially in the Town of Clearfield, that is expected to continue over the coming two decades.

Volk Field

The Wisconsin Department of Administration (DOA) has prepared population projections based on the 2000 Census. Table 1 shows past Census figures, including the 2010 population, and projections of future population. Also shown is an extension of the 20-year growth trend¹¹ carried to 2030 for purposes of comparison to DOA 2030 projections, as a means of assessing the accuracy of the projections. Around Volk Field, although the 20-year trend would argue for a higher growth rate than what is projected (19% versus 8.3%), growth in Clearfield was 11.6 percent below projections, but Camp Douglas was 9.6 percent above projections. It seems that overall growth is likely to be close to what DOA has projected.

Hardwood Range

In the area around Hardwood Range growth was projected at 24.7 percent by 2030, but if the rate of the past 20-years is continued it would be 19.2 percent. Growth is concentrated in the areas near Lake Petenwell and the Wisconsin River. Population in the Town of Necedah was projected by DOA to grow by 51.6 percent between 2000 and 2030 and by 48.9 percent in Armenia. In the 2010 Census count Armenia was 17 percent below DOA projected population (and below the 2000 count), and Necedah was nine percent short of projections. Both Dexter and Remington lost population between 2000 and 2010 (they were 13% and 10%, respectively, below projections). Four towns, three with very small populations (Cutler, Finley, Kingston, and Scott), not only gained, but were ahead of projections.

Lake Petenwell is the second largest lake in Wisconsin and Lake Castle Rock, which abuts part of Necedah, is the third largest. Over the last four decades there has been substantial growth in the areas along the shores of both lakes. The rate of growth seems to have slowed in the areas near to the River, while it has picked up slightly in the areas away from the River. Although the growth of the 1990s (19.4% in Armenia and 34.2% in Necedah) will probably not return in light of recent trends in the real estate industry, the attractiveness of lakeshore property will come back to some degree when demand returns.

Table 1:	1980	1990	2000	2010	2010 proj.	2030 proj.	2030 trend
Camp Douglas	589	512	592	601	548	498	705
Clearfield	538	502	737	728	824	1,011	1,055
Orange	607	581	549	570	563	548	559
Total	1,734	1,596	1,878	1,899	1,935	2,057	2,260

Source: U.S. Census, DOA, NCWRPC

¹¹ The 20-year trend is based on U.S. Census figures for 1990-2010. This growth rate is then applied to 2010 population numbers and extended through 2030.

Table 2:	1980	1990	2000	2010	2010 proj.	2030 proj.	2030 trend
Armenia	545	592	707	699	843	1,053	825
Cranmoor	234	185	175	168	166	144	153
Cutler	369	314	282	326	294	276	338
Dexter	429	354	379	359	413	447	364
Finley	72	66	84	97	92	106	142
Kingston	64	57	58	91	49	42	145
Necedah	1,394	1,606	2,156	2,327	2,564	3,270	3,371
Port Edwards	1,387	1,351	1,446	1,427	1,516	1,608	1,507
Remington	299	304	305	268	298	283	236
Scott	117	120	117	135	121	130	151
Total	4,910	4,949	5,709	5,897	6,356	7,359	7,232

Source: U.S. Census, DOA, NCWRPC

In order to more accurately reflect the population dynamic in the areas most affected by Range operations, the three towns along the Wisconsin River (Armenia, Necedah and Port Edwards¹²) have been excluded from what is described as Hardwood2 in Table 3, below.

Table 3	1980	1990	2000	2010	2030	Density 2010	Density 2030
Volk	1,734	1,595	1,878	1,899	2,057	26.43/sq. mi.	28.63/sq. mi.
Hardwood1	4,910	4,949	6,209	5,897	7,359	11.75/sq. mi.	14.67/sq. mi.
Hardwood2	1,584	1,400	1,400	1,444	1,428	3.75/sq. mi.	3.71/sq. mi.

Source: U.S. Census, DOA, NCWRPC

When the three riverfront towns are removed it changes the complexion of the demographic profile for the area. Instead of a projected growth rate over eighteen percent (2000-2030) the growth rate would be two percent. What is most important in terms of the compatibility of land use with continuing operation of the Hardwood Range is how it affects the density of residential development. Even if the population exceeded 1,540 (8% above what is projected) that would still only be four persons per square mile.

4.3 Existing and Future Land Use

Existing land use creates a context for policy. In order to know what to do in the future about land use issues it is important to understand how the land is being used today. Generally, land use is understood in terms of a defined range of activities – residential, commercial, agriculture, forestry – that are carried on at a particular location.

Volk Field

Looking at the land use in the Military Influence Planning District (MIPD, see: Chapter 2, p. 1) provides a view of conditions around Volk Field. Roughly half of the land is in woodlands and another quarter is in agricultural use. Together these two uses account for 75 percent of the land in the MIPD. Residential,

¹² The Town of Port Edwards doesn't adjoin Lake Petenwell, so there is not the same level of recreational development, but the majority of the population is located in the eastern portions of the town adjoining the City of Nekoosa and the Village of Port Edwards, both located along the Wisconsin River.

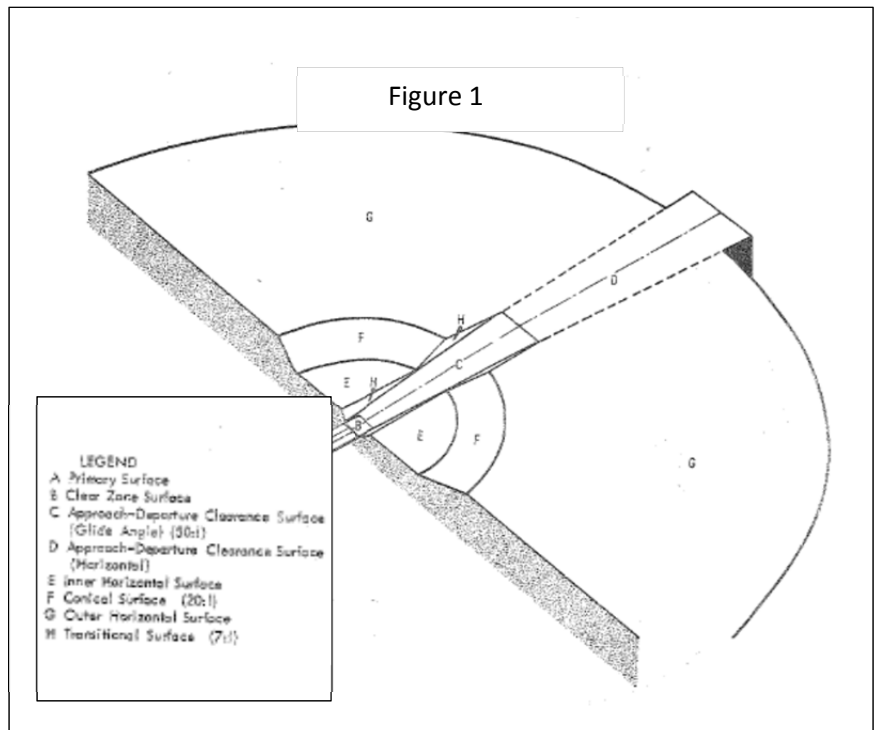
industrial and commercial uses amount to less than four percent of the land. Over a fifth (22.6%) of the area of the MIPD is wetlands.

Excluding Volk Field property from the MIPD leaves 29.5 percent of land in agriculture and 53.1 percent in woodlands, with 8.6 percent open lands. Looking at the land use for all of the Towns of Orange and Clearfield¹³ land in agriculture (21.1%) and woodlands (64.3%) make up over 85 percent of the total. Woodlands and agriculture are generally seen as compatible uses, so this means that the overwhelming majority of the land around Volk Field represents no threat of encroachment on the operations of the installation.

Agriculture	4,154	25.3%
Woodlands	8,061	49.1%
Open Lands	2,466	15%
Outdoor Recr.	51	0.3%
Cranberry Bog	47	0.2%
Residential	501	3%
Transportation	473	2.9%
Governmental	296	1.8%
Water	203	1.2%
Industrial	19	0.1%
Commercial	142	0.8%
Total	16,413	100%

Source: NCWRPC

Even though the Village of Camp Douglas is included within the MIPD the area is primarily rural in character. This is not to say that there are no issues in the area. As discussed in the AICUZ (See Attachment B, see also discussion p. 13) there are instances of incompatible land uses within the operational zones around Volk Field. The Air National Guard owns a considerable amount of land within the Clear Zones at either end of the runway, but the settlement of Lone Rock, that predates the runway by nearly a century, is located within APZ I. The existence of a church within this zone clearly represents an incompatible use. Sunday operations at Volk Field are relatively rare so there is generally no conflict.



There is another level of regulation that applies to Volk Field, and other military airports. A three mile radius around the airstrip

¹³ Based on land use figures from the Town Comprehensive Plans, which utilize different methodologies.

restricted in terms of obstructions constructed in the air space. The control is affected through a series of imaginary surfaces. (See Figure 1) This is a land use control, in that the obstructions originate at ground level.

As noted, there are no zoning regulations in Orange or Clearfield at this time. Although there are incompatible uses identified in the AICUZ no action is recommended. With growth expected to be moderate the threat of future encroachment is limited, but there are some areas that should be monitored. Attention should be paid to further development around the historic settlement of Lone Rock and in the area of Clearfield around the intersection of County Road M and Fisk Road.

Hardwood Range

The bulk of development around Hardwood Range is near the Wisconsin River, to the east and south of the Range. However, as described in the RCUA, most of the impacts of Range operation are to the north and west. The area defined as the MIPD is designed to reflect the area most affected by the activities associated with the Range. In order to get a clear picture of how land use affects Range operations land use analysis will be limited to this area. (See Map 5)

Table 5: Hardwood		
Agriculture	6,452.6	3.61%
Woodlands	106,509.1	59.65%
Open Lands	48,415.3	27.12%
Residential	444.68	0.25%
Cranberries	4,273.79	4.39%
Commercial	186.12	0.1%
Total	178,548.41	100%

Source: NCWRPC

The dominant fact about land in the MIPD is the more than 90,000 acres of wetlands, half of the total land area. All other land uses in the area follow from this fact. The overwhelming predominance of woodlands (60%) is an indication of the amount of wetlands, as most of those wetlands are forested. Much of the

remaining wetlands are shown as open lands (27 %). The small amount of agriculture (3.6%) is concentrated in Armenia, Necedah, and in higher sections of Finley where crop cultivation is possible. Cranberry cultivation (4.4%) is the most substantial man-made land use. Residential development is extremely sparse (0.25%), and commercial (0.1%) is minimal

The constraints imposed on development by the amount of wetlands in the MIPD will necessarily shape land use in the area well into the future. While the area has many physical attributes that make it an attractive place to live, the factors that limited the success of agriculture in the last century, and led the federal government to assemble over 100,000 acres that became the Necedah Refuge and other wildlife preserves, will limit development into the future. Population growth is running ahead of projections in most of the towns, but it is almost inconceivable that high, or even medium, density residential development will ever take place within the MIPD.

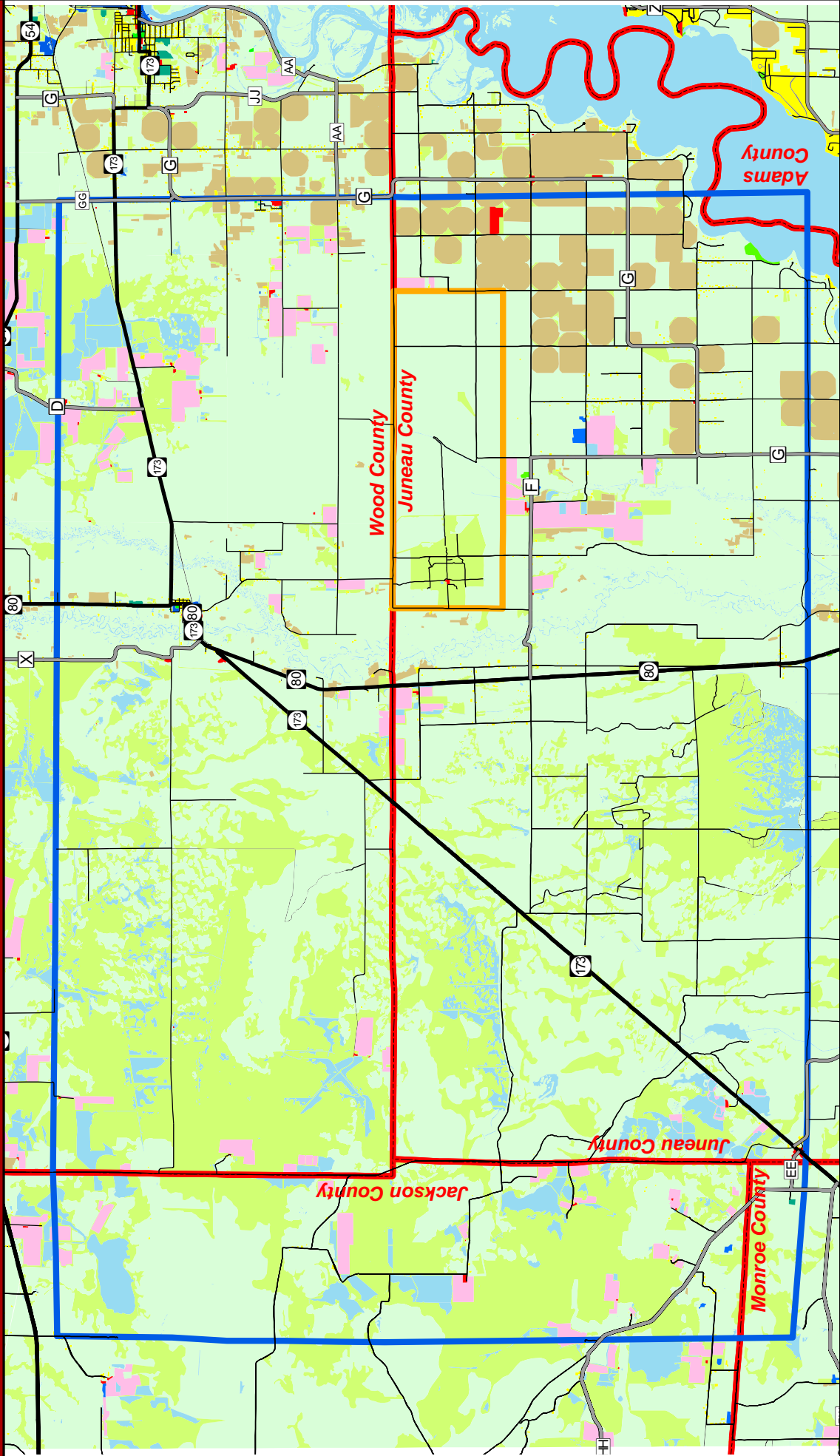
Future Land Use

Both the Juneau and Wood County comprehensive plans contain maps that attempt to lay out a vision for future land use within the counties. A fairly narrow range of uses are employed in these plans. At the scale at which they are presented no high level of detail is shown in either county.

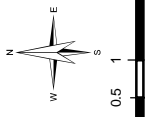
In Juneau County the Future Land Use map shows a residential pattern not significantly different from what currently exists, with the bulk of residential development concentrated around incorporated areas, and near the lakefront in Armenia and Necedah. Much of the northwestern section of the county is shown as Refuge, with much of the remaining land classified as Restricted Development Based on Natural Features (largely wetlands and floodplains, and several large-block forest areas) and Open Space. As the County Plan explains, "While those lands identified as 'Restricted

Existing Land Use - Hardwood Range

Map 5



- US Highways
- State Highways
- County Highways
- Local Roads
- Study Area
- Hardwood Range
- County Boundaries
- Agriculture
- Commercial
- Cranberry Bog
- Governmental
- Industrial
- Mobile Home Park
- Open Lands
- Outdoor Recreation
- Residential
- Transportation
- Water
- Woodlands



Source: WDNR, NCWRPC

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This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Development' are constrained by overriding environmental factors, the 'Open Space' areas are most susceptible to growth. Although these rural areas will not see the same density levels as urbanized areas."

Wood County takes a similar approach, although it more directly defers to Towns that have adopted their own comprehensive plans, which are left blank on the Future Land Use map. Classifications are limited to Wetlands, Floodplains, County and State Owned Land, and Private Rural Development (PRD). Similar to the Open Space classification in Juneau County the Plan states, "Most of the PRD areas will remain in agricultural or some type of open resource areas."

What these two plans have in common is that, except where limited by environmental constraint, development in rural areas will continue at the pace and in the pattern that has been the case in the past. In the experience of preparing Town plans in the area, NCWRPC has found that generally residents do not envision, nor do they want, any significant change in land use or the level of development, especially in the area around Hardwood Range. This preference for low levels of development as well as the prevalence of environmentally constrained or public lands, even around Volk Field, argues for Future Land Use more similar to the way the land is used today.

4.4 Current Land Use Regulations

Generally the level of land use regulation is low in both Juneau and Wood Counties. Wood County has a minimal zoning ordinance, but relies on the Towns that have comprehensive zoning to regulate land use within their boundaries. Wood County does regulate land division. Juneau County has no County comprehensive zoning – one of only two counties in the state without zoning – and very minimal land division regulation.

Because of the prevalence of wetlands in the areas around Hardwood Range there is a level of regulation based on shoreland zoning and wetland control enforced by DNR and the Army Corp of Engineers. Because of the lack of County regulations whatever land use controls are put in place would be dependent on the Towns for enforcement. Especially in the areas north and west of the Range that are most affected by military operations, the sparse population and meager tax base leave local governments with few resources with which to enforce regulations.

Local Government Tools

Zoning

Zoning authority is minimal within the study area. Juneau County has no comprehensive zoning, and Wood County has only a very basic ordinance, first adopted in 1934 and still in effect. The Wood County ordinance specifies only two districts, an Unrestricted District and a Forestry & Recreation District, where "family dwellings" are prohibited. Virtually all of the identified Forestry & Recreation Districts are in Port Edwards, Cranmoor, Dexter, and Remington, in the area around Hardwood Range.

Only Port Edwards and Dexter in Wood County, and Clearfield and Armenia in Juneau County have Town zoning ordinances among the Towns that are examined here. The area within APZ II in Clearfield is zoned Exclusive Agriculture which carries a 35-acre minimum lot size.

Shoreland Zoning

Both Juneau and Wood County enforce state-mandated shoreland zoning in areas surrounding water bodies (300 feet from streams and 1,000 feet of lakes & ponds). These ordinances contain setback and minimum lot size requirements, as well as vegetative buffers and impervious surface controls intended to limit runoff into surface waters. Although the state mandates that these controls be in place,

each county adopts its own ordinance, which can be more restrictive than the state standards.

Land Division

Juneau County administers a sanitary and sewage disposal ordinance and a driveway ordinance, but has no formal land division ordinance. Wood County has a Land Division ordinance that has effect in unincorporated areas of the county. The Town of Armenia in Juneau County has a Town Land Division ordinance.

5 Technical Information

5.1 Operational Impacts

The Volk Field/Hardwood Range complex generates operational impacts and issues that are typical to Air Force/ANG installations around the country. The goal of compatibility analysis is to protect aircraft operational capability at installations and to assist local government officials in protecting and promoting public health, safety, and quality of life.

Noise

The most noticeable impact of operations at Volk Field/Hardwood Range is the noise created by aircraft carrying out training, crucial to the installations mission. Noise is generally described as unwanted sound. Sound is measured based on two characteristics, amplitude and frequency. Amplitude is generally thought of as the loudness of a sound, and is measured in decibels (dB). Frequency more commonly described as pitch, which can affect how sound is perceived by the listener, is measured as Hertz (Hz). Generally decibel levels are adjusted (A-weighted) to reflect the frequencies to which human hearing is most sensitive. Because the annoyance from noise varies based on time of day, the day-night average sound level (DNL) is generally used to describe noise levels.

Accident Potential

Areas around airports are exposed to the possibility of aircraft accidents even with well-maintained aircraft and highly trained aircrews. The risk of people on the ground being injured or killed by aircraft accidents is remote. However, an aircraft accident is a high-consequence event and, when a crash does occur, the results can be catastrophic. Designation of safety zones around an airfield and restriction of incompatible land uses can reduce the public's exposure to safety hazards.

Ordnance

No live ordnance, high explosives or white phosphorus are authorized at Hardwood Range, however, a number of non-explosive forms of ordnance are used. The Range itself is designed to contain the direct impact, including ricochets, of the ordnance dropped there. A five-mile radius around the impact zone represents the area in which the pilot engages the master arming switch for the initial run-in, discharges a specific type of gravity fall or forward firing ordnance, and then resets the arming mechanism back to "Safe." During the short time it takes the pilot to switch from an armed to an unarmed status (weapon's release would require engagement of a two-step process to arm the weapon again), there is a greater risk for an unintended weapon drop due to human error or aircraft malfunction.

Height Restrictions

Restrictions exist in a three-mile radius around Volk Field where height limitations can be imposed on buildings to ensure that they do not pose a danger to aviation. Any development which meets certain criteria, mostly related to height or transmitting radio frequencies, which could have an effect on the operation of the airfield must submit an application to the Air Force and FAA. There are also restrictions in state law. The basic trigger for review is a structure of a certain height above average grade – 200 feet in federal law, and 150 feet in state law – that requires some form of permit.

5.2 Installation Operational Zones

Operational impacts vary between Volk Field and Hardwood Range. At Volk Field the primary impacts are from noise and accident potential off either end of the runway. At Hardwood Range noise impacts are also a factor as well as the potential for accidents, including the unintended release of ordnance. This has led to a number of operational zones defined in the AICUZ and RCUA. (See Attachment E)

5.3 Current Military Compatibility Tools

AICUZ/RCUA

The Air Installation Compatible Use Zone program was implemented in 1973 by the U.S. Department of Defense to promote compatible land use development around military airfields. The AICUZ program creates standard land-use guidelines for areas affected by possible noise exposure and accident potential, and provides local governments with information that can be used to regulate land use and development. Included in the AICUZ program are accident potential zones, noise zones, and guidance concerning the compatibility of various uses. The Range Compatible Use Assessment is a similar program established to look at compatible use issues around air-to-ground ranges.

The AICUZ program and associated compatible land use guidelines were carefully coordinated through the Federal Interagency Committee on Urban Noise of which FAA is a member. The AICUZ program is closely related to and largely mirrors the FAA noise and land use compatibility standards for civilian/commercial airports.

Readiness and Environmental Protection Initiative (REPI)

This program is part of the Sustainable Ranges Initiative (SRI), which began when the Deputy Secretary of Defense chaired the Senior Readiness Oversight Committee, created in 2001, seeking a comprehensive strategy to counter encroachment on testing and training. By seeing ranges and installations as a part of the landscape, like the habitats and communities that surround them, the SRI reinforces the mutual reliance of installations and communities on one another for economic, environmental and social benefit: military readiness on one hand, and sustainable community growth on the other.

In 2003, Congress authorized DoD, under 10 U.S.C. §2684a, (See Attachment F) to partner with other Federal agencies, states, local

governments, and conservation-based organizations to set aside lands near military bases for conservation purposes and to prevent incompatible development from encroaching on, and interfering with, military missions. In examples around the country, such as Fort Bragg, North Carolina, the military partnered with the state and conservation-based organizations to protect the red-cockaded woodpecker from extinction and providing a natural buffer near important military training and operating areas from civilian encroachment. These arrangements have permitted the military to prevent encroachment while serving valuable natural resource preservation goals.

Since funding first became available for REPI over 160 transactions have been assisted which have protected nearly 83,000 acres around military bases. Annual appropriations for the REPI program have gone from \$12.5 million in 2005 to \$54.7 million in 2010. Perhaps more significantly, in that time over \$130 million in partner contributions have been leveraged from other organizations, many of them conservation oriented groups such as the Nature Conservancy, that have an interest in preserving undeveloped land around military installations as habitat or working lands. These transactions are a win-win for both the military, which is able to safeguard the installations mission, and for the conservation organizations and local communities, which are able to preserve valuable natural resource.

REPI increases readiness in a number of ways:

- Minimizing Workarounds: Encroachment can lead commanders to modify or segment standard operations in order to fulfill testing and training requirements.
- Addressing Noise Issues: Compatible land uses surrounding military installations minimize noise complaints, allowing testing and training, while also maintaining quality of life in surrounding communities.
- Protecting Night-Vision Testing and Training: The U.S. military enjoys a

significant technological advantage in night operations. Light from development that compromises dark skies can compromise troops' ability to train for use of night-vision devices.

- Accommodating New and Future Range Demands: By increasing flexibility to use more of the space already under military control, REPI plays an important role in helping to satisfy new and future operational demands.

Project applications are rated on a number of criteria, but the most weight is given to the degree to which the installation mission is protected and on the imminence and severity of the encroachment threat. The REPI program offers a model for partnering between the military, local governments and community groups to safeguard valuable natural resources, such as endangered habitats or agricultural lands, and at the same time protecting the mission of ranges and other military installations.

NEPA

The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to file an environmental assessment (EA) and, perhaps, an environmental impact statement (EIS) for "major" federal actions that have an environmental impact. NEPA is applicable to all federal agencies, including the military.

NEPA mandates that the military analyze the impacts of its actions and operations on the environment, including the surrounding communities. Inherent in this analysis is an exploration of methods to lessen any adverse environmental impact. The EIS is a public process that allows participation by the community. The information obtained by the EIS/EA is valuable in planning coordination and policy formulation processes at the local government level.

Land and Water Conservation Fund (LWCF)

Created in 1965, the Land and Water Conservation Fund provides funds for federal

acquisition of land and other areas to preserve, develop, and assure access to outdoor recreation resources. This funding can be used to acquire land and water, but also to assist states in recreation planning, and for the development of recreational facilities.

The primary source of funding for the LWCF is revenues from oil and gas leases on the Outer Continental Shelf. The fund is divided between three basic purposes: federal land acquisition, aid to states, and other purposes. Among the federal acquisitions is the Forest Legacy Program, which is set aside to preserve working forestlands. Among the other focus areas are historical and cultural properties, protecting water quality, Wild and Scenic Rivers, and the National Scenic Trails system. The Stateside Assistance Program supports the protection of recreational lands and the development of parks at the state and local level.

The LWCF is authorized for an annual contribution of \$900 million, but specific funds must be appropriated annually by Congress. In only two fiscal years (1998 and 2001) has the appropriation exceeded the authorized level and in most years has fallen well short of that level. The Forest Legacy Program was created in 1996 and in recent years has been funded in the \$50 million range. The share of the LWCF that has gone to the Stateside Program has varied widely throughout its history, but ranged from \$144 million in 2002 to \$24.5 million in 2008. Since 2001 the percent of LWCF dollars appropriated for other purposes has increased substantially, peaking in 2006 at 62 percent of total LWCF appropriations.

5.4 Current State and Local Compatibility Tools

Knowles-Nelson Stewardship Fund

Created in 1989 to preserve valuable natural areas and wildlife habitat, protect water quality, and expand opportunities for outdoor recreation. The program is named for two of

the state's most revered conservation leaders and former governors, Warren Knowles and Gaylord Nelson (also a former Senator and acknowledged to be the creator of Earth Day.) The conservation and recreation goals of the Stewardship Program are achieved through the acquisition of land and easements, development of recreational facilities, and restoration of wildlife habitat.

A Land Acquisition Strategy approved by the Natural Resource Board (DNR's governing body) guides the policy of the DNR in administering the Stewardship Program. As part of the 2010-2019 reauthorization of the Stewardship Program a draft Acquisition Strategy was issued. Among the trends seen as affecting land acquisition strategy was habitat and species loss wherein, "The state's biodiversity is being lost, primarily due to development patterns, habitat fragmentation, and invasive species."

It is also pointed out that Stewardship funds have provided matching funds to facilitate development of a "diverse portfolio of protected lands and waters" by local governments and conservation groups. Among the criteria, possible acquisition should be "focused on protecting remaining remnants (of critical habitats) and buffering and expanding them through habitat restoration."

In listing the standards by which prospective purchases should be evaluated are a number of factors relevant to the area around Hardwood Range.

- Blocks of high quality forest large enough to provide source populations of species of greatest concern, particularly birds.
- Largest remaining blocks of high quality oak and pine barrens habitat.
- Floodplain barrens habitat.
- Dry to mesic prairies and grasslands primarily in southern, central and western Wisconsin.

- Wet to mesic prairies and grasslands primarily in southern and central Wisconsin.
- Riparian wetlands that provide both high quality habitat and reduce flooding impacts locally and regionally. Focus on areas that are currently or are projected to be subject to severe flooding.
- Narrow corridors along productive streams to improve water quality.

Act 26

Passed by the Wisconsin Legislature in 2005, this bill creates a Council of Military and State Relations consisting of members from each party and each house of the legislature, and representatives of Fort McCoy, the Department of Military Affairs, and the Governor. The Council, a part of the Governor's office, advises the Governor on how "to develop and implement strategies designed to enhance...military installations" and on the location of installations, how agencies can better serve military communities and families, and enhance the quality of life of military personnel and their families. It also requires that in counties containing installations with at least 200 assigned military personnel or over 2,000 acres of area, a non-voting representative of the military base should be included on the planning and zoning committee. The bill goes on to provide for a review by the base commander of a number of planning and zoning actions by counties, towns and cities. Because few of the jurisdictions surrounding Volk Field-Hardwood Range enforce land use regulation, the applicability of these provisions is unclear. (See Attachment G)

5.5 Models from Other States

Arizona

The state is a leader in providing a legal framework for land use regulations surrounding airports and especially military airports. Arizona has created a web of laws that protects the mission of military installations. Having realized

the economic importance of military facilities and building on previous legislation that defined accident potential and clear zones, the state enacted a comprehensive package in 2001 – the Preservation of Military Airports Act – that required local governments to incorporate compatibility into their planning and included detailed standards, gave the military opportunity to comment on rezoning, and requiring real estate disclosures. In 2004 major amendments were made clarifying enforcement mechanisms, permitting transfer of development rights, and applying sound attenuation standards in some cases. A Military Installation Fund was established, administered by a Military Affairs Commission, and initially funded at \$4.8 million annually. More recently many of these provisions – military review, disclosure, compatibility standards – have been expanded to include military operation areas and training routes. Together these measures ensure that military airports are able to operate without excessive encroachment that might threaten their viability.

The primary vehicle for implementing these changes is the state’s planning and zoning statute that deals with military airports (§ 28-8481), which under the 2001 Act was expanded to include compatibility standards, and also deals with disclosure requirements. According to this provision local governments in the vicinity of a military airport are required to adopt “zoning regulations...to assure development compatibility.” Existing land uses and previously approved plans are grandfathered, and local governments are required to inform the Attorney General of changes to local zoning regulations and to assess the effect on military operations. Equally important is the associated Definitions section (§ 28-8461) where the terms clear zone, accident potential zone, military training route, and ancillary military facility are described in detail. Also defined is “territory in the vicinity” which is a term for the area affected by the operation of each military airfield in the state, and which provides the basis for what are

known as a “vicinity box,” used to enforce other regulations such as disclosure.

The state or a local jurisdiction that operates an airport can establish an Airport Influence Area in the vicinity of the airport and register this area with the county recorder. “This record shall be sufficient to notify owners or potential purchasers of property in the airport influence area that property in the area is currently subject to aircraft noise and aircraft overflights.” (§ 28-8485) As part of the approval process for sale of a parcel the law requires disclosure that “the property is located within territory in the vicinity of a military airport.” (§ 28-8484) This disclosure requirement is extended to the sale of residential real estate.

The State Land Department is responsible for maps and records of ancillary military facilities. (§ 37-102) and the Real Estate Department maintains “a registry of information maps of military flight operations and a list of contact persons at each military airport...including maps of military flight operations” (§ 28-8483) and is available to property owners and real estate professionals to inform them of whether their property falls under the disclosure requirements. It is the responsibility of the property owner, or his agent, to determine from the maps posted on-line by the Real Estate Department whether a property falls under this disclosure requirement. In recent years the disclosure requirement has been extended to include military training routes (§ 32-2183.05).

Arizona has taken an aggressive approach to safeguarding the mission of the military installations within the state. Much of the control over land use that is embodied in this effort takes place by means of long-range planning and zoning controls. But underlying these efforts is the acknowledgement of the impacts that arise from the military mission and its effect on surrounding properties. The foundation for addressing these impacts is the requirement for disclosure accompanying virtually any real estate transaction within

“territory in the vicinity” of a military installation. Aspects of this approach may be appropriate for Volk Field and Hardwood Range.

Florida

Established in 1935 to serve as a bombing and gunnery range for Army Air Corps Tactical School at Maxwell Field in Alabama, Eglin Air Force Base is today the largest air force base in the free world. In 1940 Choctawhatchee National Forest was ceded to the military, bringing the installation to 384,000 acres. From the very beginning Eglin received the support of Congressman Bob Sikes from nearby Crestview. Over the years Eglin AFB has been the site of many historic training and weapons’ testing exercises, including: training of Jimmy Doolittle’s team of pilots on the first bombing raids on the Japanese mainland during World War II; and development of the BOMARC missile system. In 1975 the installations served as one of four primary U.S. Vietnamese Refugee Processing Centers.

Eglin AFB today is home to five air fields and numerous target ranges. Over half the area of Eglin AFB is made up of longleaf pine forest, including 6,795 acres of old-growth longleaf pine, the largest contiguous stand on earth. This is prime habitat for the endangered red cockaded woodpecker. Another endangered species is the Okaloosa darter, which was recently down-listed from endangered to threatened, the first such result for a vertebrate solely by actions on a military installation.

Eglin has been in the forefront of military installations in combining the conservation of natural resources with the protection of the military mission. Today an extremely ambitious project, the Northwest Florida Greenway, is anchored by Eglin AFB. By linking the million-acre Apalachicola National Forest to the million-acres of public lands that include Eglin, Blackwater River State Forest and Conecuh National Forest with a low density corridor-flyway for military testing and training, the operations at Eglin will be preserved well into

the future. Over the last two decades over 100,000 acres have been protected within the Greenway through a combination of private funding along with federal dollars and contributions from the Florida Forever Fund¹⁴. In addition to protection of military flyways the Greenway project seeks to create a linkage of what the Nature Conservancy has described as one of the United States’ six “biodiversity hotspots.”

But even such a large project as the Greenway must be assembled one parcel at a time. Escribano Point, at the eastern end of Pensacola Bay, just west of Eglin AFB and adjacent to Choctaw Field, offers a case-in-point. Roughly three-thousand acres, with over ten miles of shoreline, this is one of a few remaining undeveloped waterfront parcels in this part of the Florida panhandle, but is within the 65 dB noise contour of Choctaw Field. The area is home to such rare and threatened plant species as the white-top and white pitcher plants (found nowhere else on earth), while endangered species such as the Atlantic sturgeon and West Indian manatee frequent area waters. At this writing, 1,166 acres have been acquired at a cost of \$1,590,000, with 1,748 acres remaining, estimated value, \$802,454. This property is currently in foreclosure, but because of the funding constraints no action is expected at this time. Though the Florida Forever priority list write-up concentrates on threatened biological resources, the Eglin AFB JLUS report makes clear that with the arrival of the Joint Strike Fighter (F-35, which has been assigned to Eglin in the last round of BRAC) the entire Point is likely to fall within the 65 dB noise contour. Acquisition of the Escribano Point area is a prime example of

¹⁴ The Florida Forever Fund was created under Gov. Jeb Bush in 1999, originally conceived as a \$300 million per year bonding authority to purchase land and property rights supporting conservation goals. Funding has been significantly cut back in recent years. There was no funding in fiscal 2011.

conserving natural resources and protecting the military mission. (See Attachment H)



Wetlands west of Hardwood Range

The Shoal River Buffer offers another and slightly different example. This 2,100-acre parcel straddles Shoal River, an Outstanding Florida Water, and in addition to the potential for watershed protection, offers habitat for such rare and threatened species as the red-cockaded woodpecker and Florida black bear. This property is located north of Eglin AFB, off the end of Duke Field runway, much of it inside the likely 65 dB noise contours of the Joint Strike Fighter. This property is largely inaccessible and under no particular development pressure, especially in light of current conditions in the real estate market. Efforts are under way also to secure rights for land between the Shoal River and the northern boundary of Eglin AFB, some of it in APZ II of Duke Field. This property is eligible for a Defense Infrastructure Grant from the State of Florida, as well as through the REPI program. The lack of market pressure, and most importantly water-frontage, means that incompatible development will probably not happen any time soon, but its location in relation to the Duke Field runway makes it crucial that this property be protected from intense development in the future.

The Shoal River Buffer is more analogous to the land surrounding Hardwood Range because of its lack of development pressure and wildlife habitat. The combination of funding sources brought to bear on this area and the range of

approaches – there are parcels that have been incorporated into the Choctawhatchee National Forest and Okaloosa County owns the floodplain along the Shoal River, as well as land owned by the State – offers a useful model of how a partnership between governmental, and non-governmental entities working together can protect wildlife, natural resources and the military mission.

6. Compatibility Analysis

6.1 Background

Historically, military installations were located in remote areas, due largely to the availability of land and security purposes. Over time, however, installations drew both people and businesses closer to take advantage of civilian job opportunities offered by the installation and to provide goods and services to support the installation's operations. The increased number of people and businesses, in some cases, has impacted the military's ability to effectively train and accomplish the military mission.

Large-scale development around Volk Field and Hardwood Range has not been a threat to the mission, but that could change in the future. Recent decades have seen significant development on the banks of the Wisconsin River in Juneau County, and along Interstate 90/94. The object of this section is to determine how development that is likely to take place in the areas around the installation can be prevented from negatively impacting the military mission. Land uses that are incompatible with the continued operation of Volk Field and Hardwood Range could also have a negative effect on the economy of Juneau County and Central Wisconsin, as well as impacting the national security function of the base. So there is a strong incentive to control such uses, even where regulation and enforcement resources are scarce.

The federal government exercises control over airports primarily through the offices of the Federal Aviation Administration (FAA), which is responsible for expansion and safe operation of airports and aviation-related activity, the preservation of national airspace, and the control of aircraft while in flight. At the state level, Wisconsin Department of Transportation (DOT) through its Bureau of Aviation provides aviation information and technical support, and programs that promote the safe and efficient development of airports. Local governments

ultimately control land use, and as has been noted, the governmental units, especially in the area around Hardwood Range, do not have the resources or the political inclination to offer a strong regimen of land use controls.

Compatibility can have more than one meaning, however, as does the term land use. The amount of public lands, much of it held for the purpose of protecting wildlife habitat, can be seen as the dominant land use in the area around Hardwood Range. USFWS, which operates the Necedah National Wildlife Refuge, has published its own compatibility standards that govern "wildlife-dependent recreational use" that are proposed for USFWS properties. Among the activities specifically exempted from these standards are military aircraft overflights:

"Compatibility provisions of the Refuge Administration Act do not apply to Department of Defense overflights or non-Department of Defense overflights above a refuge. However, other Federal laws ...may govern overflights above a refuge. For Department of Defense overflights, active communication and cooperation between the refuge manager and the local base commander will be the most effective way to protect refuge resources."

In the final analysis what compatible use means is a land use that will comfortably co-exist with the military mission of an installation, safeguard environmental values, while at the same time providing an acceptable quality of life to residents and land owners. Each installation is unique and this is true of Volk Field/Hardwood Range. The discussion of compatible uses should focus on how the unique geography surrounding the Base can be used to support the long-term viability of the military mission, the health and safety of residents, and the quality and integrity of the natural environment.

6.2 Issues

A number of issues that impact Base operations were identified through discussions with knowledgeable sources and research into conditions at similar installations.

Safety

The health and safety of civilian residents in areas surrounding military installations is an overriding concern of the JLUS process. The Volk Field AICUZ and the Hardwood RCAU both identify Operational and Accident Prevention Zones, which delineate areas that are more likely to be affected by military operations. Whether the threat is aircraft crashes or accidental release of ordnance, these zones are created to define the areas most affected.

The highest threat of aircraft crashes occur in association with take-off and landing and thus exist at either end of the landing strip at Volk Field. The threat in these areas is discussed in the AICUZ report, and is, at this time, seen as manageable. The likelihood of aircraft crashes around Hardwood Range is less and the primary threat to public safety comes from the possibility of accidental release of ordnance, or some other mechanical failure associated with the training function of the installation.

Safety is the primary consideration in classifying residential as an incompatible land use. Places where people reside, that is, sleep at night, are seen as putting them at risk from aircraft crashes or accidental ordnance discharges. Thus lodging establishments are described as incompatible, but such commercial uses as warehouses that have a limited number of employees during defined time periods are compatible in lower risk locations (such as APZ II). In some more urbanized areas recommendations are made to limit residential uses to one housing unit per acre.

In the area around Volk Field the population density is roughly 29 persons per square mile or less than .05 persons per acre. As discussed earlier, some residential development exists

within APZ II, but is not seen as a major safety threat. In the area most affected by the operations of Hardwood Range the comparable level of residential development is .00625 persons per acre. Although most of the hundred residents of the Town of Finley, for example, live in a relatively concentrated area west of the Range the density would be far below the one housing unit per acre that has been recommended in other contexts. The threat posed to these residents is real, but it can be argued that at such low density the risk is actually so minimal as to make residential a compatible use.

Vertical Obstruction

Intrusion into airspace required for aircraft operations can be devastating to the military mission of an installation. Generally, a structure that extends more than 200-feet above average ground level is subject to review by the FAA to determine if it is a potential obstruction to aviation. Wisconsin DOT has permitting authority over any structure erected above a level laid out in statute – determined by a relatively complex formula – but not less than 150-feet above ground level (§ 114.135(7)). Local governments are granted special zoning rights in areas up to three miles from a publicly-owned airport (§114.136). There are no comparable powers around military airports

Telecom: The growth of the mobile phone industry has led to a proliferation of wireless communication facilities, mostly in the form of tower-mounted antennas (cell-towers). Under the Telecommunications Act of 1996 there are limits on the restrictions local governments can place on the location of these facilities. Like any commercial service, mobile phone service investments are demand driven. Because the area around Hardwood Range is sparsely settled demand for cell-towers is relatively low. However, operations are permitted in the Volk West MOA down to one hundred feet above ground level and towers that would not be subject to FAA review could intrude into operational airspace. Without some mecha-

nism for informing ANG of potential vertical obstruction into their airspace these towers pose a risk to the mission of the installation.

Volk Field is covered by a three-mile radius that governs obstructions that pierce an “imaginary surfaces” at 500-feet above ground level and gradients off the end of the landing strip that accommodate flight paths. If FAA makes a Determination of Hazard to Air Navigation, based on obstruction into the defined airspace above Volk Field, an FCC construction permit can be denied. Because maintaining wireless phone coverage in the area along I-90/94 is likely to spawn a number of cell-towers there will continue to be new towers in this area.

Wireless telephone service providers are not highly regulated and are jealous of information about their antennas, especially locational information, which they consider proprietary. Unless the construction of a tower requires review by FAA it is very hard for ANG to know in advance that such an obstruction is being planned. Currently Volk Field has developed an *ad hoc* method for identifying potential cell-tower locations around the Base, but a more formal mechanism for notifying ANG of potential obstructions in its operational airspace is needed.

Energy: In recent years demand has grown for alternative energy facilities, specifically wind generators. The State has mandated that by 2015 ten percent of the energy generated by Wisconsin utilities must come from renewable sources. According to AWS Truewind the power density of wind in the area around Hardwood Range, and throughout the Glacial Lake Wisconsin basin, is in the lowest range and thus not a particularly promising location for wind generation.

Regulatory considerations, such as the renewable energy mandate, are not the only factors driving wind generator installations, however. With the price of energy continuing to rise, it seems likely that wind generators will be

constructed in the future, even in marginal locations. An application has been submitted to Juneau County for two wind generator towers at Cutler Cranberry Co. to run pumps used in cultivation. As the efficiency of generator technology improves, such applications will increase. Although wind generators can have an effect on radio frequencies and create shadow effects, the primary threat to aircraft operations is from vertical obstruction into airspace. As with wireless phone towers, notification to ANG of plans to construct wind generator towers is the best way to ensure compatibility.

Noise

Noise at unacceptable levels is a nuisance, and at louder levels can have negative psychological impacts and cause permanent hearing loss. Noise frequently causes feelings of mounting annoyance, irritation, or anger. The loudness of sounds is dependent upon many factors, including sound pressure level and frequency content, and within the usual range of environmental noise levels, perception of loudness is relatively predictable. Which sounds are perceived as noise may vary among listeners, and what is not objectionable to some can be bothersome to others.

Aircraft noise may be experienced as particularly annoying because its sudden onset may startle people, cause windows to rattle and houses to shake, or cause people to fear a crash. Under such circumstances, even relatively moderate noise increases can be perceived as an annoyance.

To address noise problems in a logical manner, it is necessary to measure sound levels. Sound levels are plotted in decibels (dB), a logarithmic measure of the magnitude of sound as the average person hears it. "A-weighting" adjusts for the fact that humans do not hear high or low frequencies as efficiently, and corrects for the relative efficiency of the human ear at different frequencies. Another important factor in measuring a sound environment is the occurrence of sound events at night, when

people are normally more sensitive to intrusive sound events. Background sound levels are normally lower at night because of decreased human activity. Extensive research has found that the day-night average sound level (DNL) correlates very well with community annoyance from most environmental noise sources.

Relying on a considerable body of scientific research on noise impacts, federal agencies have adopted guidelines for compatible land uses and environmental sound levels. General guidelines for noise compatibility identify sound levels between 55 and 60 dB as "moderate exposure" and generally acceptable for residential uses. Both the Department of Defense's AICUZ guidance and the FAA's Airport Noise Compatibility Planning Toolkit identify residential use as incompatible in the 65 DNL contour and higher.

Noise contours for current operations are defined in the Volk Field AICUZ and the Hardwood Range RCUA. These contours are based on current operations levels, and while they provide the basis for determining the noise exposure for current operations, they do not provide any prediction of future noise levels resulting from new missions or new aircraft at the Base.

Currently, the greatest extent of the sound contours outside of base property is on the western end of the landing strip at Volk Field, with another small area at the east end. Only a single residential property is affected. Two relatively small areas around Hardwood Range, both located largely over public land, are affected by sound levels over 65 dB.

Light/Glare

Light sources from commercial, industrial, and residential uses at night can cause glare and excess illumination, which impacts the use of military night vision devices and air operations. In the night sky, some training operations use night vision equipment to simulate battlefield conditions.

Because of the low level of development around Volk Field, and especially Hardwood Range, light and glare does not present a significant threat to Base operations.

Frequency Interference

In performing typical operations, the military relies on a range of frequencies for communication and support systems. Similarly, public and private uses rely on a range of frequencies to support daily life. Although specific frequencies are generally reserved for designated uses, as the demand for this limited resource increases (such as the increasing use of wireless communication technology) so does the issue of frequency spectrum impedance, interference, and competition.

Natural Resources & Endangered Species

The way the military has dealt with natural resource issues has evolved in recent years. When the Sikes Act was first passed in 1960 it formalized the relationship between DoD and U.S. Fish & Wildlife Service in planning, developing and maintaining fish and wildlife resources on military reservations. Over the years a number of amendments to the Act have expanded the interaction between Defense and USFWS, including a 1989 requirement for installations to prepare an Integrated Natural Resource Management Plan. Then in 1996 DoD issued its first Instructions on the Environmental Conservation Program, which continues to be updated. In 2003 another Directive on the Sustainment of Ranges was issued that laid out a range of criteria for judging the long-term sustainability of installations based on compatibility and "environmental considerations."

In the latest version of the Instructions on the Environmental Conservation Program (DoDI 4715.03) it is required that all INRMPs, "Ensure that biologically and geographically significant or sensitive natural resources, such as ecosystems or species, are monitored and managed for their protection and long-term sustainability." In effect, this means that natural resource

conservation has become a part of the military's mission. Although the training and testing function of military installations is still dominant, resource protection is defined as an important management goal and a factor that should be considered in planning for the future of military installations.

Making the protection of natural resources an explicit goal of military planning creates a new compatibility standard. Although the national security component of an installation's mission is always paramount in the disposition of DoD property, consideration of the effects of military operations on natural resources and habitat values has been formally adopted as part, albeit secondary, of an installation's mission. Seen in this light, compatibility can take on a different meaning. As federal agencies, the military services are bound by the provisions of the Endangered Species Act, the National Environmental Policy Act, and other pieces of environmental legislation. The proactive approach to environmental issues embodied by the Environmental Conservation Program and the Sustainable Range Initiative speaks to an approach that encompasses environmental considerations into the basic process that must take place in assessing impacts on an installation's mission.

In defining compatible uses surrounding Volk Field and Hardwood Range the factors considered must be expanded to include the intrinsic value of "biologically and geographically significant or sensitive natural resources" of such areas as the vast wetland complex to the north and west of Hardwood Range, and its unique characteristic as a habitat for migratory birds and other species identified as endangered or threatened. The compatibility of military operations with the values of wildlife habitat have been the subject of negotiation for a decade, as the Air National Guard has met on a regular basis with USFWS, DNR, Juneau and Wood County forestry departments, and other organizations to discuss how negative impacts of Range operations on the Necedah National

Wildlife Refuge and its environs can be minimized, and at the same time how the impact of migratory birds on aircraft can be prevented.

BASH: Bird Aircraft Strike Hazard became a source of interest to the general public on January 15, 2009 when US Airways Flight 1549 flew through a flock of Canadian Geese after take-off from LaGuardia Airport in New York and was forced to land in the Hudson River. BASH, as it's known, has become a growing problem for aviation, both civilian and military. FAA maintains a National Wildlife Strike Database to document the occurrences of aircraft collisions with birds and other animals. Since 1990 there have been 87,416 bird-strikes of civil aircraft, and the number has increased from 1,738 in 1990 to 7,286 in 2008. The majority of bird-strikes take place in the July to October period, 62 percent during the day, and sixty percent occur during the landing phase. Nearly sixty percent of all reported strikes¹⁵ take place below 100 feet above ground level, and 43 percent of strikes that damage aircraft occur at this altitude. Damage sustained by aircraft is very much a function of the size of the bird struck – a larger bird does more damage. The most serious damage generally occurs when the bird is drawn into the jet engine. Even as bird-strikes have been increasing, strikes causing damage to aircraft peaked in 2000 and have been gradually declining since.

A number of factors are seen as leading to increased reporting of bird-strikes including increased air traffic and the predominance of dual-engine aircraft, but perhaps most significant is the growth in recent decades of the population of several larger bird species. From 1980 to 2007 the population of Canadian Geese grew by an annual rate of 7.3 percent, bald eagles by 4.6 percent, wild turkeys by 12.1 percent, turkey vultures by 2.2 percent, and

¹⁵ This includes terrestrial mammal strikes (2.1% of the total), virtually all of which take place at ground level.

sandhill cranes by 5 percent. (FAA, 2009) The reduction in strikes with damage may be the result of mitigation efforts that have been taken to reduce the incidence of land uses that increase the threat of bird-strikes around airports, including landfills and water management facilities. Wildlife Services of USDA conducted a Wildlife Hazard Assessment of Volk Field (Jones, 2011), which concluded that among the larger bird species, Canadian Geese were most frequently observed and were most associated with established open water, with the highest incidence being in April and October, while sandhill cranes were observed at about half the frequency, primarily in October, mostly in mowed grass or croplands.

White-tailed deer are seen as a particular threat of wildlife strikes at Volk Field – which unlike bird-strikes take place exclusively at ground level – and a number of measures are suggested to prevent this and other wildlife strikes. While the BASH problem is on-going at Volk Field there are aggressive measures that can be taken to reduce the danger to aircraft operations.

Noise: The annoyance that people suffer as a result of aircraft noise can extend to other species as well. The effect of long-term exposure to this kind of noise on wildlife has been extensively studied over the years, and should be considered in determining the compatibility of wildlife habitat with military air operations. The evidence, however, is mixed on the effects of noise on wildlife. Research has been conducted on many different species, in different locations, and testing the effects of different stimuli. Generally the effects of noise, and aircraft noise in particular, has not proven to be an insurmountable obstacle to survival or reproduction of wildlife impacted by it.

Although behavioral and metabolic changes have been documented in a wide range of animals in response to sound, these responses do not generally affect reproductive behaviors to a degree that would compromise survival. In several species of raptors noise events elicited

reactions but did not lead to nest abandonment or reproductive failure. (AMEC, 2005) In a study – "Effects of Military Noise on Wildlife" – prepared by the Corp of Engineers, noise tests conducted on several bird species showed that birds react to artificial sound stimulus but generally readjust their behavior. (Larkin, 1996) The ability of animals to habituate recurrent sounds allows them to accommodate noise.

Compatibility:

As noted above, military overflights have been exempted from USFWS compatibility standards at National Wildlife Refuges. In its extensive examination of the effects of aircraft noise on animals the overriding conclusion was that there was no single conclusion. Effects varied by species, by duration, by sound level, by circumstance, by type of aircraft. The need for more study and greater documentation of instances of aircraft noise impacting wildlife was the most emphatic conclusion. (Manci, 1988) The National Research Council has proposed that a similar noise level be used for animals as for humans. (Waitz, 2005) So it is not unreasonable to suggest that the negative impacts of the operations on the wildlife that surround Volk Field and especially Hardwood Range should not be assumed to be more negative than are the effects on the humans.

Conversely, wildlife, specifically birds, pose a threat to Range operation in the form of BASH. Since more than seventy percent of bird-strikes take place below 500-feet above ground level this threat is limited, though real.

In addressing how airports should deal with wildlife habitat as a source of "hazardous wildlife" ¹⁶ the FAA recommends that,

¹⁶ Defined as: "Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as an attractant to other wildlife that pose a strike hazard."

"Operators of such airports should provide for a Wildlife Hazard Assessment conducted by a wildlife damage management biologist." (USDOT/FAA, AC#150/5200-33B) Procedures for how habitat should be handled are the same as for wetlands. Although, wetlands and wildlife habitat are seen as a challenge for aviation, the threat does not justify the destruction of these areas and methods for mitigating the negative effects of this geography are encouraged.

The most effective tool for ensuring the compatibility of wildlife habitat is communication. The mission of the Air National Guard, Wisconsin Department of Natural Resources and U.S. Fish & Wildlife Service are not necessarily at odds. The primary incompatible uses that would limit successful operations at Hardwood Range are those – places of assembly – that put a large number of people at risk from accidents related to Range operations. The sparseness of the population around the Range is in a way one of its greatest assets. The same can be said for the wildlife habitat that surrounds the Range. This area is uniquely suited as habitat not only because of its geography – wetlands, pine/oak barrens, bottomlands – but because of its isolation from human development.

The obstacles to compatibility between the training and testing mission of the Range and the natural resource conservation mission of the Refuge are best addressed by the kind of on-going communication that have been conducted by Volk Field and the Necedah Refuge. Speaking before Congress the Deputy Director of USFWS put it this way,

"The Sikes Act, and its amendments, have fostered an effective framework for our partnership with DoD and the states. Through this partnership, we have been able to increase our abilities to conserve living resources found on military installations, while also sup-

porting the national defense and other missions of the land managed by DoD." (Ashe, 2010)

6.3 Operational Zones

Zone 1: Hardwood Range

The Range itself is the core of the study area. Although this land is actually owned by the State of Wisconsin and Juneau County retains timber rights, this is land under the control of the Air National Guard. (See Map 6)

More than four-fifths of the land area of the Hardwood Range is woodlands, while nearly fifteen percent is open land. Other land uses make up less than two percent of the land area of the Range.

Woodlands	6,059.32	83.5%
Open Lands	1,071.20	14.7%
Governmental	3.78	.05%
Transportation	109.43	1.5%
Water	15.42	.2%
Total	7,259.15	100%

Source: NCWRPC

Zone 2: Priority Area

a) This is the area within three miles of the primary target area of the Range and within the flight paths identified in the RCUA, and most impacted by Range operations. This is the highest priority area for the acquisition of rights that might protect the mission of the Range.

b) Yellow River Focus Area: identified as oak bottomlands and premium wildlife habitat. In addition to being within the priority area for protection of the military mission, and as a prime target for habitat protection by USFWS, this area is doubly valuable for insulating Range operations and safeguarding valuable natural resources.

c) A one-mile buffer around the eastern part of the Range. Because of the installation of target arrays in the area of 3rd St. between 19th Av. and 13th Av. within the Range boundaries, that have been deployed after the RCUA was prepared, there is concern that the area impacted by the Range has expanded. Because it is associated with a lower level of activity it is of a lower priority than Zone 2a, but based on current operations, this area is seen as offering protection to the mission. This area is outside the operational zones identified in the RCUA, but inside the Accident Potential Zone.

Agriculture	1,467.40	9%
Woodlands	12,676.90	78.4%
Open Lands	756.91	4.7%
Outdoor Recr.	10.51	.06%
Industrial	2.78	.017%
Residential	68.77	.42%
Transportation	215.63	1.3%
Cranberries	750.61	4.6%
Commercial	12.09	.07%
Water	208.21	1.3%
Total	16,169.81	100%

Source: NCWRPC

This is the zone with the highest percentage of land in agricultural use (agriculture and cranberries together make up 13.6% of the land area). Woodlands are over three-quarters of this zone, which contains the community of Finley, has the highest percentage of residential use. All other uses make up less than four percent of the land area.

Zone 3: Flight Paths

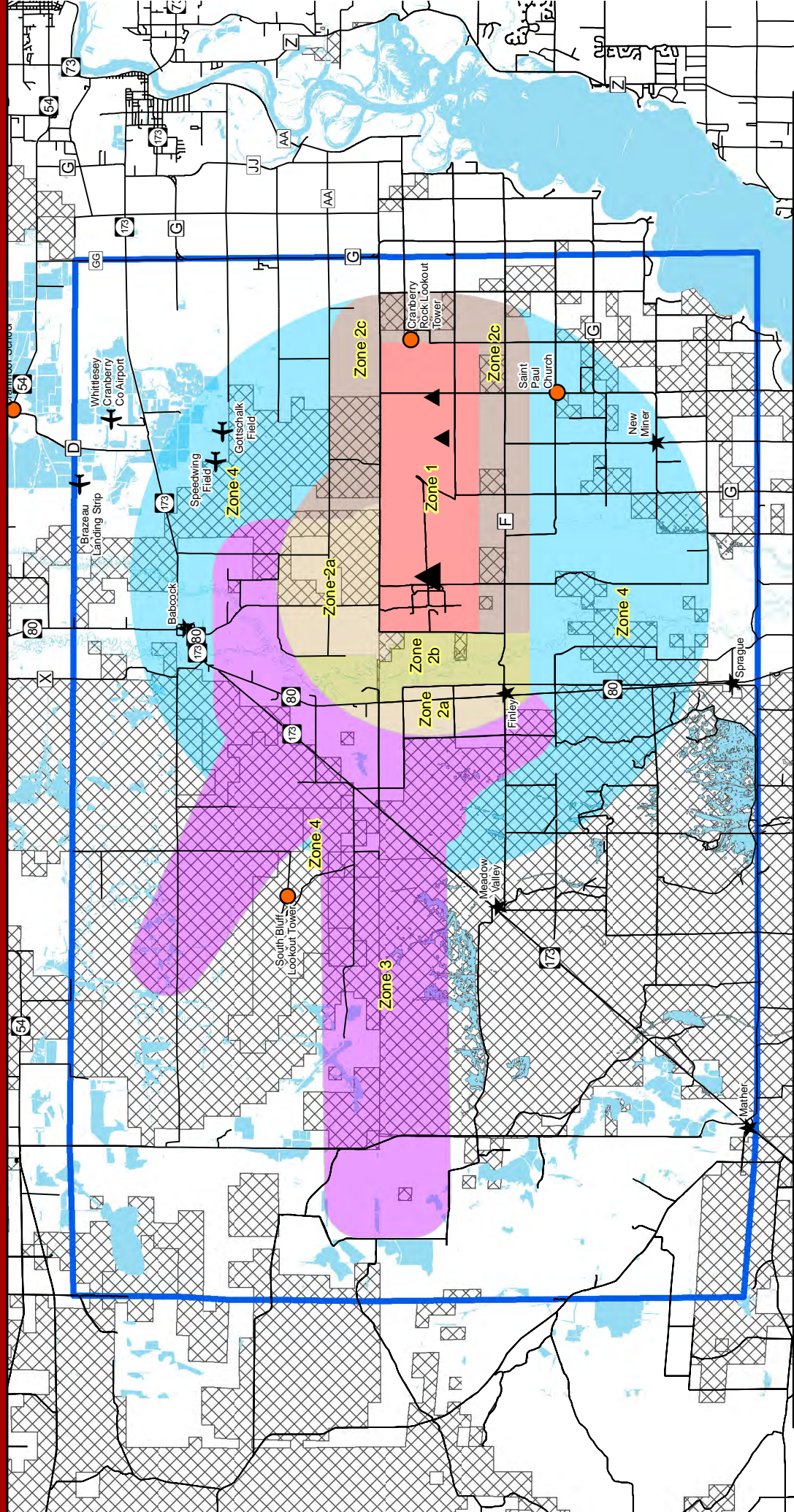
Ninety-five percent of flights into Hardwood Range – limited at the time the RCUA was prepared to the primary target array in the western section of the Range – travel along the flight paths encompassed in this zone. Although low-altitude exercises have decreased, these flight paths still provide valuable access corridors to the Range.

Woodlands make up 58 percent of the land area in this zone, and open land is 34.5 percent. Cranberry bogs and surface water together constitute another five percent of land area. All other uses make up only 1.35 percent of the land.

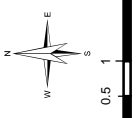
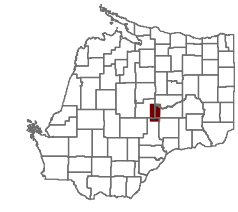
Agriculture	101.62	.35%
Woodlands	16,710.91	58%
Open Lands	10,191.67	35.4%
Residential	49.04	.17%
Transportation	232.05	.8%
Cranberries	568.06	2%
Commercial	10.79	.037%
Water	917.82	3.2%
Total	28,710.91	100%

Source: NCWRPC

The overwhelming majority of the land in this zone is publically owned, primarily held to conserve wildlife habitat. So the most important compatibility issue is whether the Range’s mission can coexist with the protection of migratory birds.



- Airport
- Points of Interest
- Populated Place
- Study Area
- Public Lands
- Target Areas
- Water
- Zone 1
- Zone 2a
- Zone 2b
- Zone 2c
- Zone 3
- Zone 4



This map is neither a legally recorded map nor a survey and is not intended to be used as one. This drawing is a compilation of records, information and data used for reference purposes only. NCWRPC is not responsible for any inaccuracies herein contained.

Sources: WI DNR, NCWRPC, USFS 2006, RAICUZ Study



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Zone 4: Accident Potential

The five-mile radius around the center of the Range marks the area vulnerable to accidental ordnance release during the period after the pilot has initially engaged the master arming switch for run-in and has either discharged or simulated discharge of a weapon. This area is seen as most vulnerable to such accidental release.

Three-quarters of the land in this zone is woodlands and eleven percent is open land. Together, agriculture and cranberry bogs make up over nine percent of land. All other land uses make up 4.3 percent of the land area.

Although this is the largest of the four zones, because the operation of the Range is oriented primarily to the north and west, this is the area least directly affected.

Table 9: Zone 4		
Agriculture	1,554.41	5.1%
Woodlands	22,,829.43	75.7%
Open Lands	3,450.86	11.4%
Outdoor Recr.	2.86	.009%
Industrial	70.56	.28%
Governmental	12.96	.043%
Residential	127.66	.4%
Cranberries	1,272.47	4.2%
Transportation	373.21	1.2%
Commercial	21.23	.7%
Water	507.01	1.7%
Total	30,222.66	100%

Source: NCWRPC

7. Recommendations

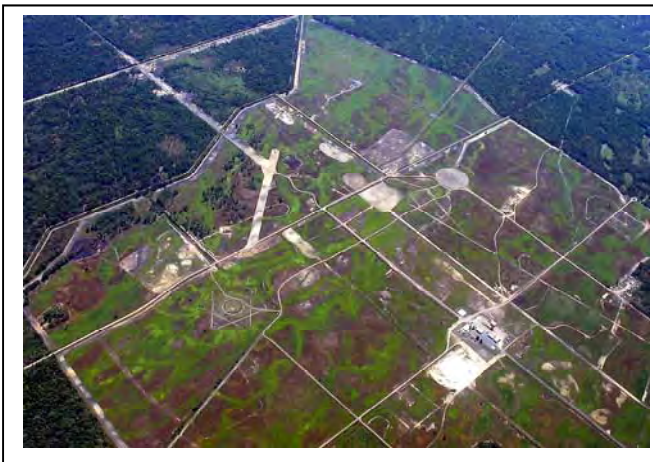
7.1 Background

Planning is a process that begins with the assembly of the factual background, proceeds through an inventory of current conditions and concludes with the identification of policy alternatives which can be translated into implementation strategies. Actions that can be taken by stakeholders to secure a desired future are the ultimate product. At times the cart of policy recommendations can be put before the horse of background and inventory. In the case of Volk Field/Hardwood Range an AICUZ and a RCUA, the first such report prepared for the Air National Guard, have been completed within the last four years. Together these studies constitute the kind of empirical foundation that provides a robust basis for policy recommendations that will protect the military mission of the installation into the future.

Planning cannot take place in a vacuum. In the past decade, as a result of post-9-11 military actions, the role of the National Guard in the national security structure has changed. Both the Army and Air National Guard have transitioned from a Strategic reserve force that was only called to Active Duty under dire circumstances to an Operational reserve force that regularly deploys overseas as part of the Army Force

Generation and Air Force Expeditionary Force constructs. Army and Air National Guard personnel are highly trained and ready for domestic or overseas employment upon very short notice. Thousands of military personnel and millions of tons of supplies have passed through Volk Field bound for foreign deployment. The training exercises that pilots perform in the airspace above Hardwood Range have taken on added seriousness. The close relationship between Volk Field and Fort McCoy is reinforced by each National Guard unit that is processed through the two installations on their way overseas.

Both the AICUZ and the RCUA contain Implementation sections that make recommendations based on the factual findings of the reports that can be taken by the military and local governments to foster continuing cooperation between the installation and the surrounding community. (See Attachment I) The recommendations made in these reports were distilled into a series of bullet points grouped under a number of topics. The Air National Guard suggested several additions to this list. These are the recommendations approved by the Policy Committee.



Hardwood Range

7.2 Recommendations

Actions by Military

Flights

1. Flights should be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to potential accidents.
2. Continue to restrict noise generating activities such as practice takeoffs/landings and instrument approaches, and Base maintenance run-up activities between 10:00 PM and 7:00 AM, except for high priority missions.

Oshkosh Airshow

3. Coordinate with annual Experimental Aviation Association convention at Oshkosh including ceasing flight operations on the Range during this two week event in the summer.

Communication

4. Designate a Land Use Compatibility Officer, knowledgeable of the study, land use within the vicinity, and Base operations to interface with the local community on all related land use and development issues. The Officer should be responsible for monitoring development near the Range and develop collaborative relationships with the local officials.
5. Develop a working group representing municipal, County, and Base personnel to meet and discuss compatibility-related concerns and development proposals that could affect or be affected by airfield operations.
6. Establish procedures to meet and engage with the community leaders to discuss air operations and, review annually, any noise complaints or other concerns, and provide additional inputs as the local communities update their land use plans.
 - o Periodically attend County, Town, and Village board meetings.
 - o Produce and distribute literature about the Base and Range's activities.
 - o Continue annual "Open Houses" that alternate between the Base and Range.
7. Establish and maintain a central inventory of current pertinent planning and land use management documents, issues, and maps for public distribution depicting areas with noise, safety concerns, and other land use compatibility issues.
8. Continue to maintain and advertise a toll-free "Noise Complaints" hotline to give persons affected by Range and Base operations a means of voicing their concerns and seeking resolution.

Encroachment Management / Prevention

9. Identify and pursue with willing landowners acquisition projects in those areas deemed critical to the WI ANG.
10. Investigate and pursue partnerships with federal and state of Wisconsin conservation programs and sponsors, and discuss with community land conservation based organizations that have an interest in the acquisition and/or preservation of high value natural resources lands from willing landowners located within the areas of concern for potential Section 2684a. (REPI program)

Action by Local Communities

Disclosure

1. In collaboration with local counties and municipalities, implement policies promoting disclosure of safety and noise hazards prior to land transactions and development or sale of property in the flight paths near Volk Field or the vicinity of Hardwood Range.
2. Signage should be posted in prominent locations on major roads around Volk Field and Hardwood Range informing the public of noise and safety hazards that may exist in these areas as a result of military operations, and referring the reader to sources of information, such as a website where noise contours and accident prevention information is available.

Regulation

3. Engage in cooperative initiatives and planning between counties and local communities, and promote consistent standards among local governments.
4. Inform Volk Field ANGB of planning and zoning actions that have the potential of affecting base operations.
5. Implement height and obstruction ordinances which reflect current Air Force requirements.
6. Juneau and Wood Counties, and affected local governments should adopt JLUS recommendations into their land use planning and development regulations that promote compatible land uses, and that incorporate noise attenuation measures and recommendations into the design and construction of future developments in high noise areas.
7. Utilize Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals, based on overlay maps of AICUZ /RCUA noise contours and operational zones (the CZ, APZ, Zones 1-4, MIPD, etc.).
8. Zoning ordinances and subdivision regulations, both existing and proposed, should support the compatible land uses outlined in this study.
9. Adopt a formal designation that incorporates the areas impacted by Base operations to establish a Military Influence Planning District.

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Attachment A
Public Participation Plan

Volk Field/Hardwood Range JLUS

Public Participation Plan

I. Background

Recognizing the need to engage the public in the planning process, this plan sets forth the techniques the Policy Committee of the Volk Field/Hardwood Range Joint Land Use Study (JLUS) will use to meet the goal of public participation. Therefore, this Public Participation Plan forms the basic framework for achieving an interactive dialogue between citizens, Committee members, staff, and the NCWRPC.

The Policy Committee will comply with the Plan as appropriate to the situation. As the JLUS process develops, it should be expected that deviations from the plan may occur.

II. Objectives

The following is a list of objectives for public participation that the Policy Committee would like to achieve throughout the development and subsequent adoption of the JLUS:

- That the residents and stakeholder become fully aware of the importance of participating in the development of the JLUS.
- That the public participation process be designed to engage all aspects of the community.
- That the public have opportunities to provide their input (both formally and informally) to the Committee.
- That the public have access to meetings of the Technical Advisory Committee, all technical information, and any analyses performed throughout the JLUS process.
- That members of the Policy Committee have input from the broadest possible range of perspectives and interests within the community.
- That input is elicited through a variety of means (electronic, printed, and oral) in such a way that it may be carefully considered and given an appropriate response.
- That this process of public involvement strengthens the ongoing communication between the community and the military.

The goal will be to inform, consult and involve the public and stakeholders during each phase of the process. Hopefully, this will foster better communications between the Air National Guard (ANG) and the community, and help balance the issues related to private property rights.

III. Techniques

The public participation plan for the JLUS process will incorporate the following:

1. All meetings for the process will be open to the public and posted. A large open house will be held mid-way and near the end of the process.
2. Periodic press releases to the media and local governments will occur to explain the JLUS process and promote the open house meetings.
3. Via the NCWRPC NEWS newsletter local government officials and interested parties will be informed of the JLUS process.
4. Planning meeting summaries and handouts will be maintained in the Juneau County Clerk's office, Wood County Planning Department office, NCWRPC office, the Necedah Library, and on the website www.ncwrpc.org/juneau/jlus/.
5. All meetings will have comment sheets available. All website comments will be included in the record as well.

Throughout the process, the Policy Committee will meet to monitor the development of the JLUS report and recommendations.

Attachment B
Yellow River Focus Area
(USFWS)

Land Protection Plan

Revised March 2003

Introduction

In late 1996, the U.S. Fish and Wildlife Service (Service) initiated a planning process aimed at evaluating the feasibility of restoring and conserving approximately 21,953 acres of land located directly adjacent to the Necedah National Wildlife Refuge (Refuge). An expansion of 14,684 acres in the currently authorized Refuge boundaries is proposed under this plan to facilitate habitat restoration and conservation in a part of the Yellow River Focus Area (Figure 1). The planning process, which was done in association with the Refuge's Comprehensive Conservation Plan, included a thorough review of opportunities and issues related to fish and wildlife resource management by the Service in that area, as well as an assessment of roles the Service might take in achieving its mission, that of the National Wildlife Refuge System, and resource objectives for the Great Lakes/Big Rivers Region. The planning process was initiated in response to the declining status of numerous Service trust resources in the area and interest among diverse stakeholders within the area and the region.

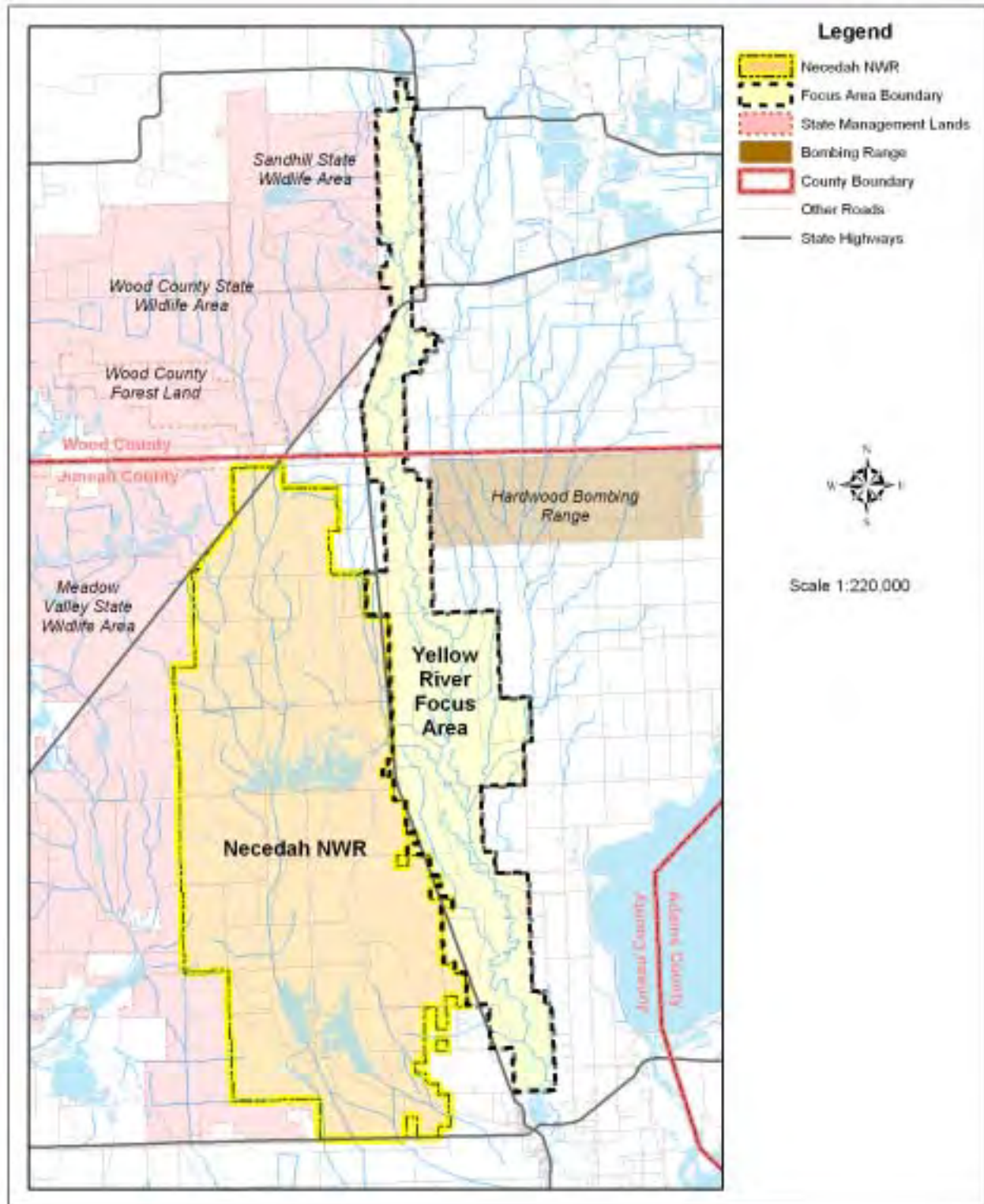
The Yellow River Focus Area (Figure 1) spans roughly 25 miles north and south by 2-3 miles east and west. The project represents a unique opportunity for the Service to conserve rare and declining bottomland forest and adjacent upland habitat for the benefit of migratory birds, threatened and endangered species, public recreation, and environmental education. Many rare, uncommon, and declining species of animals have been documented in the Yellow River Focus Area in recent years. Many of them are sensitive to size, isolation, context, and quality of habitat. These include the Eastern Massasauga rattlesnake, Blanding's turtle, Red-shouldered Hawk, Cerulean Warbler, Acadian Flycatcher, Yellow-crowned Night-heron, Prothonotary Warbler, and Louisiana Waterthrush. Several neo-tropical migrants that are suspected of or exhibiting extensive population declines that use the area include the Veery, Wood Thrush, Sedge Wren, Blue-winged Warbler, and Golden-winged Warbler. Waterfowl species include Mallard, Wood Duck, and Hooded Merganser. Bald Eagles utilize the area year-round and at least one active nest has been documented. Great Blue Heron rookeries are found in the Yellow River Area as well as extensive Wood Duck nesting. Federally listed endangered Karner blue butterflies are also found on Friendship and Plainfield soils throughout the area. These soil types offer potential for expansion of oak savanna and the restoration of essential Karner blue butterfly habitat. The Focus Area is referenced several times in the Draft Karner Blue Recovery Plan (see <http://midwest.fws.gov/Endangered/insects/kbb/kbb-rplan.html>).

Federal, state, and local conservation organizations strongly support stewardship and conservation of the Yellow River Focus Area (see attached letters). The Yellow River Focus Area project was developed out of the Central Wisconsin Basin Partnership (Partnership), which is a Partnership coordinated by the Wisconsin Department of Natural Resources (DNR) that includes federal and state agencies, private conservation organizations, business and industry groups, university faculty, and others committed to conserving the Wisconsin River Basin. The Yellow River is a high priority Partnership project that includes the Upper Yellow River (a State of Wisconsin Priority Watershed project that emphasizes U.S. Department of Agriculture (USDA) programs and private partners), the Middle Yellow River (the Refuge's Yellow River Focus Area project that emphasizes private partnerships, easements, and land acquisition) and the Lower Yellow River (a Wisconsin DNR Focus Area). The Yellow River Focus area is referenced multiple times in the Karner Blue Butterfly Recovery Plan.

Threats To and Status of the Resource

The need for additional wildlife habitat conservation, restoration and management in the Yellow River Focus Area has been made clear by the declining status of numerous grassland, savanna, and wetland

Figure 1: The Yellow River Focus Area



dependent species of birds and numerous studies that have demonstrated that habitat loss or degradation is a common causal factor in many of those declines.

Of the estimated 221 million acres of wetland habitat present in the lower 48 states at the time of colonial America, only 103 million acres remain (47 percent). Draining, dredging, filling, leveling, and flooding have reduced wetlands by 50 percent or more in 22 states, and 10 states have lost 70 percent or more (Dahl 1990). Prior to European settlement, Wisconsin had approximately 10 million acres of wetlands. Currently less than 47 percent remain.

In recent years, many plant and animal species associated with Midwestern grasslands have experienced serious declines, primarily due to habitat loss and alteration of natural structure and function (e.g., predation, exotic species, fire suppression, habitat fragmentation, drainage/flooding). The original tallgrass prairie, which extended from western Indiana to the eastern part of Kansas, Nebraska, and North and South Dakota and south to Oklahoma and Texas, has been virtually eliminated throughout its historic range. Recent surveys suggest that 82.6 to 99.9 percent declines in the acreage of tallgrass prairie have occurred in 12 states and one Canadian province since European settlement. The State of Wisconsin has lost over 99 percent of its original prairies. For years following the initial conversion of native Midwestern prairies, many prairie-dependent wildlife remained relatively stable through their ability to colonize agricultural grasslands. However, 20th century agricultural grassland loss has followed a similar path of decline as native prairie loss in the 19th century. In many parts of the Midwest, agricultural grasslands are at their lowest level in more than 100 years.

Similarly, oak savanna, which covered approximately 27-32 million acres of the Midwest prior to European settlement (Nuzzo 1985), has become one of the nation's most endangered ecosystems (Noss et al. 1995). Nationwide, over 99 percent of our original savanna has been lost, and Midwestern oak savannas are among the rarest ecosystems in the nation. Historically, Wisconsin had roughly 4 million acres of savannas. Today, less than 60,000 acres remain, and much of what remains is highly degraded and of limited value for wildlife. Nuzzo (1985) found that by 1985 only 113 sites (2,607 acres) of quality oak savanna remained across the Midwest. Development has destroyed, fragmented, and disrupted the natural processes needed to maintain quality oak savanna ecosystems.

The wide-scale loss of oak savanna and pine barren ecosystems across 12 states and the province of Ontario, Canada, has had severe negative impacts on Karner blue butterflies (Karner Blue Butterfly Habitat Conservation Plan and Environmental Impact Statement, 1999). As a result, the Karner blue butterfly was proposed for federal listing on January 21, 1992, and listed as endangered on December 14, 1992. Today scattered populations are only found in portions of New Hampshire, New York, Michigan, Wisconsin, Indiana, and Minnesota. The Refuge is home to the world's largest remaining population of Karner blue butterflies, providing habitat for 12 population complexes. No critical habitat has been designated for this species. The long-term effect of these landscape-scale losses of important ecosystems has yet to be determined.

The long-term declines in early successional forests across the north-eastern and north-central United States has contributed to the decline of many bird species. Selective harvesting, fire suppression, urban sprawl, and cessation of agricultural abandonment contributed to the present imbalance in distribution of young forests (Oliver and Larson, 1999).

While rich in biological diversity, the Yellow River Area is experiencing degradation, primarily due to rural development and lack of habitat management. The Yellow River Area would benefit from habitat conservation and management practices designed to sustain its ecological value, namely conservation of habitat through financial incentives to landowners, prescribed fire, mowing, wetland and upland restorations, forest management. Recreational development pressures are high in the area. An expansion of agricultural activities could directly impact Yellow River habitats, and create many indirect impacts due to fragmentation, withdrawal and discharge of surface and ground waters, and

construction of infrastructure. Of late, a new round of human-induced change threatens many remaining ecosystems in the Yellow River Focus Area. In a trend called “rurbanization,” rural areas containing quality wildlife habitat are being converted to a more densely developed state. In recent years, the population surrounding the Refuge has expanded, while the size of the undeveloped land base continues to shrink, leaving many natural areas as scattered fragments of increased importance for scientific study, education, and conservation of natural ecological processes. According to the U.S. Census, the Town of Necedah and the Town of Finley grew by 34 percent and 27 percent, respectively, between 1990 and 2000. As a result, many of the large natural areas around the Refuge (and in the Yellow River Area) are at risk of being fragmented through housing development, driveways, etc., which diminishes the value of these areas for area-sensitive wildlife like the Bobolink, Prairie Chicken, and many large mammals. Habitat size, shape, and amount and type of edge are important factors in the reproductive success of many grassland birds. It is this type of development that particularly threatens the remaining oak savanna habitat in this region. Without management, most areas will continue to degrade due to their size, isolation, absence of natural processes such as fire and hydrologic cycle maintenance, and inadequate buffers protecting them from surrounding agricultural and urban land uses. It also places greater demands on the Refuge and its partners in terms of safeguarding Refuge ecosystem structure and function for the benefit of Service trust resources.

The Yellow River Focus Area provides a unique opportunity for the Service to conserve rare and declining bottomland forest and adjacent upland habitat for the benefit of listed species, waterfowl and other migratory birds, and native biological diversity. According to Wisconsin’s Statewide Natural Area Inventory, extensive field reconnaissance by the Refuge and other sources, the Yellow River Area represents one of the few remaining quality bottomland hardwood forest ecosystems in the Midwest. Silver maple, swamp white oak, green ash, and river birch dominate the floodplain, while the lower sandy ridges, slightly higher than the flood plain, support white oak, bur oak, shagbark hickory, basswood, and white pine. The highest of these areas were once oak and pine savannas, one of North America’s most endangered habitats, with only .02 percent of its pre-settlement acreage remaining. The shrub spectrum within the area varies in density from sparse to impenetrable, and includes buttonbush, dogwoods, prickly ash, winterberry, and wild grapes. The herbaceous layer of the forested areas support wood nettle, coneflowers, ferns, and many sedges. Aggressive non-native species are currently not an issue within the area. Table 1 summarizes land cover types found within the Yellow River Focus Area.

Table 1: Current Land Cover Types in the Yellow River Focus Area

Land Cover Type	Acres
Open Landscapes (grasslands, savannas, shrub land, old fields, agricultural lands)	2,593
Coniferous Forests	483
Mixed Deciduous and Coniferous Forests	1,329
Broad-leaf Deciduous Forests	3,909
Emergent Wetlands and Wet Meadows	1,847
Forested Wetlands	10,259
Lowland Shrubs	1,485
Open Water Areas	45
Total all cover types in the Yellow River Focus Area	21,953

Many Federal, state, and local conservation organizations support stewardship and conservation of the natural resources in the Yellow River area. Several property owners have indicated an interest in selling their land and/or a conservation easement on their land to the Service. Many landowners within the 21,953-acre Yellow River Focus Area have contacted the Refuge in recent years in search of technical assistance in managing their land for wildlife. The Refuge strives to accommodate these landowners through its Partners for Wildlife Program and by facilitating technical assistance through partnerships with other government and non-government entities.

Proposed Action

The Service is proposing to facilitate the restoration, conservation, and management of up to 21,953 acres of land within the Yellow River Focus Area. Of the total acreage, 3,135 acres are in public ownership already. The Service would work with landowners and governmental agencies in the northern 4,748-acre portion of the Focus Area (Figure 2) through voluntary partnerships to accomplish the conservation goals. In the 17,234 acre southern portion (Figure 2), the Service's first priority would also be to work with landowners and agencies through voluntary partnerships to conserve and restore habitats. However, if private landowners in the southern portion were only interested in selling an easement or fee-title to their land, the Service would consider acquisition there, depending upon the tract's priority and the availability of funds. There are 14,684 acres of private land in the southern portion, amounting to 67 percent of the entire 21,953 acre focus area.

Protection Alternatives

This section outlines and evaluates three strategic alternatives for the restoration and conservation of approximately 21,953 acres of wetland, upland, and riparian habitats within the Yellow River Focus Area. See the Necedah NWR Comprehensive Conservation Plan Environmental Assessment for a more detailed description of the alternatives.

Alternative 1& 2:

Under Alternatives 1 and 2, the Service would not seek realty interests in land and water within the Yellow River Focus Area. The Refuge would continue to offer landowners support through the Refuge's Partners for Wildlife program. The wetlands, uplands, plants, wildlife, and people of the area would continue to be impacted by the lack of a central management plan for the area, which may lead to residential and agricultural development in undesirable locations or proportions, unmonitored water quality changes, declines in quality recreational and aesthetic experiences, and declines in the economic value of the Yellow River to local communities. Waterfowl, Sandhill Cranes, other waterbirds, songbirds, fish, and many resident wildlife species would likely decrease over time as habitat degradation occurred. Unique plant communities could be degraded or lost due to conversion of additional wetlands to agricultural lands, namely cranberry production. Archeological resources would be offered little conservation and subject to loss. Public use opportunities would be limited to private landowners, others with permission from landowners, and the general public on the public lands in the area.

Alternative 3: (Preferred)

Under this alternative, the Service would seek to partner in habitat restoration and conservation efforts with the public land managers and with the private landowners within the Partnership Area 1 portion of the Focus Area (northern portion of the Focus Area). Land acquisition by the Service is not an option in this area but the Service would be able to provide technical assistance and possibly financial assistance through the Partners for Fish and Wildlife Program. Within that portion of the Focus Area designated as Partnership Area 2 (southern portion of the Focus Area), the Service could also provide technical and financial assistance through the Partners for Fish and Wildlife program. However, the Service would also facilitate the conservation of approximately 250 acres per year from willing sellers using outreach and technical assistance, cooperative management agreements, conservation easements and fee-title purchase of land (and/or donations from private parties) or a

combination of all methods, depending on site, circumstances, and landowner interests. The estimate of 250 acres per year is based upon historical land acquisition funding levels in Region 3 of the U.S. Fish & Wildlife Service, which includes Wisconsin. Only the private ownerships in the area would be eligible for Service acquisition and then only if the landowner was interested.

In addition, the Service would seek to partner with the public agencies holding 3,134 acres of land within the entire Focus Area, however; acquisition of easements or fee-interest would not be an option on those lands. This alternative would lead to additional restoration and conservation of wetlands, uplands, and riparian habitats for the benefit of trust resources (assuming adequate funding). Any acquisition of lands would be from willing sellers only, regardless of the type of interest. The Service would only acquire the minimum interest necessary to reach management objectives for this area.

Areas acquired in fee-title through donation or purchase would be owned by the Service and managed as units of the National Wildlife Refuge System – Necedah NWR. Tracts in which an easement or lease is negotiated would remain in private ownership. Under any acquisition scenario, administration and management of the tracts would be done by the staff at Necedah NWR. This alternative would be carried out on a tract-by-tract basis as land and funding become available over an undetermined period of time.

Alternative Conservation Tools

The alternative conservation tools proposed for the Yellow River Focus Area are fee acquisition, conservation easements, wildlife management agreements, and private lands extension agreements. Other acquisition methods that could be utilized by the Service include donations, partial donations, or transfers.

Wildlife Management Agreements

These agreements are negotiated between the Refuge Manager and a landowner and specify a particular management action the landowner will do, or not do, with his or her property. For example, a simple agreement would be for the landowner to agree to delay hayland mowing until after a certain date to allow ground nesting birds to hatch their young. More comprehensive agreements are possible for such things as wetland or upland restoration, or public access. These agreements are strictly voluntary on the part of the landowner and are voided if the property is sold.

As long as a landowner abides by the terms of the agreement, this conservation can be effective in meeting certain conservation objectives. Unfortunately, because these agreements are voluntary and temporary, there is no long-term assurance the terms will continue to be met.

Direct Service costs for this alternative are generally low, but can add up to near fee or easement costs if the agreement is for several years. Staff time and administrative costs are relatively high since agreements must be monitored yearly and renegotiated when land ownership changes.

Leases

Under a lease agreement, the Service would negotiate with a landowner to receive use of the land or for some maintenance of the land in a given condition. Generally, the landowner would receive an annual lease payment. For example, the Service could lease 40 acres of grassland habitat to provide safe nesting for ground nesting birds. The landowner would not be able to hay or otherwise disturb the ground during the lease period.

Cost effectiveness of leases would vary depending on the length and payment terms of the lease. In many cases, the cost of a lease rapidly approaches the cost of outright purchase in a few years. Also, leases do not offer the long-term conservation of habitat, and are more complex for the Service to administer than fee or easement because of the monitoring, coordination, and administration requirements.

Conservation Easements

With a conservation easement, the Service in effect purchases a specific interest from a private landowner. For example, the Service may purchase a wetland easement that protects a wetland from draining, filling, and burning. The landowner gives up his or her right to drain, fill, and burn, but no other land rights. The wetland may still be cropped, or hayed, as natural conditions allow.

An easement that is commonly used on refuges is a conservation or non-development easement. Typically, a landowner would agree to refrain from commercial, industrial, or residential development or other major alteration of habitat. The landowner may continue to use the land as before the easement and retains rights such as hunting, control of trespass, etc.

Easements are voluntary and purchased only from willing sellers. Payments for conservation easements are generally based on a percentage of the appraised value of the land and varies according to the use restrictions imposed. Easements are most often perpetual and compensation is a one-time, up-front payment.

Easements can be useful when existing land uses on a tract within a refuge boundary are partially compatible with refuge purposes, and when the landowner desires to use the land for some compatible purpose. Examples of land uses that are normally restricted under terms of a conservation include:

- Development rights, both agricultural, commercial and residential.
- Alteration of natural topography.
- Uses negatively affecting the maintenance of plant and wildlife communities.
- Excessive public access and use; and
- Alteration of natural water level.

Depending on the type of easement, this option may be cost effective in meeting certain Refuge management purposes. If the easement is not perpetual, long-term resource conservation is not guaranteed. However, some easements may cost the Service so much (occasionally greater than 75 percent of fee value), that cost efficiency is compromised.

Easements are more difficult to manage than fee title transactions because of the monitoring, coordination, and administrative requirements. If a landowner fails to honor the easement contract, the Service must take steps to re-establish the terms of the contract.

In the short run, easements have more impact on the tax base of local municipalities than cooperative management agreements and leases. However, they have less impact in the short run on the tax base than fee-title acquisition. In the long run, Service acquisition of interest in Yellow River lands may be beneficial to the tax base of local municipalities because of increased desirability of land, increased access to land management services, and increased recreational opportunities.

Fee-Title Acquisition

A fee-title acquisition of land assures permanent conservation of resources and complete control of lands necessary for things such as wetland development and water level control. All rights of ownership are transferred to the Service in fee title acquisition. Land is purchased only from willing sellers with offers based on fair market value appraisals. Some fee title acquisitions are accomplished through donation or exchange. Although initially the most costly for the Service, in the long run it is easier to manage and plan for because the Service has complete control. Staff time is saved by not having to renegotiate terms for less-than-fee title arrangements.

There are approximately 3,135 acres in public ownership in the Focus Area. The overall cost of the project if all private lands within Alternative 3, the Preferred Alternative (14,684 acres) were acquired

would be in the vicinity of \$14,684,000 based upon an average cost per acre of about \$1,000. The reality is that much of the area would not be acquired. Many of the landowners are interested in conserving or improving habitat themselves, reducing the need to acquire the land. Others are probably not interested in selling.

In the short run, fee-title acquisition will have the greatest impact on the tax base of local municipalities of any alternative conservation tools. In the long run, Service acquisition of interest in Yellow River lands may be beneficial to the tax base of local municipalities because of increased desirability of land, increased access to land management services, and increased recreational opportunities.

It should be noted that lands acquired within the Focus Area would involve low operations and maintenance costs. Private landowner agreements have already begun the work of conserving or restoring habitats. Much of the management would be passive, low cost in nature, ensuring that development or other disruptive land use practices do not destroy the wildlife value of the area.

Coordination and Consultation

The Service publicly announced it was preparing a CCP for the Refuge in June 1997. Since that time, information about the planning project, as well as the Service's intent to evaluate the feasibility of restoring and conserving additional habitat in the Yellow River Focus Area, has been provided to the public through news-releases, presentations, interviews, informational letters, and one-on-one briefings. Federal, state, local, and private entities were involved in the scoping process. More than 6,000 people were sent information on the Refuge CCP. This includes Wisconsin's Congressional Delegation, the U.S. Department of Agriculture, elected officials representing Juneau and Wood counties, Wisconsin DNR personnel, local governments, representatives of national, state, and local conservation organizations, neighboring landowners, and other interested publics. Public input was considered at all phases of the CCP planning process. All landowners within the Yellow River Focus Area were contacted. The Service held several meetings with Yellow River Focus Area landowners to discuss conservation strategies. The Service has met with nearly every landowner one-on-one in the project area. To date, 121 landowners collectively owning 17,308 acres have requested technical from the Service. Of these, 16 have signed long-term wildlife management agreements encompassing 1,233 acres of land in the Yellow River Focus Area. The Service coordinated its scoping effort closely, and corresponded frequently with many of the aforementioned entities, including Yellow River Focus Area landowners.

Sociocultural Impacts

Restoration, conservation, and management of additional lands by the Service in the Yellow River Focus Area will affect to some degree the current lifestyles of individuals in and around the proposed project area, and the communities in the area. Landowners who choose to sell their land to the Service will be most affected. Owners of homes or farms who relocate will be reimbursed for moving expenses. Renters also receive certain relocation benefits, including assistance in finding suitable alternate housing that is affordable. Under certain conditions, some homeowners may be able to reserve a "life estate" on their homes, meaning they could remain in their homes for the rest of their lives after selling to the Service. This type of reservation does, however, reduce the amount paid for their homes. Other landowners who negotiate easements or other less-than-fee transactions may have to change certain land management practices in-line with conditions of the easement.

All land transactions will be purely voluntary in keeping with Service policy to purchase lands or rights only from willing sellers. The property rights of landowners who choose not to sell their land will not be directly affected by purchases around them since they will retain all right of landownership. The Service will always take into account the interests of adjacent landowners when managing acquired land.

Use of the Refuge and surrounding area will probably increase over current levels. This increased use, and thus traffic, may make some landowners uncomfortable. Lands in which the Service acquires a fee interest will eventually be open to public hunting, fishing, hiking, photography, canoeing, and other compatible refuge uses.

A comprehensive resource, facility, and public use management plan will be completed after a sufficient land base has been acquired in the area by the Service. This plan will be written with full input from the landowners and the general public to meet their needs and address their concerns.

Summary of Proposed Action

As described earlier, the Service proposes to restore and conserve up to 21,953 acres of wetlands, uplands, and riparian habitats within the Yellow River Focus Area. Of this acreage, the conservation and restoration efforts on the approximately 7,298 acres held by private landowners in the north and public agencies throughout the Focus Area would be through voluntary technical assistance programs. On the approximately 14,684 acres of private land in the southern portion of the Focus Area (Partner Area 2), the Service would seek habitat restoration and conservation on a voluntary basis from landowners through technical assistance, and where it was the landowners preference, by acquiring fee title or conservation easements.

The following is a ranked list of priorities for conserving lands in the Yellow River Focus Area. Service acquisition of fee or easement interests in lands would be available only to interested landowners in the southern portion of the area (Partner Area 2, Figure 3). This list will guide Service in choosing when and where to use the various available conservation tools. The list includes criteria that would rank the priority of a parcel of land considered for fee title purchase in the southern portion of the Focus Area, although other conservation tools would always be considered first.

This list will assure that the limited resources available to the Service and its partners are used in ways that efficiently and effectively promote desired outcomes in the Yellow River. It is also reflective of the Service's commitment to communicate clearly to Yellow River stakeholders and to be consistent and equitable in its interactions with Yellow River landowners.

High Priority Land:

- Eastern Massasauga rattlesnake documented on parcel during most recent survey.
- Karner blue butterflies documented on parcel during most recent survey.
- Other federal or state listed species documented on parcel during most recent survey.
- Existing eastern massasauga habitat within 1 mile of a recent documented sightings (within the past 20 years) or existing populations.
- Existing Karner blue butterfly habitat within 1 mile in open landscape, or within 1/8 mile without open canopy corridor, of existing populations or recent documented sightings (within the past 5 years).
- Bottomland habitat associated with Algansee-Glendora soils.

Medium Priority Land:

- Restorable eastern massasauga habitat within 1 mile of recent documented sightings (within the past 20 years) or existing populations.
- Restorable Karner blue butterfly habitat within 1 mile in open landscape, or 1/8 mile without open canopy corridor, of existing populations or recent documented sightings (within the past 5 years).
- Existing eastern massasauga habitat 1-3 miles from recent documented sightings (within the past 20 years) or existing populations.

- Natural heritage elements that are not covered by previously listed categories (e.g. federal or state listing), but have a global ranking of G3 or higher and/or with a state ranking of S3 or higher.
- Opportunities to manage habitat blocks greater than 160 acres in size.
- Opportunities to manage habitat blocks with contiguous upland and wetland habitat.

Low Priority Land:

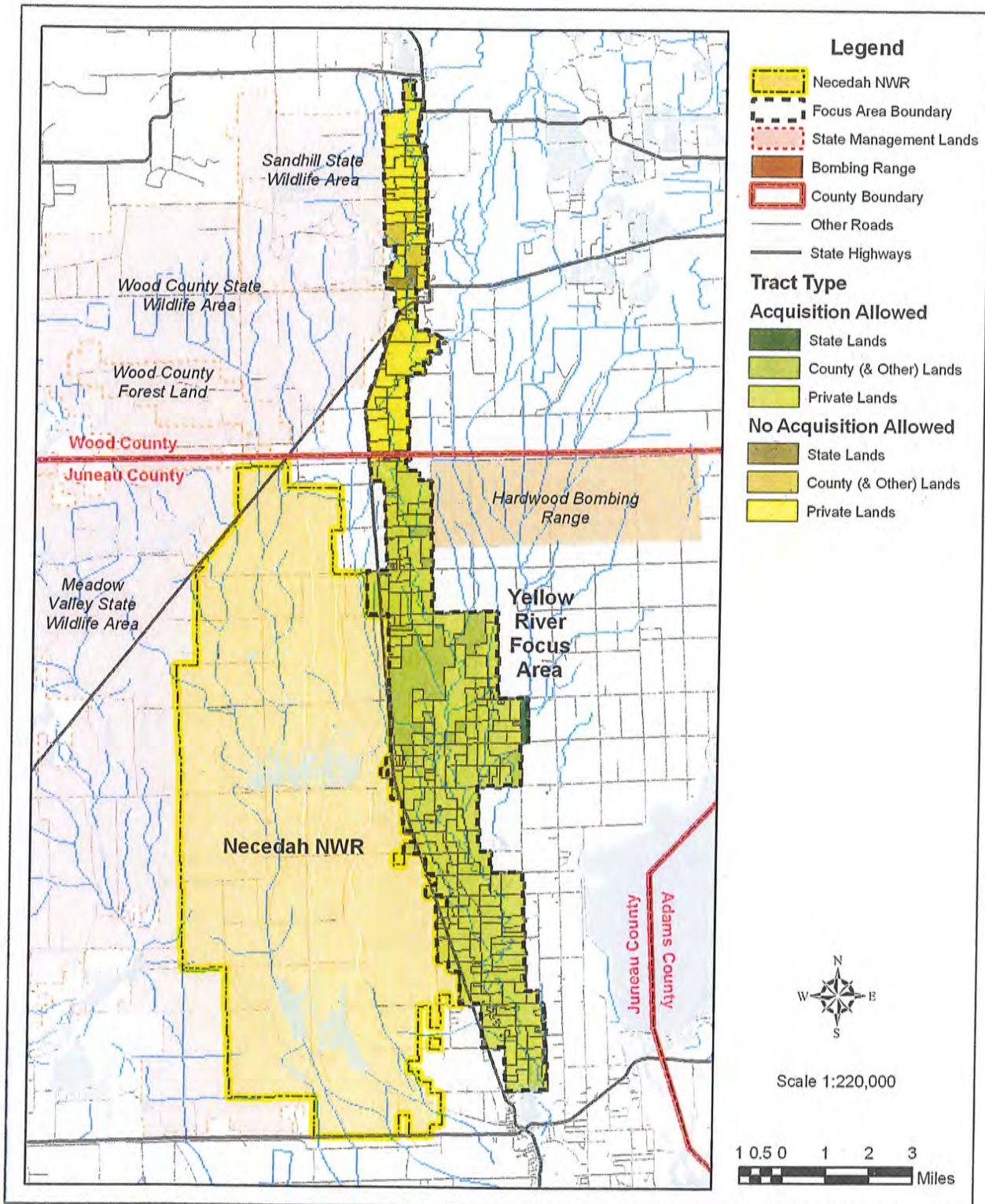
- Opportunities to manage habitat blocks greater than 80 contiguous acres, but less than 160 contiguous acres.
- Other quality fish and wildlife habitats or community types.

While the future condition of the lands in the Focus Area are unknown and recognizing that changes in land use or species occurrence could change the conservation priorities, the tracts within the Focus Area have been prioritized for conservation on the following maps (Figure 2) and in the attached table (Table 2). The Focus Area acreage in Table 2 is 21,982 compared to the 21,953 acres that is used elsewhere in this document. Acreage in Table 2 is calculated via the ArcView Geographic Information System program and includes roads that would be excluded from the actual ownership acreage.

There are 319 tracts total in the Focus Area, of which 301 are privately owned. There are approximately 261 individual private owners, some of which are corporate. Eighteen of the tracts are owned by a village, county, or the State of Wisconsin. There is no intention to purchase the publicly owned property. There are approximately 3,135 acres in public ownership and approximately 18,847 acres in private ownership. Of the private ownership, 14,684 acres in Partner Area 2 would be eligible for Service acquisition, and then only from willing sellers.

Conservation of any tract in the Focus Area would first be sought by working with the landowners to achieve conservation goals they are interested in and that are consistent with Service interests. If a landowner in the southern portion of the Focus Area is interested in other options, such as an easement or in selling fee rights to the property, the Service would base its decision of whether to acquire an interest in the land upon the availability of funds and the priority of the tract for conservation. Assistance to landowners for conservation work on their property will be provided through the Service's Partners for Fish and Wildlife Program and through any other programs that may be available in the future.

Figure 2: Land Status and Conservation Options, Yellow River Focus Area, Necedah NWR



Attachment C

**Volk Field Land Use Analysis
(AICUZ)**

SECTION 5 LAND USE ANALYSIS

5.1 INTRODUCTION

Land use planning and control is a *dynamic*, rather than a *static* process. The specific characteristics of land use determinants will always reflect, to some degree, the changing conditions of the economic, social, and physical environment of a community, as well as changing public concern. The planning process accommodates this fluidity in which decisions are normally not based on boundary lines, but rather on more generalized area designations.

Counties within the State of Wisconsin are currently participating in the Wisconsin Land Information Program that facilitates the development of land information systems and modernization of land records within the state. The Wisconsin Land Information Board establishes guidelines and acts as statutory authority in a statewide effort to modernize land information data.

Volk Field ANGB and the adjoining Wisconsin National Guard Facility, Camp Williams, are adjacent to the Village of Camp Douglas within the Town of Orange and are located in a very rural area of Juneau County. The Village of Camp Douglas has a population of less than 600 and has only grown by 10 people over the last 20 years. The base is completely located within the Town of Orange, which has a population of 549 and is considered rural.

Improvements in computer technology have enabled the Air Force to more precisely display its flight tracks and noise contours for land use planning purposes. These technical improvements reveal the extent of the Volk Field ANGB region of influence into the counties and surrounding nearby towns.

5.2 EXISTING LAND USE

5.2.1 Juneau County

Existing land use within Juneau County (Figure 5-1) is currently based on land use designations developed by the North Central Wisconsin Regional Planning

Commission and are used for the purpose of this Study. Existing land use presented in the figures within this section are generalized into one of the following eight categories developed by the North Central Wisconsin Regional Planning Commission:

- Residential: This category includes all types of residential activity, such as single- and multi-family residences and mobile homes, at a density greater than one dwelling unit per acre.
- Commercial: This category includes offices, retail, restaurants, and other types of commercial establishments.
- Industrial: This category includes manufacturing, warehousing, and other similar uses.
- Outdoor Recreation: This category includes land areas designated for recreational activity including parks, wilderness areas and reservations, conservation areas, and areas designated for trails, hikes, camping, etc.
- Government: This category includes Volk Field ANGB and the adjoining Wisconsin National Guard Facility, Camp Williams.
- Open Grassland/Low Density: This category includes undeveloped land areas, grazing lands and areas with residential activity at densities less than or equal to one dwelling unit per acre.
- Agriculture/Low Density: This category includes agricultural areas and areas with residential activity at densities less than or equal to one dwelling unit per acre.
- Woodlands/Low Density: This category includes undeveloped woodland areas and areas with residential activity at densities less than or equal to one dwelling unit per acre.
- Water: This category includes surface water resources that could be lakes, rivers, streams, or wetlands. These areas are inhabitable.
- Cranberry Bog: This category includes cranberry bogs and areas designated for cranberry harvesting activities. It should be noted that at certain locations single-family residences are located between cranberry beds.

5.2.1.1 Town of Orange

The majority of the Town of Orange is devoted to agricultural uses with scattered woodlands. There is an excellent working relationship between the Village of Camp Douglas, the Town of Orange, and Volk Field ANGB. For example, the town has approached the base to have a representative from the base serve on its Land Use Committee. The Town of Orange submitted a resolution on 21 September 2004 in support of maintaining Volk Field ANGB as an active base and a value to the community. The Town of Orange's Comprehensive Plan had designated the following land use classifications (Town of Orange 2006; Mississippi River Regional Planning Commission 2004; North Central Wisconsin Regional Planning Commission 2008):

- Residential: areas recommended for residential development typically consisting of smaller lot sizes;
- Rural Residential: areas that are recommended for less dense residential development, consisting of larger minimum lot sizes than the residential category and will also allow a mixture of residential uses, and provide a good transition from more dense development to the rural countryside;
- Commercial: areas recommended for commercial development, as well as existing commercial establishments located throughout the town; Industrial, areas recommended for industrial development, as well as existing industrial areas located throughout the town;
- Governmental/Public/Institutional: identifies existing or planned governmental/public/institutional facilities within the town, including recreational facilities;
- Agricultural Areas: areas to be preserved for the purpose of general crop farming or the raising of livestock; forestry areas: areas of large woodlands within the town;
- Transportation Corridors: the existing road network along with the recommendations for improved and safe traffic movement in the town, including airports and rail facilities, and;
- Preservation & Open Space: contains sensitive environmental areas, such as 100-year floodplains as defined by the Federal Emergency Management Agency, Wisconsin Department of Natural Resources wetlands, steep slopes of 12 percent or greater, open water, and could include endangered species habitat or other significant features or areas.

5.2.1.2 Village Camp Douglas

The Village of Camp Douglas is currently developing a comprehensive plan (North Central Wisconsin Regional Planning Commission 2007). Given that the Village of Camp Douglas is located within the boundaries to the Town of Orange, it is probable that land use classifications and descriptions described for the Town of Orange would be similar to those adopted by the Village of Camp Douglas. Subsequent Volk Field ANGB AICUZ studies should include Village of Camp Douglas comprehensive plan information and adopted land use categories.

5.3 CURRENT ZONING

Zoning refers to the division of a municipality into districts and establishment of regulations to govern the use, placement, and size of lots and structures. The exact zoning designation of any parcel of land should be determined through consultation with local planning agencies.

5.3.1 Juneau County

Zoning on a community level has not yet been established in the rural areas of Juneau County, although there are lot size restrictions and building regulations in place. Juneau County does not currently have general zoning; Juneau County does have zoning policies associated with wetlands and shoreline areas. The County's shoreland zoning regulations apply only to areas within 300 feet of a stream or river, and within 1,000 feet of a pond or lake. The county also takes part in the 1977 Farmland Preservation Program that includes tax relief for farmers who enroll in the program and incentives for local municipalities for local land use and conservation planning (University of Wisconsin 2000). The program is voluntary for farmland owners, but does not prevent the sale of farmland for development. Even though Juneau County has no general zoning, it is still useful to look at surrounding land use classifications as guidelines which are similar to criteria generally embodied in zoning ordinances in order to determine compatible development (Town of Orange 2006).

5.3.1.1 Town of Orange

Currently, the Town of Orange does not have general zoning, either with Juneau County or on its own. Land use classifications within the Town of Orange are not zoning districts and do not have the authority of zoning; however, the preferred land use map and classifications are intended for use as a guidelines when making land use decisions. The Town of Orange has other tools that could be used to implement restrictions on incompatible land use development and include: purchase of land, easements or development rights; subdivision ordinance; mobile/manufactured home restrictions; nuisance regulations; design review for commercial and industrial developments, infrastructure improvements (sewer and water, utilities), road construction and maintenance, and public services (Town of Orange 2006).

5.3.1.2 Village Camp Douglas

Located within the center of the Town of Orange, the Village of Camp Douglas has no general zoning but the authority to provide *extraterritorial review* of subdivision requests in the town within 1.5 miles of its corporate limits. There is also the potential for *extraterritorial zoning* to be implemented within this area. To do this, however, requires a lengthy three-step process including:

- creating a joint committee consisting of representatives from the Village and the Town;
- preparing a proposed plan and regulations for the extraterritorial area and submitting it to the Village, which may adopt it as proposed or resubmit the proposal to the joint committee for changes;
- receiving a favorable majority vote from the joint committee on the proposed regulations before the Village can adopt them.

At this time the Village has not expressed any intention to implement *extraterritorial zoning* authority (Town of Orange 2006).

5.4 FUTURE LAND USE

The Future Land Use Plan for the Town of Orange and Volk Field ANGB areas, as indicated within the *Town of Orange Comprehensive Plan*, has identified approximately 5,459 acres of land for *Agriculture*, 6,772 acres of land for *Forestry*, 3,869 acres of land for *Preservation & Open Space*, 2,225 acres of land for *Government/Public/Institutional* development (including Volk Field ANGB), 424 acres in *Residential* and 1,714 acres for *Rural Residential* development, and 109 acres in *Commercial* use (Town of Orange 2006).

Most existing agricultural land is expected to stay in that use, including the cranberry bog at U.S. Route 12 and Belcher Road. Residential clusters are seen along North 6th Avenue near the intersection with County Trunk Highway (CTH) C, West 24th Street and West North Road; along CTH H; and along West 25th Street. Rural residential development is expected to grow around the residential cluster along CTH C and CTH H, and along CTH M near West 30th Street and West Hancock Road, and around the historic settlement of Lone Rock. Other rural residential areas are expected along West Jensen Road, North Keichinger Road, and West 34th Street. Rural residential is expected to stretch along U.S. Route 12 east of Camp Douglas. The wayside rest at Castle Rock and the site of the Old Orange Mill School is shown in governmental/institutional use (Town of Orange 2006).

The most significant change in land use is envisioned for the area west of the Village of Camp Douglas, both along U.S. Route 12 and CTH C, and in the area of West Nelson Valley Road. Here, current commercial and industrial uses exist (namely an auto salvage yard and a local excavating company) and are expected to be redeveloped but will remain as commercial use. This area should be sufficient to accommodate any future commercial demand. Although only 425 acres are set aside for residential use in the Future Land Use Plan, the 2,138 acres of land envisioned for residential and rural residential development more than meets the projected need for residential land through the planning period. The Town of Orange does not see any additional need for land dedicated to industrial or commercial uses in the future, beyond the redevelopment of existing commercial operations (Town of Orange 2006).

5.5 INCOMPATIBLE LAND USES

Most of the land surrounding Volk Field ANGB is currently considered rural with agricultural and open space land uses. For a land use area to be considered compatible, it must meet criteria for its category for accident potential and noise as shown in Table 4-1 and not violate height restrictions or runway airspace imaginary surfaces criteria.

5.5.1 Clear Zones and Accident Potential Zones

Figure 5-2 and Table 5-1 shows existing land use within the vicinity of Volk Field ANGB and CZs and APZs associated with Volk Field ANGB runways.

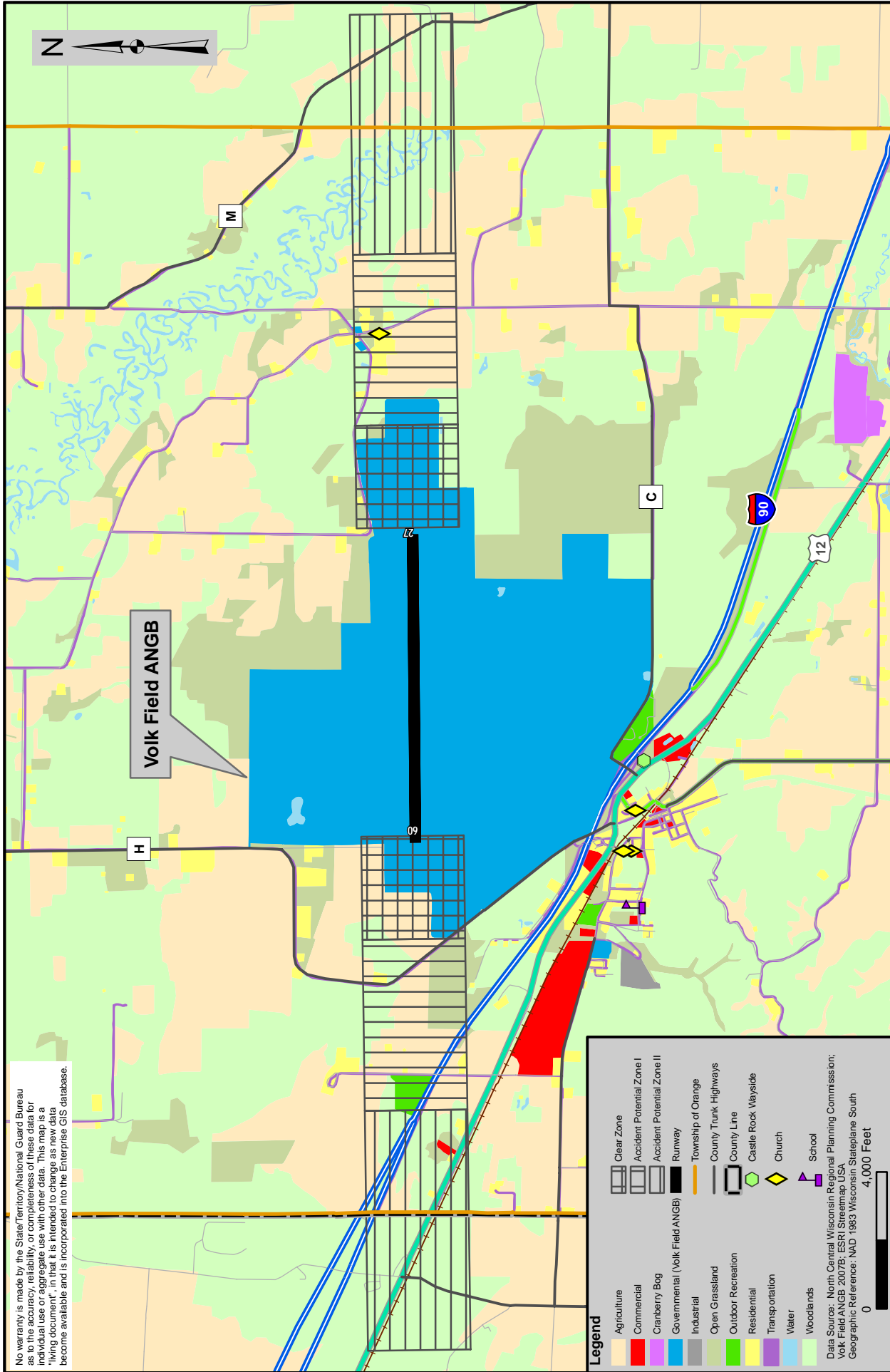
Table 5-1. Volk Field ANGB Clear Zones, Accident Potential Zones, and Land Use (Acres)

Category	Runway 09 (West)			Runway 27 (East)			Total
	Clear Zone	APZ I	APZ II	Clear Zone	APZ I	APZ II	
Residential	0.0	8.7	5.2	1.7	27.2	0.0	42.8
Commercial	0.0	0	3.1	0.0	0.0	0.0	3.1
Industrial	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Government (Volk Field ANGB)	120.8	0.0	0.0	165.6	32.3	0.0	318.7
Recreational	0.0	21.5	1.1	0.0	0.0	0.0	22.6
Open Grassland Low Density	1.6	65.5	10.0	10.2	11.4	0.0	98.7
Agricultural Low Density	74.7	168.2	178.3	0.0	194.7	179.1	795.0
Woodlands Low Density	9.5	75.2	277.4	29.1	74.7	303.0	768.9
Transportation	0.0	5.3	7.0	0.0	4.1	0.0	16.4
Total	206.6	344.4	482.1	206.6	344.4	482.1	2,066.2

5.5.1.1 Runway 09 Clear Zones and Accident Potential Zones

Volk Field ANGB does not have sole ownership of the CZs. Perpetual easements do exist within some of these areas. The southwest corner (1.89 acres) and

No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.



Volk Field ANGB
Air Installation Compatible Use Zone
Clear Zones/Accident Potential Zones and Area Land Use Designations

FIGURE
5-2

northern section (18.87 acres) of the western CZ are not under easement or owned by Volk Field ANGB. Further, land use within this CZ is not compatible with UFC 3-260-01 criteria; however, Volk Field ANGB has obtained the necessary Air Force Airfield waiver.

Residences also exist in the west APZ I within areas primarily used for agriculture. Under SLUCM Section 70, residential units are not recommended in APZ I. These incompatibilities were previously identified in the 1993 and 2001 AICUZ Studies.

Located in the western APZ II is Mill Bluff State Park. Under SLUCM, Section 70, certain recreational activities are compatible but with conditions within APZ II (e.g., meeting areas are of low intensity). Commercial and residential land use also exists within APZ II; further, according to SLUCM guidelines, these two land use designations within APZ II are considered compatible with conditions.

5.5.1.2 Runway 27 Clear Zones and Accident Potential Zones

As noted in the 1993 and 2001 Volk Field ANGB AICUZ studies, incompatible land use currently exists within the eastern CZ with three residences located within the northwest corner of the CZ. Volk Field does not have sole ownership of this CZ. Perpetual easements do exist within some of these areas; however, the northwest, northeast, and southeast corners of the eastern CZ are not under easement or owned by Volk Field ANGB.

Additional incompatible developments currently exist east of Volk Field ANGB in APZ I where several residential structures and Lone Rock Church are located near the intersection of 20th and 34th Streets. Residences also exist in the east APZ I within in areas primarily used for agriculture. Under SLUCM Section 70, residential units are not recommended in APZ I. These incompatibilities were previously identified in the 1993 and 2001 AICUZ studies. All designated land use within eastern APZ II is considered compatible.

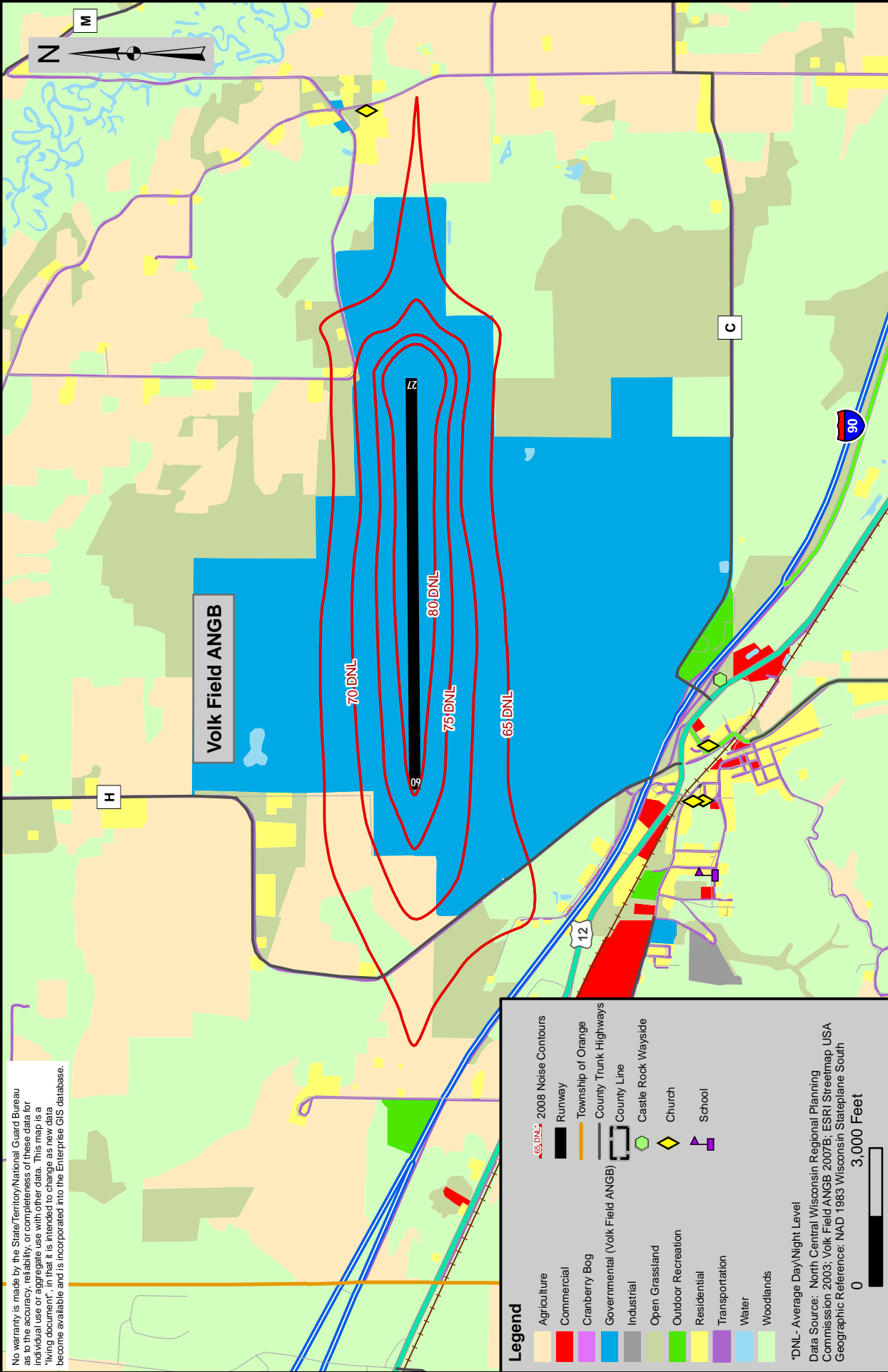
5.5.2 Noise Zones

Figure 5-3 and Table 5-2 shows existing land use and noise contours resulting from Volk Field ANGB aircraft operations. The DoD and other Federal agencies use DNL 65 as a land use planning threshold. Additional details of the methodologies used to produce the noise contours are presented in Appendix A.

Table 5-2. Volk Field ANGB Noise Exposure and Land Use Off-base (Acres)

Category	Acreage within Noise Zones				Total
	65-69	70-74	75-79	80+	
Residential	4.1	0.1	0.0	0.0	4.2
Commercial	0.0	0.0	0.0	0.0	0.0
Industrial	0.0	0.0	0.0	0.0	0.0
Government (State of Wisconsin)	1.4	0.0	0.0	0.0	1.4
Recreational	0.0	0.0	0.0	0.0	0.0
Open Grassland Low Density	70.3	0.3	0.0	0.0	70.6
Agricultural Low Density	148.1	27.9	0.0	0.0	176.0
Woodlands Low Density	59.7	0.2	0.0	0.0	59.9
Transportation	2.9	0.0	0.0	0.0	2.9
Total	286.1	28.9	0.0	0.0	315.0

No incompatibilities exist around the Volk Field ANGB airfield as a result of noise exposure. High noise levels are generally confined to areas within the base boundary and areas adjacent to the airfield complex. Four residences currently exist within the 65-to-69 DNL contour located near the north east section of Volk Field ANGB boundary. Residential land use within the 65-to-69 DNL contour is compatible with Noise Compatibility Guidelines if Noise Level Reduction measures have been incorporated to residential construction. However, measures to achieve an overall noise level reduction do not necessarily solve noise difficulties and additional evaluation is warranted. Although local conditions may require residential use, it is discouraged in DNL 65-to-69 dB. An evaluation should be conducted prior to approvals, indicating a demonstrated



Volk Field ANGB

Air Installation Compatible Use Zone

Noise Contours and Area Land Use Designations

FIGURE 5-3



community need for residential use would not be met if development were prohibited in these zones, and there are no viable alternative locations.

5.5.3 Height Restrictions and Runway Airspace Imaginary Surfaces

Currently, all height restrictions and runway airspace imaginary surfaces associated with Volk Field ANGB airfield comply with Air Force obstruction criteria in Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design*. No incompatible objects or structures exceed the given criteria that would result in land use incompatibility.

5.5.4 Land Use Incompatibility

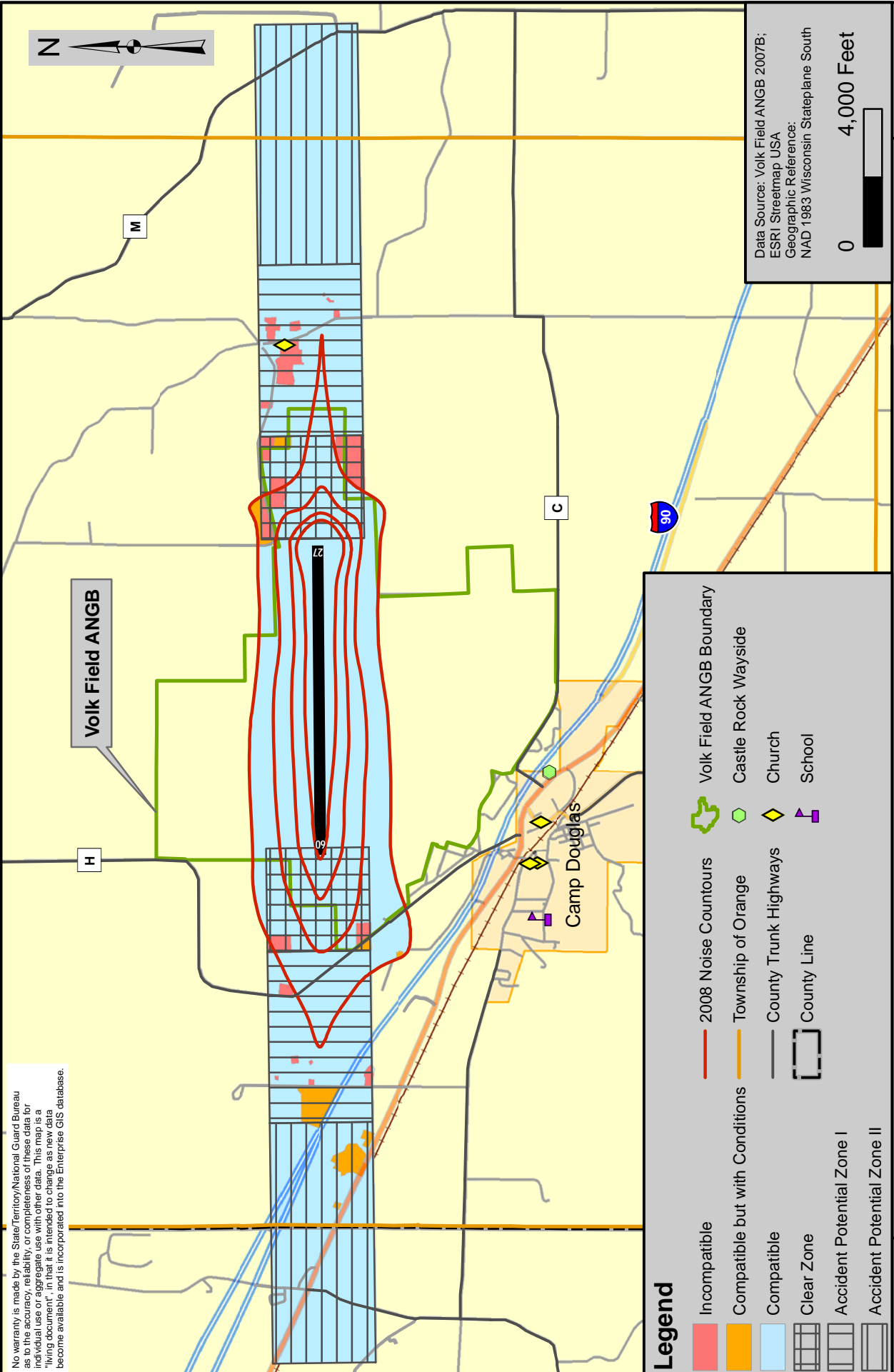
The compatibility guidelines shown in Table 4-1 were combined with the existing land use data presented on Figure 5-1 to determine land use compatibility associated with clear zones, accident potential zones, and noise contours at Volk Field ANGB (Figure 5-4). Height restriction criteria and runway airspace imaginary surface figures are not combined with land use given that height restrictions criteria has not been exceeded or the runway airspace imaginary surfaces compromised. Also for the purpose of this study, land use is restricted to ground cover.

Land use areas to the east of Volk Field ANGB are incompatible with base operations, while land use areas to both the east and west are compatible with base operations but only under specific conditions (e.g., NLR measures incorporated into construction, etc.).

5.5.5 Zoning

As mentioned in Section 5.3, Zoning, no zoning currently exists within Juneau County, the Town of Orange, or the Village of Camp Douglas; however, land use classifications within Juneau County, the Town of Orange, and Village of Camp Douglas are intended for use as a guide when making land use decisions.

No warranty is made by the State/Territory/National Guard Bureau as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data. This map is a "living document", in that it is intended to change as new data become available and is incorporated into the Enterprise GIS database.



Data Source: Volk Field ANGB 2007B;
 ESRI Streetmap USA
 Geographic Reference:
 NAD 1983 Wisconsin Stateplane South
 0 4,000 Feet

Legend

- Incompatible
- Compatible but with Conditions
- Compatible
- Clear Zone
- Accident Potential Zone I
- Accident Potential Zone II
- 2008 Noise Countours
- Volk Field ANGB Boundary
- Castle Rock Wayside
- Church
- School
- Township of Orange
- County Trunk Highways
- County Line



**Volk Field ANGB
 Air Installation Compatible Use Zone
 Area Land Use Compatibility**

**FIGURE
 5-4**

Regarding Volk Field ANGB, restrictions exist in a 3-mile radius around Volk Field ANGB where height limitations can be imposed on buildings to ensure that they do not pose a danger to aviation. Any development which meets certain criteria, mostly related to height or transmitting radio frequencies, which could have an effect on the operation of the airfield must submit an application to the Air Force and FAA. There are also restrictions placed in state law. The basic trigger for review is a structure of a certain height above average grade – 200 feet in Federal law and 150 feet in state law – that requires some form of permit. Any development, within the 3-mile radius around the airfield, must be reviewed by airfield authorities and subsequent changes must be approved by a two-thirds majority of the governing body (Town of Orange 2006). Essentially, development permits within 3 miles of Volk Field ANGB have restrictions and these restrictions act as zoning regulations around Volk Field ANGB.

5.5.6 Planning Considerations

DoD analysis has determined that the areas immediately beyond the ends of the runways and along the approach and departure flight paths have the highest potential for aircraft accidents. Volk Field ANGB CZs and APZs will remain as located regardless of a significant operational change and would not be a reason for the AICUZ to be amended.

AICUZ noise contours describe the noise characteristics of a specific operational environment and, as such, will change if a significant operational change is made. Should a new mission be established at Volk Field ANGB, adding a larger number of aircraft or different aircraft types, the AICUZ would be amended.

Height restriction and obstacle-free runway airspace imaginary surfaces associated with Volk Field ANGB will remain as located regardless of a significant operational change and would not cause the AICUZ to be amended.

Volk Field ANGB has provided CZ, APZ, noise contour, height restriction, and obstacle-free runway airspace imaginary surfaces information in this study that reflects the most current and accurate depiction of aircraft activities. It is highly

recommended that Juneau County, the Town of Orange, and the Village of Camp Douglas establish long-term zoning ordinances around Volk Field ANGB.

Attachment D
State Natural Areas

The following State Natural Areas are located in proximity to Volk Field or Hardwood Range:

Mill Bluff (SNA No. 359)

The Mill Bluff SNA is located in Mill Bluff State Park, along the Juneau County/Monroe County boundary just west of Volk Field. Mill Bluff features a number of spectacular Cambrian sandstone mesas, buttes and pinnacles that rise above the level bed of an extinct glacial lake. Many of the area bluffs contain 6-12 inches long petroglyphs (rock carvings) that are shaped like bird tracks. They date back to Upper Mississippi Indian culture about 400 years ago. Mill Bluff is owned by the DNR and was designated a State Natural Area in 2002.

Necedah Oak-Pine Savanna (SNA No. 7)

The Necedah Oak-Pine Savanna is located in the northwestern portion of the county near Sprague. The pre-settlement vegetation of the area was jack pine and oak barrens. The site currently has some barren openings but is mostly a closed forest of jack pine and Hill's oak. Numerous prairie and barrens species inhabit the openings. The area was originally established to restore pine-barrens and as a comparison for the adjacent unburned forest. Necedah Oak-Pine Savanna is owned by the U.S. Fish and Wildlife Service and was designated a State Natural Area in 1966.

Necedah Oak-Pine Forest (SNA No. 14)

The Necedah Oak-Pine Forest is located approximately 3 miles northwest of Necedah. The southern 80 acres of the property was set aside by the Society of American Foresters in 1960 as a "natural area" to be left in an unmodified condition. Original surveyors' records show the site to be an open forest of jack pine, Hill's oak, white pine, and a few red pines with no shrubs in the understory. Necedah Oak-Pine Forest is owned by the U.S. Fish and Wildlife Service and was designated a State Natural Area in 1966.

Cranberry Creek Mound Group (SNA No. 203)

The Cranberry Creek Mound Group is located approximately 10 miles north of Necedah. The property preserves one of the most significant archaeological sites in Wisconsin and is one of the best preserved mound complexes in the Upper Midwest. The site contains excellent examples of conical, linear, oval, and effigy mounds built by Native Americans of the Woodland period (ca. 100-800 A.D.). Although the northern cluster has been altered somewhat by plowing, the southern cluster is unaltered. Among the mounds featured are bear/panther mounds and a 50 foot long bird effigy mound with a wingspan of 125 feet. Since 1917, archaeological investigation, mapping and interpretation have been conducted and the site is part of a larger complex of preserved and protected mounds located in adjacent and nearby areas. Cranberry Creek Mound Group is owned by the DNR and was designated a State Natural Area in 1986.

Suk Cerney Peatlands (SNA No. 575)

Suk Cerney Peatlands, within the Meadow Valley Wildlife Area, is approximately 8 miles west of Necedah. The peatlands are an extensive mosaic of meadow, marsh, and conifer swamp interwoven with sandy uplands that support pine-barrens. Within the nearly level peatland in the bed of Glacial Lake Wisconsin is a central poor fen. Adjoining uplands, usually low sand ridges formed from the ancient dunes that developed following the natural drainage of the now extinct Glacial Lake Wisconsin. Suk Cerney Peatlands is owned by the U.S. Fish and Wildlife Service and leased by the DNR. It was designated a State Natural Area in 2008.

Meadow Valley Barrens (SNA No. 576)

Meadow Valley Barrens is split into two units, both located within the Meadow Valley Wildlife Area. The northern unit is located approximately one mile east of Mather, while the southern unit is located approximately 5 miles southeast of Mather. The barrens are situated in the bed of Glacial Lake Wisconsin. Meadow Valley Barrens supports a Hill's oak dominated barrens with scattered jack pine throughout. Three rare insects occur here including the federally listed Karner blue butterfly, a barrens specialist. Meadow Valley Barrens is owned by the U.S. Fish and Wildlife Service and leased by the DNR. It was designated a State Natural Area in 2008.

Blueberry Trail (SNA No. 577)

Blueberry Trail is located within the Meadow Valley Wildlife Area southeast of Mather. The property features a relatively undisturbed floodplain forest along a meandering, free-flowing stretch of Beaver Creek. Just north of the creek is a white pine-red maple swamp, a community type that is restricted to the central sand plains area. Two rare birds, the cerulean warbler and Louisiana water thrush, have been present during the breeding season. Blueberry Trail is owned by the U.S. Fish and Wildlife Service and leased by the DNR. It was designated a State Natural Area in 2008.

Kingston Pines (SNA No. 578)

Kingston Pines is located within the Meadow Valley Wildlife Area northwest of Mather. Within rolling, sandy moraine supporting boggy wetlands, Kingston Pines features a mature pine and oak forest of red pine, white pine, Hill's oak, and black oak. The oldest pines occur on nearly flat ground between Big Lake and the Kingston Flowage. Both the pine and oak species are reproducing well. Several species of Greatest Conservation Need nest in the older pine and marsh including least flycatcher, Canada warbler, and the state-threatened red-shouldered hawk (*Buteo lineatus*). Patches of old-growth white pine are evident within the site. Kingston Pines is owned by the U.S. Fish and Wildlife Service and leased by the DNR. It was designated a State Natural Area in 2008.

Hog Island Tamaracks (SNA No. 579)

Hog Island Tamaracks is divided into three units with the Wood County Wildlife Area and Wood County Forest along the Juneau County/Wood County boundary. Situated within the flat, sandy bed of Glacial Lake Wisconsin, Hog Island Tamaracks features a northern wet forest of tamarack and black spruce. Low sandy ridges are interspersed within the flat plain. This peatland community provides habitat for numerous Species of Greatest Conservation Need found at their southern range limit. Species include Canada warbler, golden-winged warbler, Connecticut warbler, and veery. Hog Island Tamaracks is owned by Wood County and the U.S. Government. It was established as a State Natural Area in 2008.

Red Oak Bottoms (SNA No. 523)

This 20-acre site along Hemlock Creek is definitely a floodplain forest. However, when compared to the flora of other floodplain forests, it differs substantially by having a significant northern species composition. From the standpoint of maintaining the full range of biological diversity, sites like this are extremely important, exhibiting attributes and combinations of species not found elsewhere in the state, or even the Midwest. These unusual species combinations provide excellent research opportunities, which may lead to a better understanding of how a floodplain functions ecologically.

Oak Creek Savanna (SNA No. 521)

Owl Creek Fen Savanna is a 900-acre peatland complex that supports a diversity of natural features including central poor fen, tamarack swamp, alder thicket, and upland islands of pine and oak. Of note are unique savanna-like stands of open-grown aspen situated in a wet meadow dominated by blue-joint

grass. Owl Creek Fen Savanna is owned by Wood County and was designated a State Natural Area in 2006.

Hiles Wetlands (SNA No. No. 524)

Hiles Wetlands is a large complex of tamarack poor fen and sedge meadow within the Meadow Valley Wildlife Area, which have seen relatively little human disturbance as compared with other similar community types in this area. The wilderness aspect of this site adds to its ecological significance. Hiles Wetlands is owned by Wood County and was designated a State Natural Area in 2006.

Skunk Creek Woods Natural Area (SNA No. 522)

Skunk Creek Woods features a northern dry-mesic forest situated within a large expansive peatland (Hiles Wetlands SNA No. 524). Rare and uncommon species found here include the state-threatened red-shouldered hawk (*Buteo lineatus*), golden-winged warbler (*Vermivora chrysoptera*), and the four-toed salamander (*Hemidactylium scutatum*). Skunk Creek Woods is owned by Wood County and was designated a State Natural Area in 2007.

Yellow River Floodplain Forest (SNA No. 580)

Situated along the meandering Yellow River, this mature, intact floodplain forest is dominated by silver maple with river birch, basswood, and red oak. Protection of intact stands of bottomland forest is a high priority along this river corridor and opportunities are increasingly scarce on this landscape. This stretch of the Yellow River is an important component of a highly significant riverine corridor that is threatened by development. Yellow River Floodplain Forest is owned by the DNR and was designated a State Natural Area in 2008.

Bear Bluff (SNA No. 529)

Bear Bluff SNA is situated within an extensive, wetland complex that occupies a significant portion of the bed of the extinct Glacial Lake Wisconsin. It is a small remnant of the "Great Swamp of Central Wisconsin". Of note is the presence of a forested community dominated by white pine and red maple, which occupies a landscape position between wet, acid forested wetlands of black spruce and tamarack, and dry forests comprised of pine and oak. This community type is uncommon in the state with a high percentage occurring in and around the bed of Glacial Lake Wisconsin. A small portion of the site contains a more open wetland. Bear Bluff is owned by the DNR and Jackson County. It was designated a State Natural Area in 2007.

Attachment E
Operational Zones

Below are the operational zones defined in the AICUZ (Volk Field) and RCUA (Hardwood Range):

Volk Field

Clear Zone: This is a 3,000 foot by 3,000 foot area immediately off the end of the runway. Over a quarter of all aircraft accidents happen in this area. ANG has acquired property interests in this area (fee simple ownership and easements) to limit incompatible land uses.

APZ 1: A tenth of accidents occur in the next 5,000 feet. Because of the lessened accident threat a broader range of land uses, including manufacturing, warehousing, recreation, and utilities are seen as compatible.

APZ 2: As the threat of accidents diminishes, the range of compatible uses expands to include commercial and low-density residential use – no greater than one unit per acre. Multi-story and high density uses are still inappropriate, as are places of assembly such as restaurants, churches, schools or theaters, because of the possible threat of accidents.

Noise Zones: 65 dB is seen as the threshold of significant annoyance from aircraft noise. Just over 285 acres of the area where DNL noise levels exceed 65 dB are outside of the boundaries of the installation. Of this total roughly five acres are in land uses that could be considered incompatible.

Hardwood Range

OPZ 1: Hardwood Range and the airspace above – the primary impact area – constitute the area most affected by Range operations. Land use in this area is totally under ANG control.

OPZ 2: Defined as a five-mile radius around the impact area, this is the area where the aircraft's arming status increases the threat of an unintended release of ordnance. High-density uses and places of assembly are inappropriate because of this threat, however remote.

OPZ 3: This area reflects the primary flight paths into Range. Although there is a lower risk of impacts from accidents, these areas are affected by the operation of the Range in ways that can be detrimental to land uses on the ground.

Flight Safety Zone: Restricted airspace that coincides generally to OPZ 2. These restrictions have limited effect on existing land uses, except for aerial spraying applications to agricultural land. There is a higher, though very small, chance of airplane crashes

Noise Zones: Here again, only very limited areas outside of the installation boundaries are affected by noise levels over 65dB.

Attachment F

**Readiness and Environmental Protection Initiative
(10 USC §2684a)**

C

APPENDIX C:

10 U.S.C. §2684a LANGUAGE

(a) Agreements Authorized.— The Secretary of Defense or the Secretary of a military department may enter into an agreement with an eligible entity or entities described in subsection (b) to address the use or development of real property in the vicinity of, or ecologically related to, a military installation or military airspace for purposes of—

(1) limiting any development or use of the property that would be incompatible with the mission of the installation; or

(2) preserving habitat on the property in a manner that—

(A) is compatible with environmental requirements; and

(B) may eliminate or relieve current or anticipated environmental restrictions that would or might otherwise restrict, impede, or otherwise interfere, whether directly or indirectly, with current or anticipated military training, testing, or operations on the installation.

(b) Eligible Entities.— An agreement under this section may be entered into with any of the following:

(1) A State or political subdivision of a State.

(2) A private entity that has as its stated principal organizational purpose or goal the conservation, restoration, or preservation of land and natural resources, or a similar purpose or goal, as determined by the Secretary concerned.

(c) Inapplicability of Certain Contract Requirements.— Chapter 63 of title 31 shall not apply to any agreement entered into under this section.

(d) Acquisition and Acceptance of Property and Interests.—

(1) An agreement with an eligible entity or entities under this section shall provide for—

(A) the acquisition by the entity or entities of all right, title, and interest in and to any real property, or any lesser interest in the property, as may be appropriate for purposes of this section; and

(B) the sharing by the United States and the entity or entities of the acquisition costs in accordance with paragraph (3).

(2) Property or interests may not be acquired pursuant to the agreement unless the owner of the property or interests consents to the acquisition.

(3) An agreement with an eligible entity under this section may provide for the management of natural resources on real property in which the Secretary concerned acquires any right, title, or interest in accordance with this subsection and for the payment by the United States of all or a portion of the costs of such natural resource management if the Secretary concerned determines that there is a demonstrated need to preserve or restore habitat for the purpose described in subsection (a)(2).

(4)

(A) The Secretary concerned shall determine the appropriate portion of the acquisition costs to be borne by the United States in the sharing of acquisition costs of real property, or an interest in real property, under paragraph (1)(B).

(B) In lieu of or in addition to making a monetary contribution toward the cost of acquiring a parcel of real property, or an interest therein, pursuant to an agreement under this section, the Secretary concerned may convey, using the authority provided by section 2869 of this title, real property described in paragraph (2) of subsection (a) of such section, subject to the limitation in paragraph (3) of such subsection.

(C) The portion of acquisition costs borne by the United States under subparagraph (A), either through the contribution of funds or excess real property, or both, may not exceed an amount equal to, at the discretion of the Secretary concerned—

(i) the fair market value of any property or interest in property to be transferred to the United States upon the request of the Secretary concerned under paragraph (5); or

(ii) the cumulative fair market value of all properties or interests to be transferred to the United States under paragraph (5) pursuant to an agreement under subsection (a).

(D) The portion of acquisition costs borne by the United States under subparagraph (A) may exceed the amount determined under subparagraph (C), but only if—

(i) the Secretary concerned provides written notice to the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives containing—

(I) a certification by the Secretary that the military value to the United States of the property or interest to be acquired justifies a payment in excess of the fair market value of the property or interest; and

(II) a description of the military value to be obtained; and

(ii) the contribution toward the acquisition costs of the property or interest is not made until at least 14 days after the date on which the notice is submitted under clause (i) or, if earlier, at least 10 days after the date on which a copy of the notice is provided in an electronic medium pursuant to section 480 of this title.

(E) The contribution of an entity or entities to the acquisition costs of real property, or an interest in real property, under paragraph (1)(B) may include, with the approval of the Secretary concerned, the following or any combination of the following:

(i) The provision of funds, including funds received by such entity or entities from a Federal agency outside the Department of Defense or a State or local government in connection with a Federal, State, or local program.

(ii) The provision of in-kind services, including services related to the acquisition or maintenance of such real property or interest in real property.

(iii) The exchange or donation of real property or any interest in real property.

(5) The agreement shall require the entity or entities to transfer to the United States, upon the request of the Secretary concerned, all or a portion of the property or interest acquired under the agreement or a lesser interest therein. The Secretary shall limit such transfer request to the minimum property or interests necessary to ensure that the property concerned is developed and used in a manner appropriate for purposes of this section.

(6) The Secretary concerned may accept on behalf of the United States any property or interest to be transferred to the United States under the agreement.

(7) For purposes of the acceptance of property or interests under the agreement, the Secretary concerned may accept an appraisal or title documents prepared or adopted by a non-Federal entity as satisfying the applicable requirements of section 301 of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of

1970 (42 U.S.C. 4651) or section 3111 of title 40, if the Secretary concerned finds that the appraisal or title documents substantially comply with the requirements.

(e) Acquisition of Water Rights.— The authority of the Secretary concerned to enter into an agreement under this section for the acquisition of real property (or an interest therein) includes the authority to support the purchase of water rights from any available source when necessary to support or protect the mission of a military installation.

(f) Additional Terms and Conditions.— The Secretary concerned may require such additional terms and conditions in an agreement under this section as the Secretary considers appropriate to protect the interests of the United States.

(g) Annual Reports.—

(1) Not later than March 1, 2007, and annually thereafter, the Secretary of Defense shall, in coordination with the Secretaries of the military departments and the Director of the Department of Defense Test Resource Management Center, submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the projects undertaken under agreements under this section.

(2) Each report under paragraph (1) shall include the following:

(A) A description of the status of the projects undertaken under agreements under this section.

(B) An assessment of the effectiveness of such projects, and other actions taken pursuant to this section, as part of a long-term strategy to ensure the sustainability of military test and training ranges, military installations, and associated airspace.

(C) An evaluation of the methodology and criteria used to select, and to establish priorities, for projects undertaken under agreements under this section.

(D) A description of any sharing of costs by the United States and eligible entities under subsection (d) during the preceding year, including a description of each agreement under this section providing for the sharing of such costs and a statement of the eligible entity or entities with which the United States is sharing such costs.

(E) Such recommendations as the Secretary of Defense considers appropriate for legislative or administrative action in order to improve the efficiency and effectiveness of actions taken pursuant to agreements under this section.

(h) Funding.—

(1) Except as provided in paragraph (2), funds authorized to be appropriated for operation and maintenance of the Army, Navy, Marine Corps, Air Force, or Defense-wide activities may be used to enter into agreements under this section.

(2) In the case of a military installation operated primarily with funds authorized to be appropriated for research, development, test, and evaluation, funds authorized to be appropriated for the Army, Navy, Marine Corps, Air Force, or Defense-wide activities for research, development, test, and evaluation may be used to enter into agreements under this section with respect to the installation.

(i) Definitions.— In this section:

(1) The term “Secretary concerned” means the Secretary of Defense or the Secretary of a military department.

(2) The term “State” includes the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Marianas, and the territories and possessions of the United States.

Attachment G
2005 Wisconsin Act 26

Previous file: 2005 Wisconsin Act 25 (PDF: )

Date of enactment: **July 29, 2005**

2005 Assembly Bill 399 Date of publication*: **August 12, 2005**

2005 WISCONSIN ACT 26

AN ACT *to amend* 59.69 (2) (e), 59.69 (2) (f), 60.61 (4) (a), 60.61 (4) (b), 60.61 (4) (c) 1., 62.23 (1) (a), 62.23 (3) (b), 62.23 (7) (d) 1., 62.23 (7) (d) 2. and 66.1001 (2) (g); and *to create* 14.017 (4) and 59.69 (2) (cm) of the statutes; **relating to:** the involvement of military base commanders with local zoning entities; and creating a council on military and state relations.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 14.017 (4) of the statutes is created to read:

14.017 (4) COUNCIL ON MILITARY AND STATE RELATIONS. There is created in the office of the governor a council on military and state relations. The council shall assist the governor by working with the state's military installations, commands and communities, state agencies, and economic development professionals to develop and implement strategies designed to enhance those military installations. The council shall advise and assist the governor on issues related to the location of military installations in this state. The council shall assist and cooperate with state agencies to determine how those agencies can better serve military communities and military families. The council shall assist the efforts of military families and their support groups regarding quality-of-life issues for service men and women, their spouses, and their dependents. The chairperson of the council shall be elected by the members of the council. The council shall consist of the following:

- (a) A representative of the department of military affairs.
- (b) A representative of Fort McCoy, Monroe County.
- (c) Two members of each house of the legislature, representing the majority party and minority party in each house, chosen as are members of the standing committees of that house.
- (d) A representative of the office of the governor.

SECTION 2. 59.69 (2) (cm) of the statutes is created to read:

59.69 (2) (cm) In addition to the members who serve on, or are appointed to, a planning and zoning committee, commission, or agency under par. (a), the committee, commission, or agency shall also include, as a nonvoting member, a representative from a military base or installation, with at least 200 assigned military personnel or that contains

at least 2,000 acres, that is located in the county, if the base's or installation's commanding officer appoints such a representative.

SECTION 3. 59.69 (2) (e) of the statutes is amended to read:

59.69 (2) (e) Wherever a public hearing is specified under this section, the hearing shall be conducted by the county zoning agency in the county courthouse or in such other appropriate place as may be selected by the county zoning agency. The county zoning agency shall give notice of the public hearing by publication in the county as a class 2 notice under ch. 985, and shall consider any comments made, or submitted by, the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the county.

SECTION 4. 59.69 (2) (f) of the statutes is amended to read:

59.69 (2) (f) Whenever a county development plan, part thereof or amendment thereto is adopted by, or a zoning ordinance or amendment thereto is enacted by, the board, a duplicate copy shall be certified by the clerk and sent to the municipal clerks of the municipalities affected thereby, and also to the commanding officer, or the officer's designee, of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the county.

SECTION 5. 60.61 (4) (a) of the statutes is amended to read:

60.61 (4) (a) The town board shall appoint a town zoning committee consisting of 5 members. The town zoning committee shall also include, as a nonvoting member, a representative from a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in the town, if the base's or installation's commanding officer appoints such a representative.

SECTION 6. 60.61 (4) (b) of the statutes is amended to read:

60.61 (4) (b) Before the town board may adopt an ordinance under sub. (2), the town zoning committee shall recommend zoning district boundaries and appropriate regulations and restrictions for the districts. In carrying out its duties, the town zoning committee shall develop a preliminary report and hold a public hearing on the report before submitting a final report to the town board. The town zoning committee shall consider any comments made, or submitted, by the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the town. If the town zoning committee makes a substantial change in its report following the public hearing, it shall hold another public hearing on the report. After the final report of the town zoning committee is submitted to the town board, the board may adopt an ordinance under sub. (2) following a public hearing held by the board on the proposed ordinance. A copy of an adopted ordinance shall be sent to the commanding officer, or the officer's designee, of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the town.

SECTION 7. 60.61 (4) (c) 1. of the statutes is amended to read:

60.61 (4) (c) 1. After the town board has adopted a town zoning ordinance, the board may alter, supplement or change the boundaries or regulations established in the ordinance if a public hearing is held on the revisions. The board shall give notice of any proposed revisions in the zoning ordinance and of the time and place of the public hearing on them by a class 2 notice under ch. 985. The board shall allow any interested person to testify at the hearing, and shall consider any comments made, or submitted, by the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the town. If any proposed revision under this subdivision would make any change in an airport affected area, as defined in s. 62.23 (6) (am) 1. b., the board shall mail a copy of such notice to the owner or operator of the airport bordered by the airport affected area.

SECTION 8. 62.23 (1) (a) of the statutes is amended to read:

62.23 (1) (a) The council of any city may by ordinance create a "City Plan Commission," to consist of 7 members. The commission shall also include, as a nonvoting member, a representative from a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in the city, if the base's or installation's commanding officer appoints such a representative. All members of the commission, other than the representative appointed by the commanding officer of a military base or installation, shall be appointed by the mayor, who shall also choose the presiding officer. The mayor may appoint himself or herself to the commission and may appoint other city elected or appointed officials, except that the commission shall always have at least 3 citizen members who are not city officials. Citizen members shall be persons of recognized experience and qualifications. The council may by ordinance provide that the membership of the commission shall be as provided thereunder.

SECTION 9. 62.23 (3) (b) of the statutes is amended to read:

62.23 (3) (b) The commission may adopt the master plan as a whole by a single resolution, or, as the work of making the whole master plan progresses, may from time to time by resolution adopt a part or parts of a master plan. Beginning on January 1, 2010, if the city engages in any program or action described in s. 66.1001 (3), the master plan shall contain at least all of the elements specified in s. 66.1001 (2). The adoption of the plan or any part, amendment, or addition, shall be by resolution carried by the affirmative votes of not less than a majority of all the members of the city plan commission. The resolution shall refer expressly to the elements under s. 66.1001 and other matters intended by the commission to form the whole or any part of the plan, and the action taken shall be recorded on the adopted plan or part of the plan by the identifying signature of the secretary of the commission, and a copy of the plan or part of the plan shall be certified to the common council, and also to the commanding officer, or the officer's designee, of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city. The purpose and effect of the adoption and certifying of the master plan or part of the plan shall be solely to aid the city plan commission and the council in the performance of their duties.

SECTION 10. 62.23 (7) (d) 1. of the statutes is amended to read:

62.23 (7) (d) 1. a. Upon the request of the city council, the city plan commission, the board of public land commissioners, or if the city has neither, the city plan committee of the city council shall prepare and recommend a district plan and regulations for the city. Following the formulation of tentative recommendations a public hearing shall be held by, at the council's option, the council, the plan commission, the board of public land commissioners or the plan committee. The entity holding the hearing shall consider any comments made, or submitted, by the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city. At least 10 days' prior written notice of any such hearings shall be given to the clerk of any municipality whose boundaries are within 1,000 feet of any lands included in the proposed plan and regulations, and to the commanding officer, or the officer's designee, of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city, but failure to give such notice shall not invalidate such district plan or regulations. Publication of a class 2 notice, under ch. 985, of the tentative recommendations and hearings thereon must be made once during each of the 2 weeks prior to such hearing.

b. The council may make changes in the tentative recommendations after first submitting the proposed changes to the plan commission, board of public land commissioners or plan committee for recommendation and report and after publishing a class 2 notice, under ch. 985, of the proposed changes and hearings thereon as well as the notice to the clerk of any contiguous municipality and to the commanding officer, or the officer's designee, of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city, as required in subd. 1. a. Hearings on the proposed changes may be held by, at the council's option, the

council, the plan commission, the board of public land commissioners or the plan committee. The entity holding the hearing shall consider any comments made, or submitted, by the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city.

SECTION 11. 62.23 (7) (d) 2. of the statutes is amended to read:

62.23 (7) (d) 2. The council may adopt amendments to an existing zoning ordinance after first submitting the proposed amendments to the city plan commission, board of public land commissioners or plan committee for recommendation and report and after providing the notices as required in subd. 1. b. of the proposed amendments and hearings thereon. In any city which is not located in whole or in part in a county with a population of 500,000 or more, if the proposed amendment would make any change in an airport affected area, as defined in sub. (6) (am) 1. b., the council shall mail a copy of such notice to the owner or operator of the airport bordered by the airport affected area. A hearing shall be held on the proposed amendments by, at the council's option, the council, the plan commission, the board of public land commissioners or the plan committee. The entity holding the hearing shall consider any comments made, or submitted, by the commanding officer, or the officer's designee, of a military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, that is located in or near the city. If the council does not receive recommendations and a report from the plan commission, board of public land commissioners or plan committee within 60 days of submitting the proposed amendments, the council may hold hearings without first receiving the recommendations and report.

SECTION 12. 66.1001 (2) (g) of the statutes is amended to read:

66.1001 (2) (g) *Intergovernmental cooperation element.* A compilation of objectives, policies, goals, maps, and programs for joint planning and decision making with other jurisdictions, including school districts and adjacent local governmental units, for siting and building public facilities and sharing public services. The element shall analyze the relationship of the local governmental unit to school districts and adjacent local governmental units, and to the region, the state and other governmental units. The element shall consider, to the greatest extent possible, the maps and plans of any military base or installation, with at least 200 assigned military personnel or that contains at least 2,000 acres, with which the local governmental unit shares common territory. The element shall incorporate any plans or agreements to which the local governmental unit is a party under s. 66.0301, 66.0307 or 66.0309. The element shall identify existing or potential conflicts between the local governmental unit and other governmental units that are specified in this paragraph and describe processes to resolve such conflicts.

Next file: 2005 Wisconsin Act 27 (PDF: )

Attachment H

Eglin AFB – Escribano Point, Shoal River



EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

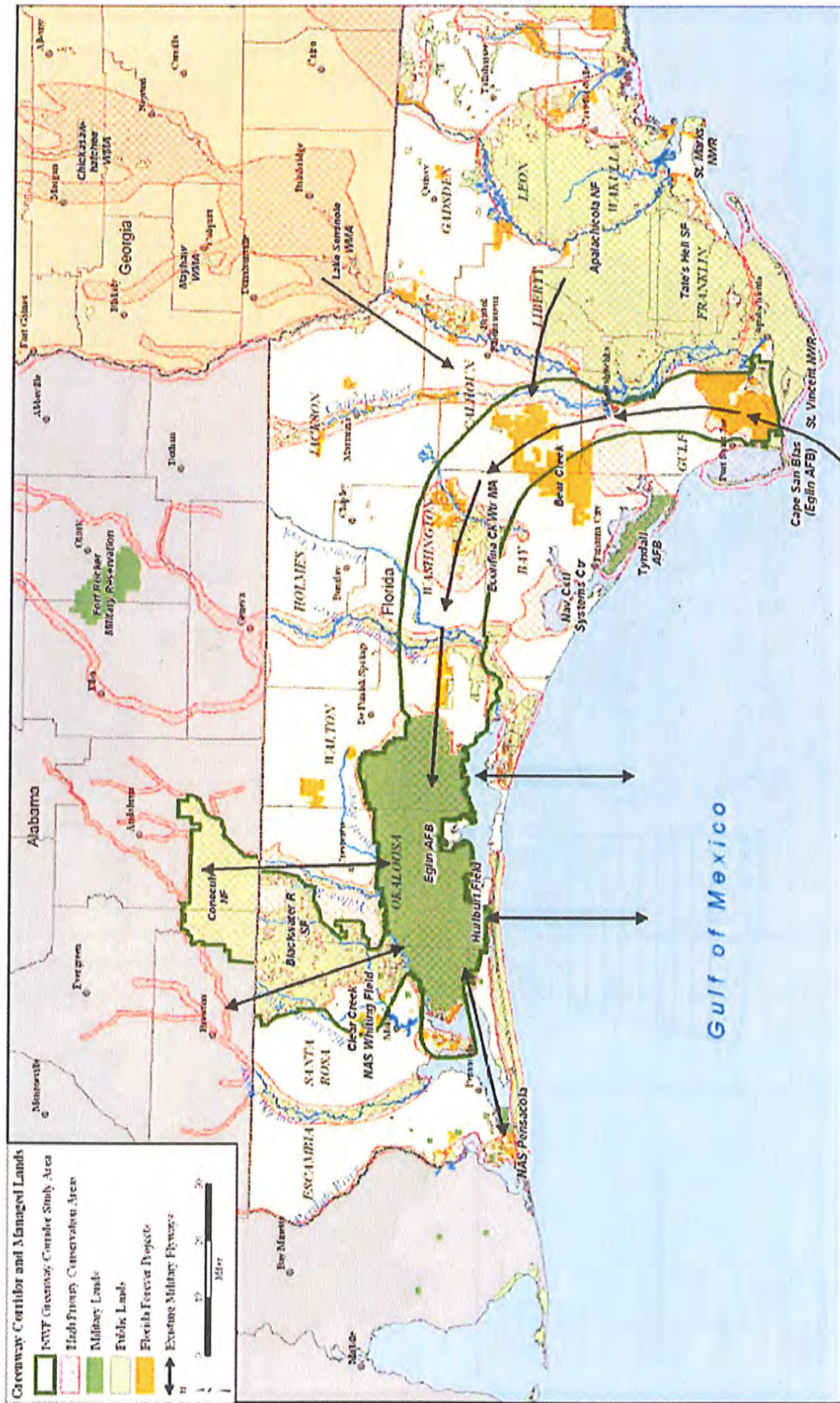


Figure 3-31: Northwest Florida Greenway Corridor



EGLIN AIR FORCE BASE JOINT LAND USE STUDY

JUNE 2009

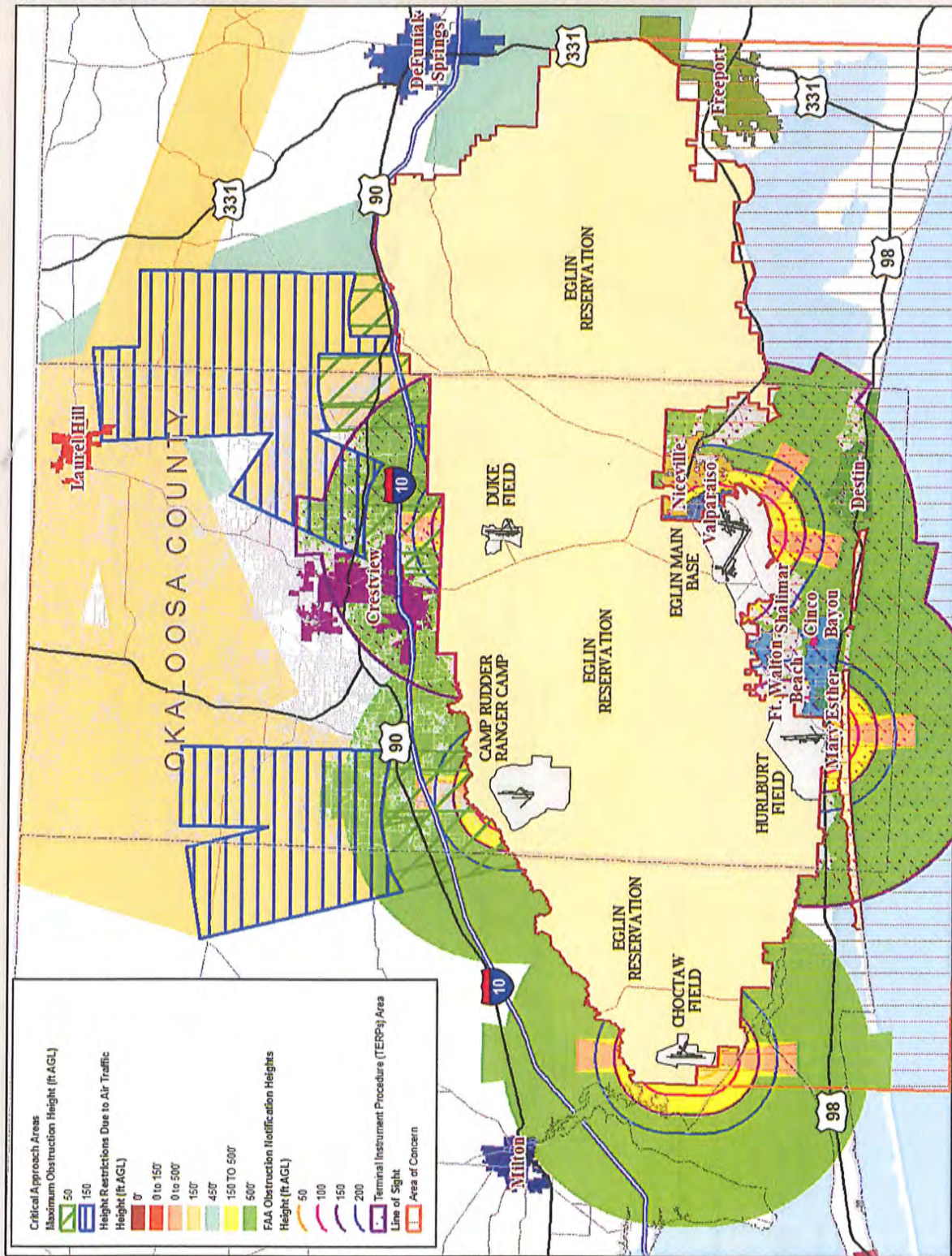


Figure 3-14: Maximum Obstruction Heights For Other Military Training Routes and Terminal Instrument Procedures (TERP)
 Note the lowest elevation shown for an area governs.

Esc ribano Point

Santa Rosa County

Partnerships

Purpose for State Acquisition

Acquisition of this proposal would complete public land ownership of Esc ribano Point and the mouth of the Yellow River, thereby achieving the goals of the original 1994 Esc ribano Point CARL project. It encompasses three sets of parcels: a northern set at the mouth of the Yellow River that adjoins Yellow River Water Management Area (WMA) lands; a middle set around Catfish Basin adjoining Eglin Air Force Base lands on the east and Yellow River WMA lands on the north and south, and a southern set, encompassing Esc ribano Point, that adjoins Yellow River WMA lands on the north and Eglin lands on the north and east. If purchased, the proposal plus these public lands would provide recreation opportunities and natural resource protection for 10.4 miles of shoreline along East Bay and Blackwater Bay. Its purchase would contribute to the protection of the waters of Blackwater Bay along with that afforded by the Garcon Point Water Management Area, which borders 4.6 miles of the west shore. It would also contribute protection of 37 miles of the Yellow River by adding to the public shoreline of the Yellow River Water Management Area. Uplands south of the river floodplain are protected as part of Eglin Air Force Base.

Manager

The Fish and Wildlife Conservation Commission (FWC) is the recommended lead manager for the area.

General Description

The Esc ribano Point project is located in Santa Rosa County and is comprised of 2,914 acres. Located along

the eastern shore of Pensacola Bay, Esc ribano Point is surrounded by Eglin Air Force Base to the east, and provides an upland buffer for the Yellow River Marsh Aquatic Preserve to the west. The proposal contains relatively intact examples of wetland communities, hammocks, and wet prairies that provide habitat for numerous rare and threatened plants and animals. The project is also very rich in archaeological and historical resources, containing nine recorded archaeological sites and two historic structures.

Public Use

The project has potential to provide a varied recreation experience by offering opportunities such as saltwater swimming, bicycling, picnicking, camping, saltwater fishing, hiking, hunting, nature appreciation and natural resource education. Some of the several archaeological and historical sites known to exist on the project may have interpretation ability. The wetlands in this project limit the placement of facilities, dispersal of activities and the quantity of activities. As access is through Eglin Air Force Base, access itself may be a limiting factor.

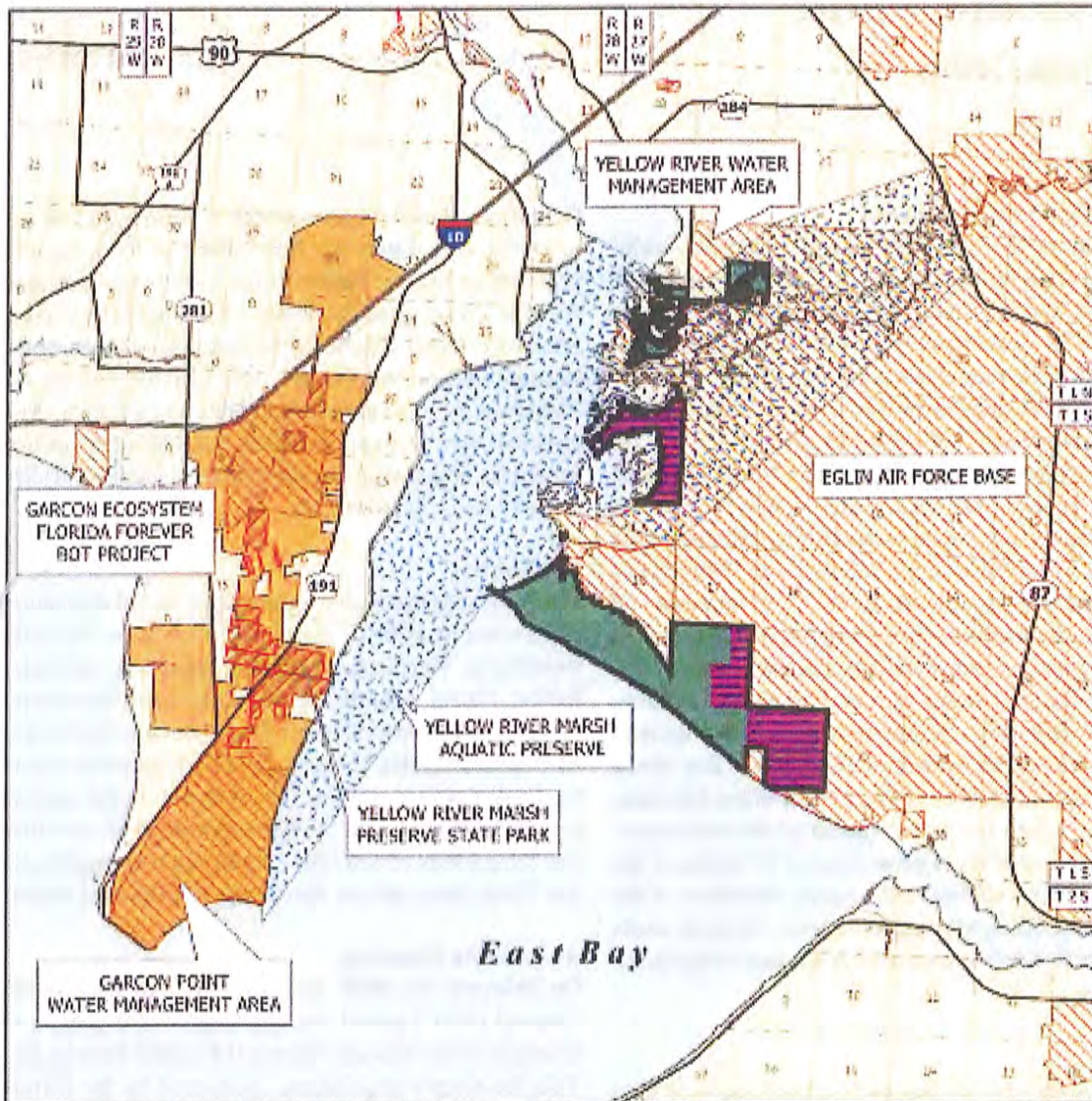
Acquisition Planning

On February 25, 2003, the Acquisition & Restoration Council (ARC) added the Esc ribano Point project to Group A of the Florida Forever (FF) 2003 Priority list. This fee-simple acquisition, sponsored by the Nature Conservancy (TNC) and the NFWFMD, consisted of approximately 2,914 acres, 10 owners, and a 2001 taxable value of \$1,337,730. The entire proposal was identified as essential.

Esc ribano Point FNAI Elements	
Florida Black Bear	G5T2/S2
<i>Panhandle Lily</i>	G2/S2
<i>White-top Pitcherplant</i>	G3/S3
Alligator Snapping Turtle	G3G4/S3
<i>Spoon-leaved Sundew</i>	G5/S3
5 rare species are associated with the project	

Placed on List	2002
Project Area (Acres)	2,914
Acres Acquired	1,166
at a Cost of	\$1,590,000
Acres Remaining	1,748
Estimated 2001 (Tax Assessed) Value of	\$802,454

Escribano Point



ESCRIBANO POINT

SANTA ROSA COUNTY

-  Florida Forever Project Boundary
-  Acquired
-  Essential Parcel(s) Remaining
-  Other Florida Forever BOT Projects
-  State Conservation Lands
-  Other Conservation Lands
-  State Aquatic Preserve



DECEMBER, 2005

Coordination

The Northwest Florida Water Management District (NFWFMD) is an acquisition partner. The US Air Force, through a Memorandum of Agreement, is also an acquisition partner to help buffer and prevent encroachment of Eglin Air Force Base..

Management Policy Statement

Priority will be given to the conservation and protection of environmentally unique native habitats, and threatened and endangered species. Management programs will be designed to conserve, protect, manage and/or restore important ecosystems, landscapes, wildlife populations, forests and water resources. The tract will also be managed to provide opportunities for camping, environmental and cultural resource education, fishing, hiking, hunting, and wildlife viewing.

The connection and proximity of this proposed project to other conservation lands, as well as its diversity of natural community types, provide important habitats for wildlife populations. Since the principal purposes of the proposal are to protect habitat for wildlife, management goals will be oriented to conservation and protection of these species, and to carefully control public uses.

Management Prospectus

Qualifications for state designation Based on a review of the Florida Forever Act, this project meets the Goals and Measures, as outlined in Statute, for significant corridors, landscape linkages, for archeological and historic sites, and to increase nature-based recreation.

Manager The high wildlife resource value of this project indicates that the FWC is the suitable lead manager for the area. The FWC should cooperate with other state and local governmental agencies in managing the area.

Conditions affecting intensity of management Much of the Escribano Point proposal include lands that are relatively undisturbed and representative of the natural ecology of the area. Such areas may require basic resource management practices, such as the use of prescribed fire, maintenance of natural hydrology, and control of access where appropriate. Biotic surveys should be a priority, since there are potentially many taxa of rare or listed species. In addition, the Escribano Point project may need some specific management measures to promote survival of listed species and other species of wildlife. As with all wildlife management areas, minimal infrastructure development will be required to provide for public access and use, site security, and

management. Any such development will be confined to areas of previous disturbance.

Timetable for implementing management, and provisions for security and protection of infrastructure

During the first year after acquisition, emphasis will be placed on site security, posting boundaries, public access, fire management, resource inventory, exotic species control and removal of refuse. A conceptual management plan will be developed by the FWC describing the management goals and specific objectives necessary to implement future resource management. Long-range plans will emphasize restoration and maintenance of ecosystem functions; restoration of native wildlife populations and wildlife diversity including protection and management of threatened and endangered species; and management for sustainable public use of game wildlife populations balanced with other wildlife oriented recreational activities. Essential roads will be stabilized to provide all weather public access and management operations. An all-season prescribed burning management plan will be developed and implemented to improve the habitat quality of native fire-dependent plant communities and wildlife habitats. Where appropriate, practical and in pursuit of wildlife habitat objectives, forest resources will be managed using acceptable silvicultural practices.

Revenue-generating potential Revenue will be generated from sales of hunting and fishing licenses, wildlife management area stamps and possibly other special hunting stamps. Some revenues might be realized from recreational user fees and ecotourism activities.

Cooperators in management activities The FWC should cooperate with other state and local governmental agencies in managing the area. These agencies might include the Department of Defense (Eglin AFB), the Department of Environmental Protection, the Division of Forestry, and the Northwest Florida Water Management District.

Management costs and sources of revenue The proposal, when acquired by the State, will require one FTE position to manage the project area, although certain activities may be privatized which would reduce the number of FTEs required. Funding for natural resource management and public use administration would come from the CARL Trust Fund. See attached table for anticipated costs. It is anticipated that revenue sources would include public use fees and timber harvests.

(continued)

Escribano Point

Updated 12/30/2010

FWC Prospectus: Projected Budget

Maximum expected single-year expenditure:	<u>Startup</u>	<u>Recurring</u>
<u>Resource Management</u>		
Exotic Species Control	\$14,329	\$28,658
Prescribed Burning	\$2,186	\$4,371
Hydrological Management	\$40,000	\$4,475
Other	\$34,435	\$34,435
Subtotal	\$90,950	\$71,939
<u>Administration</u>		
Central Office/Headquarters	\$52,845	\$17,593
Districts/Regions	\$22,648	\$7,540
Subtotal	\$75,494	\$25,133
<u>Support</u>		
Land Management Planning	\$25,000	\$1,000
Land Management Reviews	\$0	\$500
Training/Staff Development	\$0	\$1,000
Vehicle Purchase	\$110,850	\$15,836
Vehicle Operation/Maintenance	\$13,230	\$13,230
Subtotal	\$149,080	\$31,566
<u>Capital Improvements</u>		
New Facility Construction	\$447,064	\$0
Facility Maintenance	\$0	\$32,702
Subtotal	\$447,064	\$32,702
<u>Visitor Services/Recreation</u>		
Operations	\$1,668	\$141
Subtotal	\$1,668	\$141
<u>Law Enforcement</u>		
All Activities	\$2,508	\$2,508
TOTAL	\$766,763	\$163,988

Figures include salary for 3 FTEs.

Shoal River Buffer

Okaloosa County

Critical Natural Lands

Purpose for State Acquisition

Acquiring the Shoal River Buffer project would advance Florida Forever goals of increasing biodiversity; preserving landscape linkages, habitat for rare species, and water and wetland systems of the state by protecting 1,768 acres of rare species habitat; 2,062 acres of ecological greenways; 1,419 acres of surface waters; 1,443 acres of functional wetlands, and land that has a record of supporting black bears, the alligator snapping turtle, the sweet pitcher plant and the hairy indigo. Acquisition of this property would contribute to protecting the water quality of the Shoal River drainage area which harbors a number of rare plant and animal species; to sustain wildlife in the area, particularly to provide long-term benefits to imperiled species; and to provide natural resource-based recreation opportunities. The Shoal River is labeled an Outstanding Florida Water.

Manager

The Florida Fish and Wildlife Conservation Commission (FWC) is the recommended manager for lands within this project acquired by both the Board of Trustees (BOT) and the Northwest Florida Water Management District (NFWMD). NFWMD has indicated it will convey any lands the agency acquires within this project to the BOT at no cost.

General Description

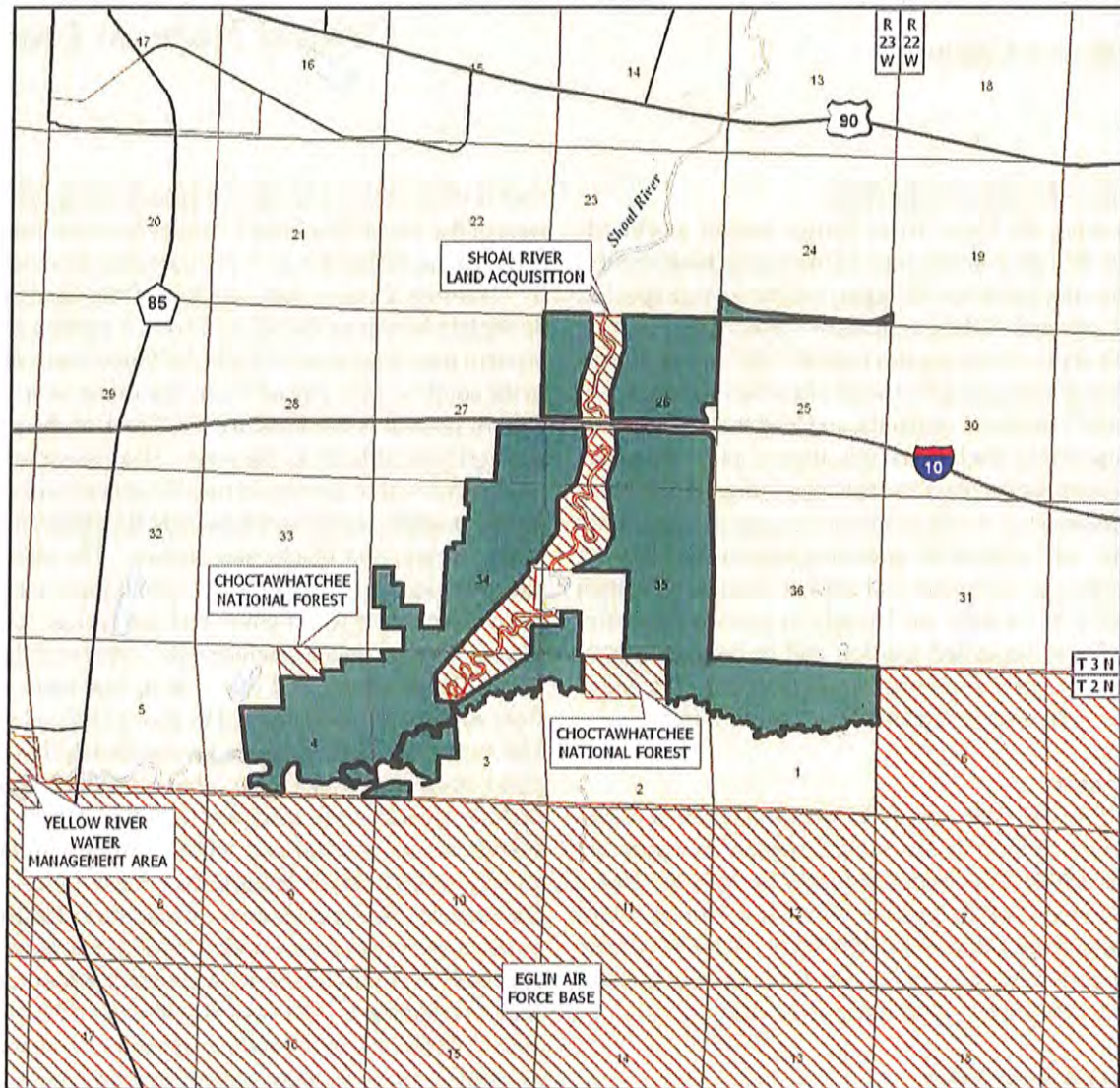
Encompassing approximately 2,106 acres in eastern Okaloosa County, the Shoal River Buffer Florida Forever project is offered as a “fee simple” acquisition. The

tract is divided into two distinct parcels lying east and west of the Shoal River and 5.5 miles from the convergence of the Yellow River. It is bisected by land owned by Okaloosa County that consists of the immediate floodplain bordering the Shoal River. A portion of the western tract is adjacent to Eglin Air Force Base (AFB) to the south and the city of Crestview to the west. The eastern portion is bordered by Titi Creek to the south and agricultural lands to the north. Natural communities located within the project include upland hardwood forest, sandhills, mesic/wet flatwoods, floodplain forest, basin swamp, and blackwater stream. The site also has intact seepage slopes. The wetland types on both tracts have intact forest cover and are typical for the region. Timber species include oaks, cypress, Atlantic White Cedar, maple, and titi. The upland areas vary from excessively well drained to poorly drained sites. The extremely xeric sites are predominately longleaf pine with scattered sand pine. Understory tree species include typical xeric oaks and shrubs. Mesic sites contain slash, longleaf and loblolly pines with oaks, sweetgum and maple intermixed. Slash pine is the predominate pine species on the mesic sites. Desirable groundcover species were noticed in all types; however, the absence of prescribed fire has severely suppressed their development. The tract provides the AFB with a critical buffer for both military operations and smoke generated from burning operations on base. The property has potential for some varied resource-based recreation; however, access to the property is through a series of obscure private woods roads that are difficult to follow. The Shoal River Paddling Trail (designated

Shoal River Buffer FNAI Elements	
Florida Black Bear	G5T2/S2
White-top Pitcherplant	G3/S3
Hairy Wild Indigo	G3T3/S3
Alligator Snapping Turtle	G3G4/S3
Lavender Burrowing Crayfish	G4/S2S3
Sweet Pitcherplant	G4/S3
Spoon-leaved Sundew	G5/S3
8 rare species are associated with the project	




Placed on List	2010
Project Area (Acres)	2,106
Acres Acquired	0
at a Cost of	\$0
Acres Remaining	2,106
with Estimated (Tax Assessed) Value of	\$3,841,189

Shoal River Buffer



SHOAL RIVER BUFFER

OKALOOSA COUNTY

-  Florida Forever BOT Project Boundary
-  Essential Parcel(s) Remaining
-  Other Conservation Lands



DECEMBER 2009

Shoal River Buffer

by Office of Greenways and Trails) stretches nine and half miles through the property with access points north (Ray Barnes Boat Ramp) and southwest (Bill Duggar Jr. Park) of the property. The property has potential for hiking, bicycling, horseback riding, picnicking, primitive camping, nature interpretive trails and geocaching.

Public Use

As on all FWC-managed areas, development of facilities would be kept to the minimum level necessary to assure protection of the resources, while providing for compatible recreational opportunities. Any such minimal development would be confined to areas of previous disturbance. The tract is currently leased to hunt clubs.

Acquisition Planning

The project is owned by the Haiseal Timber company and is proposed for fee-simple acquisition. On December 11, 2009 ARC voted to add this project with a tax assessed value of \$3,841,189 to the March 2010 Florida Forever list.

Coordination

The Department of Defense (DOD) is interested in partnering with the state in acquiring this land. Furthermore, the NFWMD has expressed to the DOD that it has interest in 500 acres or more of the property located along the county's riverfront ownership.

Management Policy Statement

The purpose for acquisition would be to protect the water quality of the Shoal river drainage area which harbors a number of rare plant and animal species; to sustain wildlife in the area, particularly to provide long-term benefits to imperiled species; and to provide natural resource-based recreational opportunities. Conservation and protection of environmentally unique native habitats, and imperiled and rare species, will be important management goals for the project. A prescribed fire management regime would likely be a primary management goal. Dense stands of regenerated pines will probably need to be thinned before introducing fire.

Management Prospectus

Qualifications for state designation About 68 percent of the project is habitat for a range of at least 3-7 or more focal species (imperiled or rare wildlife). About 76 percent of the Shoal River Buffer tract lies within a designated FWC Strategic Habitat Conservation Area

(SHCA) for the Florida black bear (*Ursus americanus floridanus*), listed as threatened by the State. In addition, the Florida Natural Areas Inventory's 2008 GIS data indicates potential habitat for blackmouth shiner (*Notropis melanostomus*), Gulf sturgeon (*Acipenser oxyrinchus desotoi*), Eastern indigo snake (*Drymarchon couperi*), Escambia map turtle (*Graptemys ernsti*), Florida black bear, and red-cockaded woodpecker.

The eastern tract consists mainly of a sandhill and pine-land habitat dominated by longleaf with scattered sand pine. The understory consists mainly of xeric oaks and shrubs. Several listed species could potentially benefit from ongoing restoration of historic and current sandhill habitats on the proposed lands. The State listed species of special concern the fox squirrel (*Sciurus niger niger*) and the State threatened southeastern American kestrel (*Falco sparverius paulus*) use sandhill habitats, as do red-cockaded woodpeckers, a federally endangered species. Sandhills also support populations of gopher tortoises (*Gopherus polyphemus*), which are listed by the State of Florida as threatened. Bears have been documented utilizing riparian corridors of the Shoal River and its tributaries in Okaloosa County and are well documented on Eglin AFB, a primary breeding range for bears in the state.

Manager The FWC has agreed to manage this property.

Conditions affecting intensity of management The Shoal River Buffer project includes natural areas likely requiring application of resource management activities, such as ecological restoration of ground cover, control of invasive and exotic species, reforestation, and prescribed fire where appropriate. Such activities may be necessary to accomplish management objectives to attain the desired future condition for the area. This is especially important for conservation of habitats and populations of imperiled or rare species. Landscape-scale ecology and management concerns may also need to be considered. Land use changes in the vicinity of a managed area may affect attainment of resource conservation goals for the area, and effectiveness of resource management projects.

Timetable for implementing management provisions

During the first year following acquisition, emphasis will be placed on site security, posting boundaries, public access, prescribed fire management, resource inventory, exotic species control, and removal of refuse. Within one year, a 10-year management plan will be developed by FWC describing short-term and long-term management goals, and measurable

objectives with associated timelines for completion.

Revenue-generating potential The revenue generating potential of the Shoal River Buffer is not known and will depend upon future uses to be approved in the management plan. However, revenue from such environmental lands might include sales of various permits and recreational user fees and ecotourism activities, if such projects could be economically developed.

Cooperators in Management FWC may partner and cooperate with other State and local governmental agencies including the Florida Department of Environmental Protection (DEP); the Florida Department of Agriculture and Consumer Services' Division of Forestry (DOF); the NFWMD; Eglin AFB; and Okaloosa County in management of the property.

Management Cost Summary

Category	Start-up	Recurring
Source of Funds	CARL	CARL
Resource Management	\$74,548	\$48,848
Administration	\$82,345	\$33,072
Support	\$149,080	\$31,566
Capital Improvements	\$45,000	\$38,689
Visitor Services/ Recreation	\$1,452	\$141
Law Enforcement	\$1,474	\$1,474
TOTAL	\$353,990	\$153,674

Updated 1/6/2011

Attachment I

Recommendations AICUZ/RCUA

Volk Field/Hardwood Range JLUS Recommendations

Actions by Military

Flights

- Flights should be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to potential accidents.

- Continue to restrict noise generating activities such as practice takeoffs/landings and instrument approaches, and Base maintenance run-up activities between 10: PM and 7:00 AM, except for high priority missions.

Oshkosh Airshow

- Coordinate with annual Experimental Aviation Association convention at Oshkosh including ceasing flight operations on the Range during this two week event in the summer.

Communication

- Designate a Land Use Compatibility Officer, knowledgeable of the study, land use within the vicinity and Base operations, to interface with the local community on all related land use and development issues. The Officer should be responsible for monitoring development near the Range and develop collaborative relationships with the local officials.

- Develop a working group representing municipal, County, and Base personnel to meet to discuss compatibility-related concerns and development proposals that could affect or be affected by airfield operations. Establish procedures to meet and engage with the community leaders to discuss air operations and, review annually, any noise complaints or other concerns, and provide additional inputs as the local communities update their land use plans.

- Establish and maintain a central inventory of current pertinent planning and land use management documents, issues, and maps for public distribution depicting areas with noise, safety concerns, and other land use compatibility issues.

REPI

- Investigate and pursue partnerships with federal and state of Wisconsin conservation programs and sponsors, and discuss with community land conservation based organizations that have an interest in the acquisition and/or preservation of high value natural resources lands located within the areas of concern for potential Section 2684a.

Action by Local Communities

Disclosure

- In collaboration with local counties and municipalities, implement policies promoting disclosure of safety and noise hazards prior to land transactions and development or sale of property in the flight paths near Volk Field or the vicinity of Hardwood Range.

Regulation

- Engage in cooperative initiatives and planning between counties and local communities, and promote consistent standards among local governments.
 - Juneau and Wood Counties should adopt JLUS recommendations into their land use planning and development of regulations that promote compatible development, and incorporate noise attenuation measures and recommendations into the design and construction of future developments in high noise areas.
 - Adopt a formal designation that incorporates the areas impacted by Base operations to establish a Military Planning Area.
-

AICUZ

- Flights should be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to potential accidents.
- Continue to restrict noise generating activities such as practice takeoffs/landings and instrument approaches, and Base maintenance run-up activities between 10: PM and 7:00 AM, except for high priority missions.
- The Air Force must be ready to provide additional inputs as the local communities update their land use plans.
- Incorporate AICUZ policies and guidelines into the comprehensive plans of North Central Wisconsin Regional Planning Commission, Juneau County, the Town of Orange, and the Village Camp Douglas. Use overlay maps of the AICUZ noise contours with the CZs and APZs¹ and Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals.
- Modify existing zoning ordinances and subdivision regulations to support the compatible land uses outlined in this study.
- Implement height and obstruction ordinances which reflect current Air Force requirements.
- Continue to inform Volk Field ANGB of planning and Zoning actions that have the potential of affecting base operations. Develop a working group representing city, county, and base personnel to meet to discuss AICUZ-related concerns and development proposals that could affect or be affected by airfield operations.

¹ Clear Zone & Accident Prevention Zone

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RCUA

Base:

- Appoint a RAICUZ Officer that is responsible for implementing the AICUZ/RCUA program, knowledgeable of the study, land use within the vicinity of the Base and its operations, and any future land use plans within Wood and Juneau County. The Officer should be responsible for monitoring development near the Range and develop collaborative relationships with the local officials.
- Establish and maintain a central inventory of current pertinent planning and land use management documents, issues, and action officers who work to address encroachment issues for the Range.
- Designate a Land Use Compatibility Officer to interface with the local community on all related land use and development issues within the MAI².
- Work with neighboring counties to adopt the concept of the RCZs³ as a formally designated geographic MPA⁴ within the region.
- Produce maps for public distribution depicting areas of MAI with noise, safety concerns, and other land use compatibility issues.
- Ensure ANG positions on land use and development proposals are consistent and proactive.
- Identify potential partners for encroachment partnering acquisition projects.
- Begin informal discussions with community land conservation based organizations that have an interest in the acquisition and/or preservation of high value agricultural and natural resources lands located within the areas of concern for potential Section 2684a.
- Investigate and pursue partnerships with federal and state of Wisconsin conservation programs and sponsors.
- Investigate and pursue partnerships with federal and state of Wisconsin conservation programs and sponsors.
- Collaborate with local counties and municipalities to implement a policy of real estate disclosure for all sales and transactions within the RCZs.
- Coordinate with annual Experimental Aviation Association convention at Oshkosh including ceasing flight operations on the Range during this two week event in the summer.

² Military Area of Influence

³ Range Compatibility Zone

⁴ Military Planning Area

DRAFT

- Establish and maintain a working relationship with planning and development organizations in adjacent and affected county(ies) and with major landowners.
- Incorporate IICEP⁵ on the state and local level.
- Establish procedures to meet and engage with the community leaders to discuss air operations and, review annually, any noise complaints or other concerns.

Local:

- Juneau and Wood Counties should adopt Hardwood Range RAICUZ recommendations into their land use planning and development of regulations that promote compatible development.
- Promote consistent standards among local governments.
- Engage in cooperative initiatives and planning between counties and local communities.
- Adopt the Military Area of Influence that incorporates the RCZs and establish a formally designated MPA within the region.
- Incorporate noise attenuation measures and recommendations into the design and construction of future developments in high noise areas.
- Enact guidelines to guide growth in areas unprotected from growth. This includes expanding land use controls to incorporated and unincorporated areas adjacent to Hardwood Range.
- Adopt and enact local policies promoting disclosure of safety and noise hazards prior to land transactions and development or sale of property in the vicinity of Hardwood Range, specifically the RCZs.

⁵ Interagency and Intergovernmental Coordination for Environmental Planning

SECTION 6 IMPLEMENTATION

6.1 INTRODUCTION

The implementation of the AICUZ Study must be a joint effort between the Air Force and the adjacent communities. The Air Force's role is to minimize the impact on the local communities by Volk Field ANGB operations. The role of the communities is to ensure that development in the environs is compatible with accepted planning and development principles and practices.

6.2 AIR FORCE RESPONSIBILITIES

In general, the Air Force perceives its AICUZ responsibilities as encompassing the areas of flying safety, noise abatement, and participation in the land use planning process.

Well maintained aircraft and well trained aircrews do much to assure that aircraft accidents are avoided. Despite the best training of aircrews and maintenance of aircraft, however, history makes it clear that accidents do occur. It is imperative that flights be routed over sparsely populated areas as much as possible to reduce the exposure of lives and property to a potential accident.

By Air Force regulation (AFI 32-7063), commanders are required to periodically review existing traffic patterns, instrument approaches, weather minima, and operating practices, and evaluate these factors in relationship to populated areas and other local situations. This requirement is a direct result and expression of Air Force policy that all AICUZ studies must include an analysis of flying and flying related activities designed to reduce and control the effects of such operations on surrounding land areas. Noise is generated from aircraft both in the air and on the ground. In an effort to reduce the noise effects of Volk Field ANGB operations on surrounding communities, the base restricts nighttime flying activities and has routed flight tracks to avoid populated areas. Practice takeoffs/landings and instrument approaches are conducted at times when individuals are normally awake. These activities are not scheduled between 10:00 PM and 7:00 AM. During this time, only mission essential aircraft arrivals

and departures are conducted. Whenever possible, traffic patterns are all located away from population centers, both on and off-base. Base maintenance run-up activities are not performed between 10:00 PM and 7:00 AM, except for high priority mission requirements.

The preparation and presentation of this Volk Field ANGB AICUZ Study is one phase of the continuing Air Force participation in the local planning process. It is recognized that as the local community updates its land use plans, the Air Force must be ready to provide additional inputs.

It is also recognized that the AICUZ program will be an ongoing activity even after compatible development plans are adopted and implemented. Base personnel are prepared to participate in the continuing discussion of zoning and other land use matters as they may affect, or may be affected by, Volk Field ANGB. Base personnel will also be available to provide information, criteria and guidelines to state, regional, and local planning bodies, civic associations, and similar groups.

6.3 LOCAL COMMUNITY RESPONSIBILITIES

Area residents and the personnel at Volk Field ANGB have a long history of working together for mutual benefit. We feel that adoption of the following recommendations will strengthen this relationship, increase the health and safety of the public, and help protect the integrity of the base's flying mission:

- Incorporate AICUZ policies and guidelines into the comprehensive plans of North Central Wisconsin Regional Planning Commission, Juneau County, the Town of Orange, and the Village Camp Douglas. Use overlay maps of the AICUZ noise contours with the CZs and APZs and Air Force Land Use Compatibility Guidelines to evaluate existing and future land use proposals.
- Modify existing zoning ordinances and subdivision regulations to support the compatible land uses outlined in this study.
- Implement height and obstruction ordinances which reflect current Air Force requirements.

- Modify building codes to ensure that new construction within the AICUZ area has the recommended noise level reductions incorporated into its design and construction.
- Continue to inform Volk Field ANGB of planning and zoning actions that have the potential of affecting base operations. Develop a working group representing city, county, and base personnel to meet at least quarterly to discuss AICUZ-related concerns and development proposals that could affect or be affected by airfield operations.

CHAPTER 7 IMPLEMENTATION AND RECOMMENDATIONS

7.1 HARDWOOD RANGE ANG IMPLEMENTATION AND RECOMMENDATIONS

It is recommended that Hardwood Range appoint a RAICUZ Officer that is responsible for implementing the RAICUZ program. The RAICUZ Officer should be knowledgeable of the study, land use within the vicinity of the Range, operations on the Range, and any future land use plans within Wood and Juneau County. The RAICUZ officer would be responsible for monitoring development near the Range and would develop collaborative relationships with the local officials. Regular communication with local governments is important in order to identify areas within the RCZs and surrounding area that have the potential for development.

Recommendations:

- Identify potential partners for encroachment partnering acquisition projects.
- Establish and maintain a working relationship with planning and development organizations in adjacent and affected county(ies) and with major landowners.
- Establish and maintain a central inventory of current pertinent planning and land use management documents, issues, and action officers who work to address encroachment issues for the Range.
- Ensure ANG positions on land use and development proposals are consistent and proactive.
- Designate a Land Use Compatibility Officer to interface with the local community on all related land use and development issues within the MAI.
- Begin informal discussions with community land conservation based organizations that have an interest in the acquisition and/or preservation of high value agricultural and natural resources lands located within the areas of concern for potential Section 2684a.
- Investigate and pursue partnerships with federal and state of Wisconsin conservation programs and sponsors.
- Collaborate with local counties and municipalities to implement a policy of real estate disclosure for all sales and transactions within the RCZs.
- Work with neighboring counties to adopt the concept of the RCZs as a formally designated geographic MPA within the region.

- Produce maps for public distribution depicting areas of MAI with noise, safety concerns, and other land use compatibility issues.
- Develop and maintain a user friendly web page to keep the general public aware of high noise areas, safety concerns, and other land use compatibility issues.
- Establish procedures to meet and engage with the community leaders to discuss air operations and, review annually, any noise complaints or other concerns.
- Coordinate with annual Experimental Aviation Association convention at Oshkosh including ceasing flight operations on the Range during this two week event in the summer.
- Incorporate IICEP on the state and local level.

7.2 LOCAL GOVERNMENT AND AGENCY IMPLEMENTATION AND RECOMMENDATIONS

Communication between Wood and Juneau Counties and Hardwood Range is essential for implementation of the RAICUZ program. While it is the responsibility of Hardwood Range to educate the public about Hardwood Range operations and the RAICUZ program, it is important for community leaders to continue to actively seek information and input from Hardwood Range regarding potential land use decisions. Juneau and Wood counties are encouraged to adopt Hardwood Range RAICUZ recommendations into their land use planning and development of regulations that promote compatible development.

Recommendations:

- Engage in cooperative initiatives and planning between counties and local communities.
- Promote consistent standards among local governments.
- Enact guidelines to guide growth in areas unprotected from growth. This includes expanding land use controls to incorporated and unincorporated areas adjacent to Hardwood Range.
- Adopt the Military Area of Influence that incorporates the RCZs and establish a formally designated MPA within the region.
- Adopt and enact local policies promoting disclosure of safety and noise hazards prior to land transactions and development or sale of property in the vicinity of Hardwood Range, specifically the RCZs.
- Incorporate noise attenuation measures and recommendations into the design and construction of future developments in high noise areas.