

# Grissom Air Reserve Base



## *Joint Land Use Study*

April 9, 2018

**WHITE &  
SMITH, LLC**  
PLANNING AND  
LAW GROUP





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## COMMON ACRONYMS & ABBREVIATIONS

AFB	Air Force Base
AFI	Air Force Instruction
AFRC	Air Force Reserve Command
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
APZ	Accident Potential Zone
ARW	Air Refueling Wing
BASH	Bird/Wildlife Aircraft Strike Hazard
BRAC	Base Realignment and Closure
CR	County Road
CZ	Clear Zone
dB	Decibel
DNL	Day-Night Average Noise Level
DoD	Department of Defense
FAA	Federal Aviation Administration
FBO	Fixed-Base Operator
GRDA	Grissom Regional Defense Alliance
GUS	Grissom ARB Airport
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
JLUS	Joint Land Use Study
MCEDA	Miami County Economic Development Authority
MOA	Military Operations Area
NCIRPC	North Central Indiana Regional Planning Council
NPIAS	National Plan of Integrated Airport Systems
NZ	Noise Zone
RPA / UAS	Remote Piloted Aircraft / Unmanned Aerial Systems
SR	State Road
USAF	United States Air Force
USDA	United States Department of Agriculture



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# *Executive Summary*

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## What is a Joint Land Use Study?

A Joint Land Use Study (JLUS) is a collaborative planning effort used in communities around the country to promote compatibility between military installations, civilian communities, and local governments. A JLUS is not regulatory in nature; in other words, its recommendations are only effective when implemented by the local community through adoption of regulations, agreements, comprehensive plan policies, or other tools. Serving as a guide for future decision-making, a JLUS identifies tools available to a community and assesses potential implementation strategies based on the local context.

The Miami County Economic Development Authority (MCEDA) sponsored the Grissom Air Reserve Base Joint Land Use Study, with funding provided by the Department of Defense Office of Economic Adjustment (OEA) and a local financial match. The North Central Indiana Regional Planning Council assisted MCEDA with grant administration. White & Smith Planning and Law Group worked with partners Benchmark Planning, Marstel-Day, and American Structurepoint to complete the JLUS between June 2017 and April 2018.

The nearly year-long planning process included officials from Grissom Air Reserve Base (Grissom ARB), four counties, and nine municipalities, as well as other affected stakeholders. A Policy Committee and Technical Working Group provided valuable guidance and input throughout the process, though the final result would not have been possible without the involvement of local stakeholders; the general public; and local, regional, and state representatives.

## Goals & Objectives of the Grissom ARB Joint Land Use Study

A Joint Land Use Study is a mutually beneficial planning process, identifying strategies to address potential land use incompatibilities; for the military to mitigate operational impacts, such as noise, on the local community; and for the local community to reduce military impacts on quality of life and support the military mission.

While each JLUS is tailored to the local community, there are three primary objectives for any study:

1. *Increase Awareness.* Joint Land Use Studies increase community awareness of military operations and increase military understanding of local land use planning and development trends, which facilitates more effective long-term planning on both sides.
2. *Encourage Collaboration.* Maintaining long-term compatibility between a military installation and its surrounding communities requires ongoing coordination. A Joint Land Use Study builds upon existing relationships and recommends tools to maintain a collaborative relationship.
3. *Maintain Land Use Compatibility.* A Joint Land Use Study provides a set of recommendations the community can choose to implement to help protect the military mission and local quality of life. The recommendations are tailored to the local context and range from voluntary tools, such as a Memorandum of Understanding to formalize coordination between stakeholders; to compulsory tools, such as zoning regulations that limit land uses or structure height in the vicinity of the military installation.





## What is Happening in the Vicinity of Grissom ARB?

As one of only five Air Reserve Bases in the country, Grissom ARB plays a critical role in the Air Force mission. The installation hosts the 434th Air Refueling Wing (434th ARW), one of the key aerial refueling units and the largest KC-135 unit in the Air Force Reserve Command. The 434th ARW 's mission is to develop and maintain the operational capability of its units and train reservists for worldwide duty. In addition, other tenant units at Grissom ARB include the Marine Corps Reserve Center (Detachment 1, Communications Company) and the Army Reserve Center (316th Psychological Operations Company; A Company, 1st Battalion, 330th Infantry Regiment; and 1st Detachment, 855th Quartermaster Company).

In 2008, Grissom ARB entered into a joint-use agreement with the Grissom Aeroplex and opened its runway to civilian operations. The Aeroplex consists of approximately 850 acres of land formerly part of the base. Base Realignment and Closure (BRAC) Commission action in 1991 realigned Grissom's mission and resulted in the transfer of Air Force property (land and existing buildings located thereon) to the Miami County Economic Development Authority. The Grissom Aeroplex is a result of the civil redevelopment of this former Air Force property, which now houses a variety of businesses and is well positioned to attract additional aviation-related companies.

Most of the land surrounding Grissom ARB is used for agricultural and low-density residential purposes, which generally is considered compatible with military operations and training. Most of the incompatible or conditionally compatible land uses are located near Grissom's northeastern runway and include some buildings in the Grissom Aeroplex originally built by the Air Force.

The most significant impacts related to Grissom ARB are aircraft noise and accident potential. This study provides insight into the current and future state of compatibility between operations at Grissom Air Reserve Base and the neighboring civilian communities. This study considers the impact of both the KC-135, currently in use at Grissom ARB, and the KC-46, which was considered for use at Grissom just prior to the JLUS and may be again in the future. The compatibility analysis includes mapping the noise contours associated with both types of aircraft and assessing land use compatibility for existing and potential future uses. Noise-sensitive land uses, such as residences, schools, and livestock agriculture, are considered less compatible with air bases. In the case of Grissom ARB, the noise contours are largely contained on the installation, which minimizes potential noise-related impacts. Off-base impacts of operational noise can be mitigated using methods such as sound attenuation construction techniques, further limiting the impact on the community.

This study also analyzes the Accident Potential Zones (APZs) associated with both aircraft and their relationship to current and future land uses. While there are some incompatible existing land uses in the APZs, primarily on the northeastern end of the runway, overall land use compatibility is strong.

Though current impacts are minimal, the civilian community surrounding Grissom ARB can affect base operations. Increased use of Unmanned Aircraft Systems (or "drones") near the installation or encroachment of other incompatible land uses, such as high-density residential subdivisions, could impact the base in the future. In addition, a number of structures formerly part of the base remain within the northeastern Clear Zone, including some within the Aeroplex lands conveyed to the community during the last BRAC round.

The JLUS process will help Grissom ARB and the JLUS Jurisdictions identify ways to reduce current and potential future negative impacts on one another through continued collaborative planning efforts.



## Joint Land Use Study: An Overview

The JLUS report is divided into six chapters and a series of appendices, each of which are briefly described below.

### Chapter 1: Purpose & Process

Chapter 1 describes the JLUS planning process, including goals, participants, the various components of the public awareness campaign, and the three phases of the process.

### Chapter 2: Community Profile

Chapter 2 addresses current conditions in the community and at Grissom ARB, providing context for the compatibility analysis in Chapter 3. The chapter reviews three potential incompatibility issues in the region: urban growth (noise, accident potential, light pollution), wind energy development, and security. It also reviews regional demographic and socioeconomic data and trends, economic development initiatives, and local infrastructure.

### Chapter 3: Conflict & Compatibility Analysis

Chapter 3 examines current and future land use impacts on Grissom ARB operations, as well as potential impacts of military operations on the local community. Building on the background information in Chapter 2, Chapter 3 evaluates the compatibility of each parcel of land within the JLUS Focus Area, based on current zoning, future land use, and subdivision patterns. For each of these indicators of potential civilian lands uses, noise, accident potential, lighting, wind energy, security, and transportation are evaluated.

### Chapter 4: Local Codes & Plans

Chapter 4 reviews relevant local government comprehensive plans, economic development plans, and zoning and subdivision regulations to determine how the community currently supports the military mission and what land use compatibility tools have been implemented.

### Chapter 5: State Statutory Framework and Federal Compatibility Programs & Tools

Chapter 5 outlines state planning and zoning laws, as well as federal programs and tools that can help advance military-civilian compatibility.

### Chapter 6: Conflict Resolution Strategies & Implementation Plan

Chapter 6 sets forth recommendations for maintaining land use compatibility between Grissom ARB and its neighbors. The JLUS Policy Committee considers these recommendations important for ongoing coordination between stakeholders and long-term support of the military mission. The recommendations are divided into short-, medium-, and long-term timeframes for purposes of implementation.

### Appendices

The report appendices include a summary of the public survey results, the SWOC Analysis, Policy Committee and Technical Working Group meeting summaries, and public meeting summaries, all of which informed the report and its final recommendations. Also included for reference are the regulations for the Cass County Grissom ARB Overlay District and a summary of military-related local legislation and comprehensive plan policies.





## JLUS Implementation Strategies

The history of collaboration between Grissom ARB and the local community has helped to maintain generally compatible land uses in the vicinity of Grissom. The JLUS, therefore, recommends “Conflict Resolution Strategies” to maintain the areas that have been protected and to advance compatibility in others. The JLUS Team worked with the Policy Committee and Technical Working Group to identify strategies and tools appropriate to the local context that can be implemented to maintain and improve land use compatibility and military-civilian coordination.

The JLUS’s Conflict Resolution Strategies, set out in Chapter 6, are organized based on the “procedural context” in which they would be implemented. There is some overlap in substantive area due to the need to address a certain implementation task within multiple procedural contexts.

The following chart summarizes the Conflict Resolution Strategies the Policy Committee recommends, and indicates the relative priority level of each one and the expected timeframe for implementation. A description of the seven procedural contexts is provided following the chart. The chart and descriptions make up a condensed version of the full “JLUS Implementation Matrix” provided in Chapter 6.



Procedural Context	Relative Priority	Conflict Resolution Strategy	Implementation Timeframe		
			0-3 Years	3-10 Years	10-20 Years
Comprehensive Planning	High	Update Comprehensive Plans Relative to 2018 Joint Land Use Study	X		
Zoning & General Code Provisions	High	Update Cass County Grissom Air Reserve Base Overlay District	X		
	High	Consider Overlay Zoning in All Impact Areas	X		
	High	Correct Miami County Zoning Maps	X		
Subdivision Regulations	High	Subdivision Plat Acknowledgment Statements	X		
Notice to Property Owners & Occupants	High	Real Estate Disclosures	X		
	High	Permit Notices	X		
	Medium	Street Signage		X	
Interagency Cooperation	High	Appoint JLUS Implementation Committee	X		
	High	Action Plan for Clear Zone Compatibility	X		
	High	Prepare a Memorandum of Understanding (MOU) for Wind Energy Development Processes	X		
	High	Continue to Work with State and Federal Delegations	X / Ongoing		
	High	Seek Opportunities Related to Locating KC-46A Aircraft at Grissom ARB	X / Ongoing		
	High	Continue to Coordinate with Stakeholders on Potential Changes to US 31	X / Ongoing		
	High	Continue to Pursue Inclusion of GUS in the NPIAS	X / Ongoing		



Procedural Context	Relative Priority	Conflict Resolution Strategy	Implementation Timeframe		
			0-3 Years	3-10 Years	10-20 Years
Interagency Cooperation (continued)	Medium	Coordinate with Other Indiana Military Installations and IOOD	X		
	Medium	Include Grissom ARB as a Member of the Military Base Planning Council	X		
	Medium	Require Coordination with Grissom Prior to Certain Local Land Use Decisions	X		
	Medium	Provide Periodic Updates to Local Governments	X / Ongoing		
	Medium	Continued Coordination between Grissom and MCEDA on Development Plans for the Aeroplex	X / Ongoing		
Public Outreach & Communications	High	Standardized Process for Requesting Input from Grissom ARB	X		
	High	Community Noise and Impact Inquiries	X		
	High	Dedicated Military Planning and Coordination Website	X		
	High	Additional Roadway Signage Related to Clear Zones		X	
	Medium	Noise Level Reduction (NLR) Construction Standards	X		
	Medium	Civilian Unmanned Aircraft Systems (UAS)	X		
Ongoing Planning & Coordination	High	Establish a Standing Military Planning and Coordination Committee	X		
	High	Prepare an MOU for Continued Coordination	X		
	High	Establish Internal Process for Grissom ARB Review of Proposed Wind Energy Developments	X		
	High	Consider Potential Improvements to US 31 in Land Use Decisions	X		
	Medium	Clarify Clear Zone Deed Restrictions Pertaining to Existing Structures	X		
	Medium	Update 2004 Storm Water Capacity Analysis at Grissom ARB		X	



## Comprehensive Planning

While all of the JLUS Jurisdictions that exercise zoning powers also engage in comprehensive planning, only a handful of those comprehensive plans address Grissom ARB. The plans do provide background information on Grissom ARB and general land use policies related to the base. It is recommended the JLUS Jurisdictions implement plan-based JLUS recommendations prior to pursuing the regulatory changes suggested in the next two procedural contexts.

## Zoning & General Code Provisions

At the time the 2018 JLUS was completed, Cass County was the only JLUS Jurisdiction with an overlay zoning district related to Grissom ARB, though Miami County and the Town of Bunker Hill were in the process of adopting overlay districts as well. The JLUS Policy Committee suggests updating the Cass County overlay district to reflect current Air Force guidance and the contours associated with a potential KC-46A squadron. The Committee also recommends all JLUS Jurisdictions located within Grissom ARB's imaginary surfaces formalize coordination requirements and update code protections. The local governments currently coordinate, on an informal basis, with Grissom ARB officials on land use issues. Finally, the Committee recommends Miami County update its zoning maps to ensure the areas on and near the Aeroplex reflect the most recent zoning actions by the Miami County Board of Commissioners. There are three (3) Conflict Resolution Strategies recommended in the procedural context of Zoning and General Code Provisions.

## Subdivision Regulations

Subdivision regulations could be updated to require a notice on subdivision plats regarding proximity to Grissom ARB and the potential for occupants to experience military impacts. Currently, none of the JLUS Jurisdictions have military-related subdivision regulations or provisions.

## Notice to Property Owners & Occupants

The JLUS Policy Committee recommends strategies to facilitate public awareness and reduce land use conflicts in the JLUS Study Area, including engaging the real estate and development community in establishing a requirement for real estate disclosures, requiring notice of potential military impacts on building permits and improvement location permits, and implementing street signage for operational awareness. There are three (3) Conflict Resolution Strategies recommended in the procedural context of Notice to Property Owners and Occupants.

## Interagency Cooperation

Collaboration between local governments, community organizations, and Grissom ARB were an important component of the 2018 JLUS process, and will be critical to the success of future implementation efforts. The JLUS Policy Committee suggests a number of strategies to promote continued community collaboration and coordination including the establishment of a JLUS Implementation Committee, which would work with local stakeholders to implement the JLUS recommendations.

Two high priority recommendations are the development of a specific-purpose Memorandum of Understanding (MOU) between Grissom ARB and the JLUS Jurisdictions to facilitate early and transparent cooperation between Grissom ARB and wind energy developers within the JLUS Study Area, prior to and in conjunction with the formal and informal DoD Siting Clearinghouse





process and an action plan for removing structures from the northeastern Clear Zone.

Other key strategies include continued coordination with state and federal delegations on military issues at Grissom ARB and other installations in the state, and with the Indiana Department of Transportation (INDOT) and other stakeholders on improvements to U.S. 31. The Committee also recommends MCEDA and Grissom ARB continue to pursue the inclusion of Grissom Airport (GUS) in the National Plan of Integrated Airport Systems (NPIAS). As a joint-use airfield, this would allow Grissom ARB to access Federal Aviation Administration (FAA) funding to improve the airfield, conduct studies, and protect land around the airfield. There are twelve (12) Conflict Resolution Strategies recommended in the procedural context of Interagency Cooperation.

### **Public Outreach & Communication**

Public outreach and communication is critical to maintaining community support of the military mission. The JLUS Policy Committee recommends establishment of a dedicated military planning and coordination website to provide relevant information to the community, including documents related to the JLUS and subsequent implementation efforts, anticipated mission changes at Grissom ARB, and local military-related zoning and subdivision regulations. Other public outreach recommendations include making available to the community noise level reduction standards to help mitigate noise from military operations; publicizing federal requirements pertaining to use of drones in the vicinity of Grissom ARB; and adding safety awareness signs along the road in the southwestern Clear Zone. There are six (6) Conflict Resolution Strategies recommended in the procedural context of Public Outreach & Communication.

### **Ongoing Planning & Coordination**

The final category of recommendations sets forth strategies for the community to use following the JLUS implementation phase. These post-implementation efforts would begin with the establishment of a standing Military Planning and Coordination Committee, which would facilitate ongoing planning and coordination amongst stakeholders. Stakeholder roles, including the role of the standing committee, would be identified in a non-binding Memorandum of Understanding. There are six (6) Conflict Resolution Strategies recommended in the procedural context of Ongoing Planning & Coordination.



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*Chapter 1:  
Purpose & Process*

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## I. What is a Joint Land Use Study?

A Joint Land Use Study, or “JLUS,” is a cooperative planning effort used to facilitate land use compatibility between military installations and their surrounding civilian communities. Over 140 Joint Land Use Studies have been completed nationwide in the past 30 years. This is the first JLUS for Grissom Air Reserve Base (Grissom ARB).

The purpose of a JLUS is “to protect and preserve military readiness and defense capabilities while supporting continued community growth and economic development, and enhance civilian and military communication and collaboration” (Department of Defense, Office of Economic Adjustment, Compatible Use, available: <http://www.oea.gov/what-we-do/compatible-use>).

Military installations were often built in rural areas, limiting potential conflicts between local communities and military operations. In recent years, however, many areas have experienced significant growth, bringing urban and suburban development closer and closer to military installations. Military installations typically create a positive economic impact in their communities, often leading to additional development pressures around installations.

Joint Land Use Studies assist communities and military installations in identifying methods to increase coordination and maintain or improve land use compatibility. For this reason, and to prepare for the potential future location of KC-46A Pegasus tanker aircraft at the base, the community around Grissom ARB chose to participate in a JLUS planning process.

The Miami County Economic Development Authority (MCEDA) received a grant from the Department of Defense’s Office of Economic Adjustment to conduct a JLUS for Grissom ARB and the surrounding four-county region. The North Central Indiana Regional Planning Council assisted MCEDA in administration of the grant. Following a formal bid process in Spring 2017, MCEDA selected White & Smith, LLC, with partners Benchmark Planning, Marstel-Day, and American Structurepoint, to conduct the year-long study.

The study concludes with the production of a final JLUS report, which provides relevant demographic and background information, identifies current and potential incompatibilities, and suggests ways the community can promote future coordination and compatibility.

## II. JLUS Goals & Objectives

The goals of a Joint Land Use Study are to identify:

- » current and potential future incompatibilities between the military installation and surrounding communities;
- » tools to mitigate incompatibilities or maintain existing compatibility; and
- » an action plan.

While each JLUS planning process is tailored to the needs of the local community, the general objectives of a JLUS are to:

**Increase Awareness.** Joint Land Use Studies increase community awareness of military operations and increase military understanding of local land use planning and development trends, which facilitates more effective long-term planning on both sides.

**Encourage Collaboration.** Maintaining long-term compatibility between a military installation and its surrounding communities requires ongoing coordination. A Joint Land Use Study builds upon existing relationships and recommends tools to maintain a collaborative relationship.



**Maintain Land Use Compatibility.** A Joint Land Use Study provides a set of recommendations the community can choose to implement to help protect the military mission and local quality of life. The recommendations are tailored to the local context and range from voluntary tools, such as a Memorandum of Understanding to formalize coordination between stakeholders; to compulsory tools, such as zoning regulations that limit land uses or structure height in the vicinity of the military installation.

### III. JLUS Participants

The Joint Land Use Study was conducted from June 2017 through April 2018. Two steering committees, the JLUS Policy Committee and the Technical Working Group, oversaw the planning process, providing valuable feedback, local knowledge, and policy direction to the JLUS Team.

The JLUS Policy Committee was comprised of Grissom ARB leadership, local elected officials, local and state economic and defense development organization leadership, and the director of the regional planning agency. The Policy Committee provided direction to the JLUS Team in preparing this report and its recommendations.

The JLUS Technical Working Group was comprised of high-level Grissom ARB officials, local government planning and economic development staff members, and local economic development alliance leadership. Working Group members reviewed deliverables and provided technical input to the JLUS Team throughout the planning process.

The public planning process began in June 2017 with a public kick-off meeting, steering committees meeting, and stakeholder interviews. The public remained engaged throughout the process, through meetings, a survey, an informational brochure, and the project website and Facebook page. Participants in the JLUS process included:

- » Grissom ARB officials, personnel, and specialists;
- » Landowners and affected residents;
- » Regional planning and economic development organizations;
- » Business alliances;
- » Private enterprise and affected landowners;
- » State and local government agencies; and
- » Utility providers.

Following these public input sessions, the JLUS Team prepared a “Strengths, Weaknesses, Opportunities, and Constraints (SWOC) Analysis,” included in [Appendix B](#), and began its initial conflict and compatibility analysis. These results, along with the results of the public survey, were presented to the steering committees in October 2017. The Team also held a second public meeting on October 10, 2017, to provide an update on the project.

The Team completed a draft JLUS report in December 2017, and presented it to the Policy Committee and the Technical Working Group in January 2018. Final revisions followed, with a presentation of this JLUS report to elected and appointed officials and the public in April 2018.

The Policy Committee held its final meeting on April 9, 2018 and, after reviewing the JLUS, passed a motion recommending the Board of Directors of the Miami County Economic Development Authority accept the study and pursue implementation of its recommendations. The motion also directed MCEDA staff to provide the final JLUS report to the JLUS Jurisdictions and request their participation in the implementation process.



Figure 1-1. Grissom ARB JLUS Study Area Map

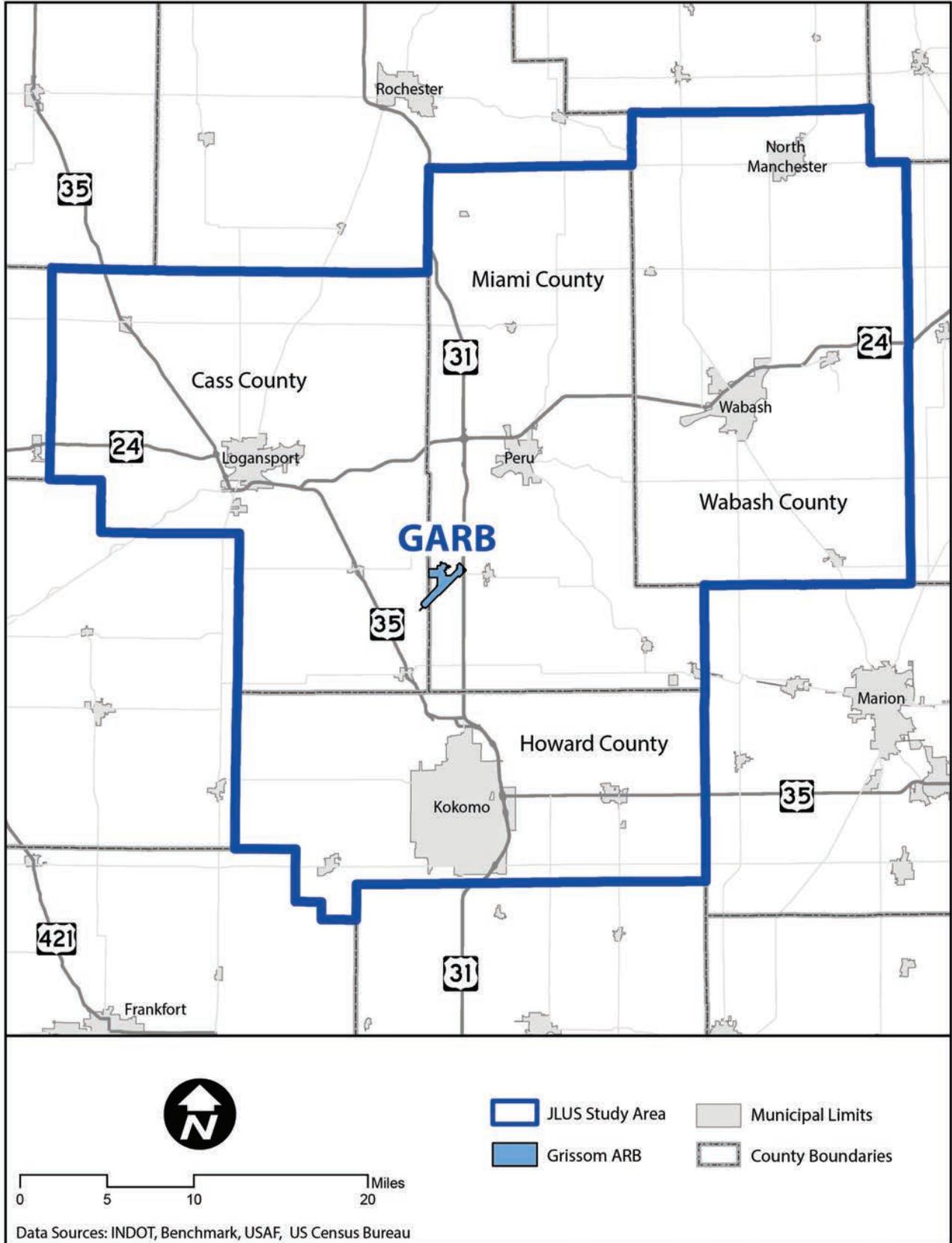
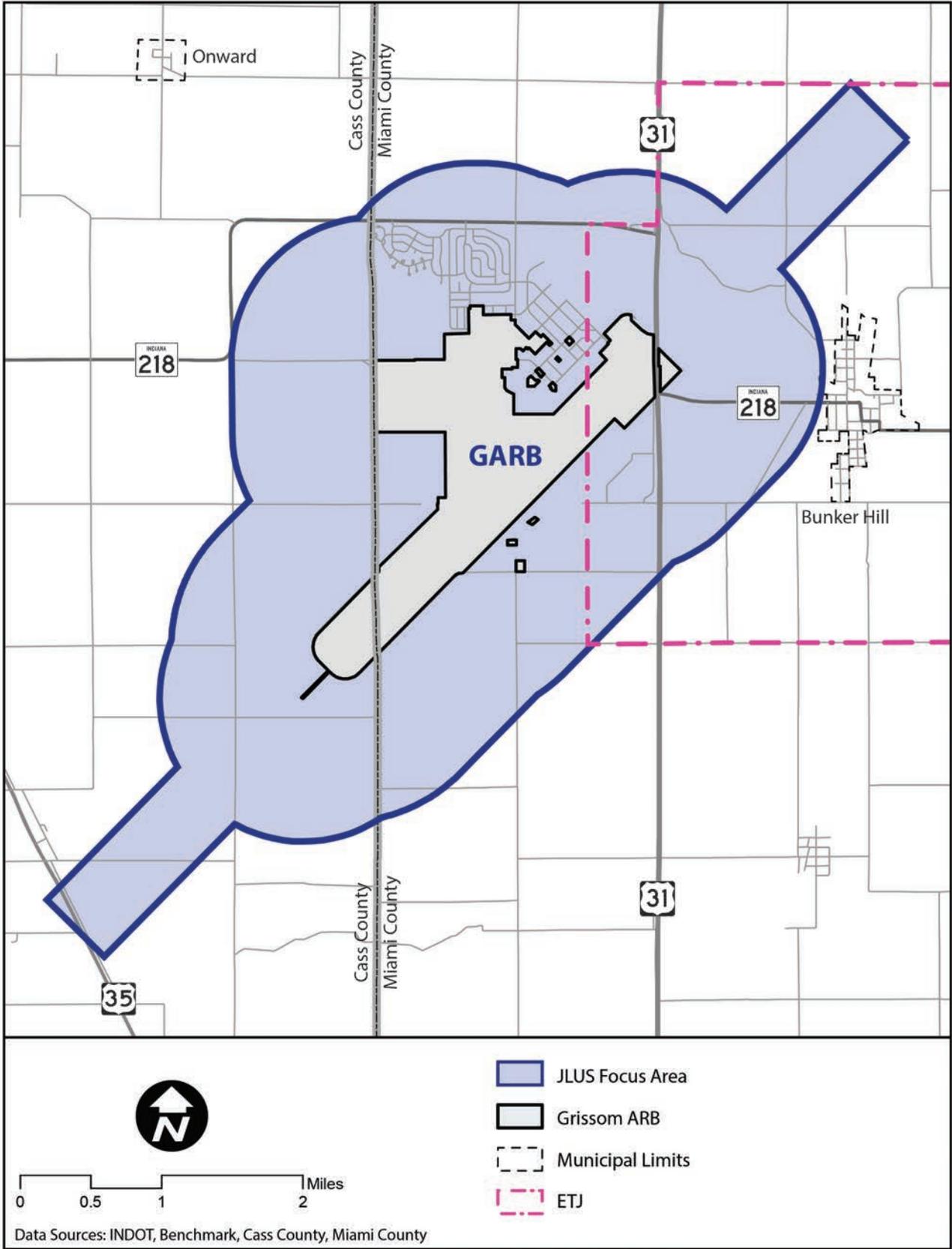


Figure 1-2. Grissom ARB JLUS Focus Area Map



## IV. JLUS Study Area and Focus Area

The JLUS steering committees established the project Study Area, which includes the four-county region surrounding Grissom ARB. Cass, Howard, Miami, and Wabash Counties, and the municipalities within these counties, are the jurisdictions most likely to experience impacts from, and create impacts on, Grissom Air Reserve Base. For the purposes of analyzing specific compatibility factors the Committees also defined a JLUS Focus Area, which is more closely aligned to the immediately proximate impacts of military operations at Grissom ARB. The maps in Figure 1-1 and Figure 1-2 show the boundaries of the Study Area and Focus Area.

## V. Public Awareness Campaign

The JLUS Team used a variety of communication tools to facilitate early and continuous outreach to the general public, elected officials, other JLUS project stakeholders, and the media.



Figure 1-3. Marstel-Day's Phil Huber presenting at the Grissom ARB Stakeholder Awareness & Participation Meeting

### Grissom ARB Stakeholder Awareness & Participation Meeting

The JLUS Team finds that focused interactions with military staffs early in the JLUS process facilitate meaningful engagement throughout the JLUS Process. To this end, on June 6, 2017, the Team held a more formal, extended session with personnel from Grissom ARB in order to:

- » Validate JLUS requirements for Air Force Reserve Command information to support the JLUS planning process;
- » Identify other potential issues not yet addressed or identified; and
- » Address JLUS information collection needs to identify encroachment impacts to the community and to the mission.

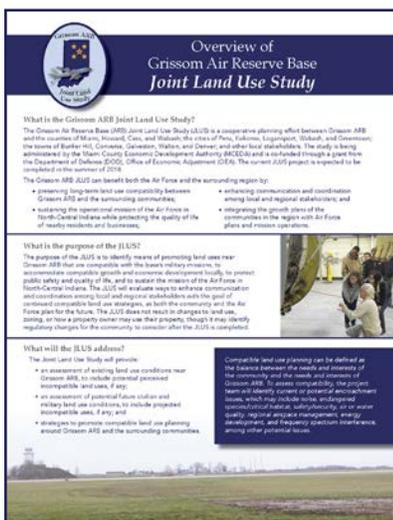


Figure 1-4. JLUS Brochure #1

### Informational Brochures

Informational brochures were published at the beginning and end of the JLUS process. The first brochure, produced prior to the public kick-off meeting in June 2017, described the JLUS process, its purpose, and the opportunities for public input. The final brochure provided an overview of this JLUS report and its recommendations, along with next steps for the community. The brochures were available at the public meetings and on the project website throughout the process.

### Project Website [[www.grissom-jlus.org](http://www.grissom-jlus.org)]

The Grissom ARB JLUS project website went live at the beginning of June 2017. All documents related to the JLUS, including meeting agendas, presentations, and summaries; brochures; public survey results; and the SWOC Analysis, could be found here throughout the planning process.



The website included a unique, interactive Story Map to educate visitors about the Grissom ARB JLUS. More engaging than typical website content, the Story Map provided another way for the public to learn about the JLUS purpose, process, and opportunities for input.

Contact information for the JLUS Team was available on the website, allowing the public to reach out at any point in the process to ask questions and provide input.

### Facebook Page [@GrissomARB]JLUS]

The JLUS Team maintained a project Facebook page to further engage the public throughout the process. Facebook posts included meeting notices, links to the public survey, and general information about the status of the planning effort. The Facebook page and posts provided links to the project website where people could find additional information.

### Stakeholder Interviews

In June 2017, the JLUS Team conducted a series of interviews with community stakeholders to gain a better understanding of the local context. Stakeholders provided insights into:

- » Community demographics;
- » Development trends and plans;
- » Proposed infrastructure improvements;
- » Economic development objectives; and
- » Existing compatibility or incompatibility between Grissom ARB and the community.

Interviews included representatives from the following organizations:

- » Indiana Office of Defense Development;
- » Indiana Department of Transportation;
- » Cass County;
- » Miami County;
- » Town of Bunker Hill;
- » Town of Galveston;
- » Kokomo-Howard County Plan Commission;
- » Grissom Regional Defense Alliance;
- » Miami County Economic Development Authority;
- » North Central Indiana Regional Planning Council;
- » Realtors Association of Central Indiana;
- » Peru Utilities;
- » Miami-Cass Rural Electric Membership Corporation; and
- » Renewable Energy Systems.

### Public Meetings

The JLUS Team facilitated three public meetings, all held at the Milestone Event Center in the Grissom Aeroplex, during the study process:

**June 7, 2017** – Introduction of the JLUS purpose and process;

**October 10, 2017** – Presentation of public survey results, interim findings, and preliminary recommendations;

**April 9, 2018** – Presentation of final JLUS report, recommendations, and implementation strategies.

The meetings were advertised on the project website, the Facebook page, and through the local media. The first meeting introduced the community to Joint Land Use Studies and the





Figure 1-5. Public Meeting Announcement

## Media Coverage

Local media interviewed the Project Team during the JLUS project kick-off week in June 2017. Both the Peru Tribune and the Kokomo Tribune published articles about the Grissom ARB Joint Land Use Study.

## VI. The JLUS Process

There are three main phases of the JLUS planning process:

- » Evaluation of existing conditions;
- » Conflict and compatibility analysis; and
- » Development of recommendations.

### Evaluation of Existing Conditions

The JLUS planning process began with an evaluation of existing conditions through review of local regulations and plans, an installation tour of Grissom ARB and of the surrounding area, in-person stakeholder interviews, and a public survey. Relevant local regulations and plans the JLUS Team reviewed are summarized in Chapter 4, including existing regulations related to land use in the vicinity of Grissom ARB. The public survey results, which helped the JLUS Team better understand the existing military/civilian relationship, are summarized in [Appendix A](#).

The evaluation of existing conditions resulted in development of the SWOC Analysis, included in [Appendix B](#).

### Conflict & Compatibility Analysis

Following evaluation of existing conditions, the JLUS Team conducted a conflict and compatibility analysis where land uses and development patterns were studied in relationship to noise and safety associated with Grissom ARB. The Team created GIS maps, which were used to analyze existing land uses, current zoning, future land use recommendations, and subdivision patterns in the JLUS Focus Area. This data was compared with the location of



Grissom ARB Noise and Accident Potential Zones to understand the existing level of land use compatibility between military operations and the surrounding civilian areas, as well as the potential future compatibility based on adopted plans.

The compatibility analysis considered both the KC-135 aircraft, currently in use at Grissom ARB, and the KC-46A aircraft, which may arrive at Grissom ARB in the future. The Air Force considered four potential locations for the Third Main Operating Base (MOB 3) for KC-46A aircraft, one of which was Grissom ARB. Although the installation was not selected as MOB 3, it remains well-positioned for consideration in the future as another MOB.

### **Development of Recommendations**

Information learned in the first two phases of the JLUS process informed development of the recommendations included in Chapter 6 of this report. The recommendations are optional tools the community can choose to use to maintain or improve coordination and land use compatibility between military operations and civilian land uses.

## **VII. JLUS Report Overview**

Each chapter in the JLUS report documents portions of the planning process described in the previous section. A brief description of each chapter follows. In addition, a number of documents associated with the JLUS planning process are provided in the Appendices.

### **Chapter 2 – Community Profile**

Chapter 2 describes Grissom ARB operations, areas of potential conflict, and on-base resource management; provides local demographic and economic information; identifies growth and development trends in the Study Area; reviews regional economic development plans; and describes the local infrastructure context and existing coordination efforts between Grissom ARB and the community.

### **Chapter 3 – Conflict & Compatibility Analysis**

Comparing noise and safety information to the location of existing and future land uses, this chapter identifies potential areas of incompatibility between military operations and civilian land uses. The analysis used the impact areas defined by the 2014 Air Installation Compatible Use Zones (AICUZ) Study and the 2017 Environmental Impact Statement (EIS).

The 2014 AICUZ Study describes the extent to which noise and accident potential impact the civilian lands surrounding Grissom ARB. The study establishes the noise contours associated with the KC-135 aircraft currently in use at the installation, and also identifies the Clear Zone and Accident Potential Zones associated with the aircraft. Grissom’s operations are described in detail in this chapter and in Chapter 2.

The 2017 EIS was completed for the purpose of analyzing possible locations for the Third Main Operating Base (MOB 3) for the KC-46A aircraft. The EIS analyzed potential impacts of the new aircraft at Grissom ARB and three other installations. Pursuant to direction from the JLUS Policy Committee, noise contours for the KC-46A depicted in the study were used in the conflict and compatibility analysis to ensure the JLUS accurately and thoroughly assesses potential future compatibility issues.



## Chapter 4 – Local Regulations & Plans

This chapter includes a review of local codes, zoning regulations, subdivision ordinances, and comprehensive plans for the cities and counties within the JLUS Study Area. It identifies existing policies and regulations that relate to the military mission and those that could be implemented or expanded to promote compatibility between military and civilian land uses.

Cass County's existing Grissom ARB Overlay District is reviewed in detail in this chapter. During the JLUS planning process, two JLUS Jurisdictions, Bunker Hill and Miami County, began the process to adopt similar military zoning overlay districts to promote compatible land use in the vicinity of Grissom ARB.

Chapter 4 also describes the Wind Energy Conversion System siting ordinances adopted by six of the JLUS Jurisdictions, including Cass and Miami Counties.

## Chapter 5 – State Statutes and Federal Programs

Chapter 5 identifies the legal authority under State law for local governments to implement tools addressing compatibility between military installations and the local community. Also discussed in this chapter are federal programs and potential funding opportunities that promote coordination and long-range planning.

## Chapter 6 – Study Recommendations

Taking into account the information and findings of the Public Survey (see [Appendix A](#)), SWOC Analysis (see [Appendix B](#)), and the previous chapters in this report, the JLUS Policy Committee set forth certain recommendations the local community may implement to protect the military mission and public health, safety, and welfare through maintenance of compatible land uses in the vicinity of Grissom ARB. The recommendations are prioritized according to their relative importance to advancing land use compatibility in the region, and are categorized according to the "procedural context" within which they would be implemented:

- » Comprehensive planning;
- » Zoning and general code provisions;
- » Subdivision regulations;
- » Notice to property owners and occupants;
- » Interagency cooperation;
- » Public outreach and communication; and
- » Ongoing planning and coordination.

## Appendices

This report includes several appendices that further document the efforts of the Policy Committee and Technical Working Group during the JLUS process and that can assist in the JLUS implementation phase:

- » [Appendix A](#): Public Survey Results
- » [Appendix B](#): SWOC Analysis
- » [Appendix C](#): Cass County Grissom ARB Overlay District
- » [Appendix D](#): Public Meeting Summaries
- » [Appendix E](#): Policy Committee and Technical Working Group Meeting Summaries
- » [Appendix F](#): Overview of Local Legislation and Comprehensive Plans



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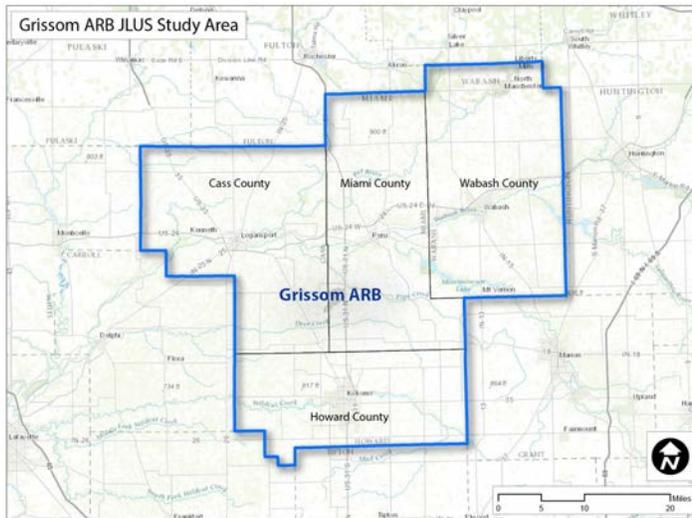
*Chapter 2:  
Community Profile*

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## I. Introduction

Grissom Air Reserve Base (Grissom ARB) is located in Miami and Cass Counties within the North Central Indiana region. The installation is approximately 8 miles southwest of the city of Peru, and 12 miles north of the city of Kokomo.

Figure 2-1. JLUS Study Area



The U.S. Navy opened Grissom ARB on July 1, 1942, as Bunker Hill Naval Air Station. After World War II, the installation was closed and returned to farmland. On June 22, 1954, at the beginning of the Korean Conflict, the installation was reopened by the United States Air Force (USAF) as Bunker Hill Air Force Base (AFB). In 1959, the first KC-135 Stratotankers were assigned to the installation.

On May 12, 1968, the installation was renamed Grissom AFB in honor of Lieutenant Colonel Virgil I. "Gus" Grissom, a native of Mitchell, Indiana. Lieutenant Colonel Grissom was one of the original seven astronauts, and was killed during a fire in his Apollo 1 capsule at Cape Kennedy, Florida.

In January 1970, the 305th Air Refueling Wing (ARW) replaced the 305th Bomb Group, making the installation one of the largest tanker bases in the country. For the next 23 years, Grissom AFB was home to both active-duty and reserve personnel.

In September 1994, as part of the Base Realignment and Closure (BRAC) Act of 1991, the installation was realigned. In October of that year, Grissom AFB was realigned as an Air Force Reserve Command (AFRC) facility. Today, the host unit at Grissom ARB is the 434th Air Refueling Wing (434 ARW).

Though the USAF has the largest number of personnel at the installation, it is also home to organizations from other branches of the military. The U.S. Army Reserve has been at the installation since the 1970s, and a U.S. Marine Corps Reserve unit relocated to the installation in 2001. In 2008, Grissom ARB entered into a joint-use agreement and opened its runway to civilian operations, resulting in the establishment of the Grissom Aeroplex. (Grissom Base Guide. 434th Air Refueling Wing Public Affairs Office, 2016)

## II. Grissom ARB

### A. Role of Grissom ARB in the Air Force Mission

The mission of the 434 ARW is to develop and maintain the operational capability of its units and train reservists for worldwide duty. Training consists of flight operations, deployments, and weekend training. The 434 ARW also generates aircraft and crews in support of the Air Mobility Command (AMC). The AFRC provides a substantial portion of the Department of Defense's (DoD) total aerial refueling capability. The 434 ARW directly supports two key Air



Force missions, Global Mobility and Global Strike, and receives its share of taskings both during peacetime and times of crisis to support the nation’s active duty and reserve military forces. (434th Air Refueling Wing Fact Sheet. Grissom Air Reserve Base, 2013)

Aerial refueling is the process of transferring aviation fuel from one military aircraft (the KC-135R tanker of the 434 ARW) to another (the receiver) during flight. The procedure allows the receiving aircraft to remain airborne longer, extending its range or loiter time on station. A series of air refueling can give greater range. Because the receiver aircraft can be topped up with extra fuel in the air, air refueling can allow a takeoff with a greater payload, which could be weapons, cargo, or personnel; the maximum takeoff weight is maintained by carrying less fuel and topping off once airborne. Alternatively, a shorter takeoff roll can be achieved because takeoff can be at a lighter weight before refueling once airborne.

Figure 2-2. Grissom ARB Installation

**B. Grissom ARB Operation Areas**

*Installation*

The airfield and its support facilities are considered operational areas from an operational, safety, and noise analytic perspective. The key aspects include Runway 05/23, departure, arrival, and closed-pattern operations, and maintenance engine run-ups.

*Runway*

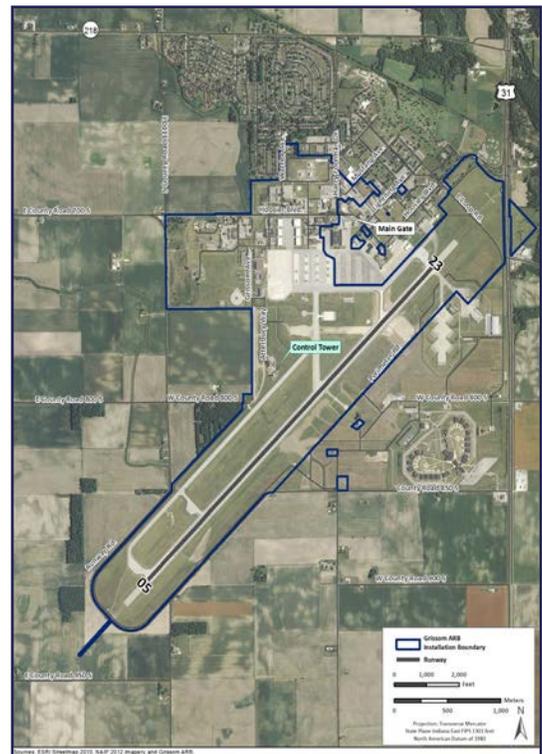
Runway 05/23 is oriented in a northeast/southwest direction, and is 12,500 feet long by 200 feet wide. Aircraft operating at Grissom ARB use Runway 05 approximately 25% of the time and Runway 23 approximately 75% of the time.

*Flight Patterns*

Aircraft arrive at, and depart from, Runway 05/23 from numerous directions; however, most of the time, aircraft are flown to the west and the southwest. Closed-pattern flight tracks are flown to the north and south of the airfield. Approximately 70% of the time, closed patterns are flown to the north of the airfield; approximately 30% of the time they are flown to the south. Flight tracks are designed to minimize conflict with civilian populations to the greatest extent possible, by avoiding the more densely populated areas, such as the city of Kokomo to the south.

*Maintenance Engine Run-ups*

Maintenance engine run-ups are performed on based aircraft at Grissom ARB. These run-ups are normally performed at the parking apron on the north side of the airfield and are conducted during the day (between 7 a.m. and 10 p.m.). Idle engine runs, sound/flight idle engine runs, and high-power engine runs are performed on the based aircraft. (Air Installations Compatible Use Zone (AICUZ) Study. Grissom Air Reserve Base, July 2014)



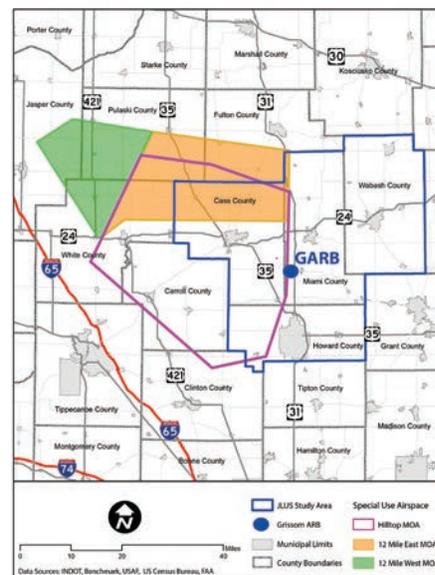
### Airspace

Controlled Class D airspace has been established around Grissom ARB to manage air traffic and extends from the surface up to 3,300 feet above mean sea level (MSL) within a 5.6-nautical mile (NM) radius around the installation. Class D airspace provides control into, and out of, primary airports that have an operational control tower and radar approach capabilities, and where aircraft operations are periodically at high-density levels. (AICUZ Study, Grissom Air Reserve Base, July 2014)

There are three military operations areas (MOAs) located within the confines of the Grissom Approach Control's airspace (as shown in Figure 2-3). The Office of Primary Responsibility for scheduling activities is the 122nd Fighter Wing (FW), Fort Wayne Air National Guard (ANG). The Indiana ANG is the primary user of the Hilltop and 12 Mile MOAs. Along with Grissom ARB, other military units may use this area after coordination with the 122nd FW. Chicago Air Route Traffic Control Center (ARTCC) has control of all approved flights into the MOA. Detailed procedures are contained in the Letter of Agreement between Chicago ARTCC and the 122nd FW. (Installation Interview with Grissom Air Reserve Base Personnel, 2017)

An MOA is a special use airspace designated for military training activities, and consists of airspace with defined vertical and lateral limits established for separating or segregating certain nonhazardous military activities from Instrument Flight Rules (IFR) traffic, and to identify for Visual Flight Rules (VFR) traffic where these activities are conducted. MOAs facilitate military activities such as air combat maneuvers, air intercepts, and acrobatics. (Air Installations Compatible Use Zone (AICUZ) Study, Grissom Air Reserve Base, July 2014). The Twelve East MOA is located northwest of Grissom ARB and extends from 500 feet to 9,999 feet above ground level (AGL); and the Twelve West MOA extends from 500 feet to 5,999 feet AGL. The Hill Top MOA is located west of the airfield and extends from 10,000 to 18,000 feet AGL. Installation and transient military aircraft that fly in and out of Grissom ARB periodically train in these MOAs. (Area Planning Special Use – North America, National Geospatial Intelligence Agency, 2016)

Figure 2-3. Grissom ARB Military Operations Areas



## C. Grissom ARB Units

### Host Unit



The 434 ARW serves as the host unit at Grissom ARB and contains the largest KC-135 unit in the AFRC, which is accountable for manning, equipping, and training Air Force Reservists in support of global air refueling operations. The installation supports the 434 ARW's 16 KC-135R Stratotanker unit. Current military operations for the 434 ARW are centered around airfield operations and the aerial refueling mission. Grissom ARB is also home to the U.S. Marine Corps Reserve and U.S. Army Reserve. (434th Air Refueling Wing Fact Sheet, Grissom Air Reserve Base, 2013)



The wing consists of three major organizations: the 434th Operations Group, the 434th Maintenance Group, and the 434th Mission Support Group. These organizations perform flight operations, aircraft maintenance, plans and programs, safety, airfield management, security police, communications, medical support, information management, administration, and civil engineering. There are two flying units assigned to the 434 ARW: the 72nd Air Refueling Squadron (ARS) and the 74th ARS, both of whom train and provide KC-135R aircrew members in support of the AMC and its aerial refueling mission. (434th Air Refueling Wing Fact Sheet, Grissom Air Reserve Base, 2013)

The 434th Maintenance Group is responsible for aircraft maintenance and support activities. These responsibilities include avionics, fabrication, systems, jet propulsion, inspection, logistics management, maintenance control, maintenance supply, plans and scheduling, resource management, and ground support equipment. (434th Air Refueling Wing Fact Sheet, Grissom Air Reserve Base, 2013)

The 434th Mission Support Group is made up of many squadrons that provide support to the 434 ARW and the KC-135R aircraft. Units include the Aerospace Medicine Squadron, Civil Engineer Squadron, Communication Squadron, Logistics Readiness Squadron, Operational Contracting Flight, Security Forces Squadron, Services Flight, and Aerial Port Flight. (434th Air Refueling Wing Fact Sheet, Grissom Air Reserve Base, 2013)

*Tenant Units*



The United States Marine Corps (USMC) Reserve Center officially joined Grissom ARB in September 2003, and was assigned to Detachment 1, Communications Company. The mission of the USMC Reserve Center is to install and operate a Combat Service Support Operations Center in a tactical environment. Some of the operational functions of the support center include single channel and tactical satellite radios, secure and non-secure world-wide computer networks, digital switch network telephone communications, and VTC capabilities. (Tenant Units at Grissom Air Reserve Base, Grissom Air Reserve Base, 2013)



The United States Army Reserve Center was officially opened in October 1974 and houses three units at Grissom ARB. The 316th Psychological Operations Company provides world-wide psychological operations support to conventional and special operations units, both in peace and war. A Company, 1st Battalion, 330th Infantry Regiment, is a Drill Instructor unit that instructs infantry basic training annually at Fort Benning, Georgia. The 1st Detachment, 855th Quartermaster Company, is a laundry and bath unit that provides services to soldiers deployed in remote areas worldwide. (Tenant Units at Grissom Air Reserve Base, Grissom Air Reserve Base, 2013)

**D. Joint Use Civilian Airport**

In 2008, Grissom ARB entered into a joint-use agreement with the Grissom Aeroplex and opened its runway to civilian operations. The term “joint-use airport” means an airport owned by the DoD, at which both military and civilian aircraft share use of the airfield.

Grissom Aeroplex consists of 850 acres and is under the control of the Miami County Economic Development Authority (MCEDA). The Aeroplex opened as a general aviation airport with no commercial airline service scheduled. Montgomery Aviation formerly served



as the fixed-base operator for the civilian airport operations. (Miami County Comprehensive Plan, American Structurepoint, 2015)

The MCEDA took over as the operator for civilian airplanes landing at Grissom ARB in 2017, and will serve as a fixed-base operator—an organization or company that provides airplane services such as fueling, transportation, aircraft maintenance, and de-icing. The move from Montgomery Aviation to the MCEDA will ensure civilian planes can continue to land and receive services from Dean Baldwin Painting. (“Miami County takes over civilian operations at Grissom runway,” *Pharos-Tribune*; Carson Gerber, February 2017)

## E. Current Aircraft Operations at Grissom ARB

Flying activities at Grissom ARB are currently grouped into three general categories: the 434 ARW, Transient Operations, and Civilian Operations. The 2014 Air Installation Compatible Use Zone (AICUZ) Study examined all operations at Grissom ARB during calendar year 2014, shown in Table 2-1. (AICUZ Study, Grissom Air Reserve Base, July 2014)

There are multiple types of transient military aircraft that use the airfield, some of which include A-10, C-130, C-17, C-5, and F-18 aircraft, as well as CH-46 and UH-60 helicopters. Military transient aircraft complete approximately six operations per day at Grissom ARB in an average year.

The number of civilian aircraft operations that fly in and out of Grissom ARB on an average yearly basis are also shown in Table 2-1. The majority of these operations occur with general aviation aircraft.

Table 2-1. Total Annual Aircraft Operations at Grissom ARB

	Annual Aircraft Operations
Based KC-135R Aircraft	5,530
Military Transient	2,219
Civilian Operations	4,617
<b>Total Aircraft Operations</b>	<b>12,186</b>

Source: Air Installations Compatible Use Zone (AICUZ) Study, Grissom Air Reserve Base, July 2014.

## F. Remotely Piloted Aircraft/Unmanned Aircraft Systems

Remotely piloted aircraft/unmanned aircraft systems (RPA/UAS) operations among civilian users near Grissom ARB can create airspace restrictions and safety concerns for pilots and affect mission operations at the installation. These aircraft, commonly known as drones, are operated without a human pilot aboard that is either under remote control by a human operator or by onboard computers. There are three different types of RPA/UAS operations:

- » public operations
- » civil operations
- » model aircraft operations (hobby or recreational only)

The Federal Aviation Administration (FAA) issues a Certificate of Waiver or Authorization for public aircraft operations that permits public agencies and organizations to operate RPA/UAS in a designated area. The FAA works with the operating agency to develop conditions



and limitations to ensure a certain level of safety. Examples of public operational uses include law enforcement, firefighting, border patrol, disaster relief, search and rescue, agricultural operations, and military training. (FAA, Special Security Instructions, Title 14 of the Code of Federal Regulations (14 CFR) § 99.7, 2017.)

Over the last few years, use of RPA/UAS has increased among state and local government public safety and law enforcement, various commercial industries, hobbyists, and social media enthusiasts. The total number of registered RPA/UAS owners, as of early February 2016, exceeded 325,000. The FAA estimates there are more than 9,000 registered drones across Indiana. Because of the increased availability and popularity of RPA/UAS with commercial users and the public, 31 states have enacted laws addressing RPA/UAS issues, and an additional five states have adopted resolutions. (Taking Off: State Unmanned Aircraft Systems Policies, Amanda Essex, 2016)

Although regulation of the airspace falls within the jurisdiction of the FAA, like Indiana, several states have acted to address various concerns related to RPA/UAS operation. Indiana has passed legislation falling within the broad category of privacy, and a search warrant is required to use RPA/UAS for surveillance. Most recently, the General Assembly passed a law (Public Law 107) that went into effect in July 2017, prohibiting the use of drones for voyeurism or harassment. The airspace around Grissom ARB is prohibited, restricted, or cautionary for drone flight. (Indiana State Drone Laws, 2017)

As of April 2017, the FAA used its existing authority under Title 14 of the Code of Federal Regulations (14 CFR) § 99.7, Special Security Instructions, to address national security concerns regarding unauthorized drone operations over 133 military facilities that restrict drone flights up to 400 feet within the lateral boundaries of military installations. (FAA, Special Security Instructions, 14 CFR § 99.7, 2017).

There have been no reports of UAS operations interfering with aircraft operations at Grissom ARB. UAS commercial agricultural use and private hobbyist drones remain a concern that security forces monitor, but are not considered an encroachment concern at this time. It is acknowledged by installation leadership that, nationwide and within Indiana, UAS use is increasing and will continue to increase, and Grissom ARB should plan for, and plan to prevent, potential future incidents. (Installation Interview with Grissom Air Reserve Base Personnel, 2017)

### III. Areas of Potential Conflict

As outlined in Air Force Instruction (AFI) 90-2001, Encroachment Management, the Air Force Encroachment Management (AFEM) Program addresses encroachment and sustainment challenges that have the potential to affect both the installation mission and the quality of life in surrounding communities. To protect the ability of an installation to execute its mission, the installation-level encroachment management program builds on, and integrates, existing foundational programs, such as a JLUS. (AFI 90-2001, Encroachment Management. United States Air Force, 2014). This JLUS serves as a community-driven initiative for Grissom ARB to work with key stakeholders in addressing and preventing incompatible development that could impair the operational ability of Grissom ARB's mission. The JLUS looks at all areas of encroachment and identifies the below three areas as potential encroachment factors.



## A. Urban Growth

Urban Growth encompasses the development of nearby communities, resulting in additional housing and infrastructure, population densities, and land use patterns. Urban growth can become a potential driver and root cause of other encroachment concerns identified below - noise, light pollution, and energy development. (AFI 90-2001, Encroachment Management, United States Air Force, 2014)

The north-central Indiana region, within which Grissom ARB is located, has experienced very little population growth over the past 40 years. Although jurisdictions did experience growth between 1950 through 1980, a downturn in the national economy in the late 1980s resulted in the decline of the area's population from 1990 through 2010. Since 2010, the region has averaged around a 2.0% population loss in each county, except for Howard County which has seen a minor decline, but overall, very little change in its population growth. (Miami County Comprehensive Plan, 2015)

As detailed in Chapter 3, Grissom ARB is surrounded by land uses that are generally compatible with its military training and operations. The majority of land around Grissom ARB is agricultural or otherwise undeveloped, with sparsely settled rural residential development. The Grissom Aeroplex houses industrial, office, institutional, civic, and recreational uses. Other nearby land uses include the Miami County Correctional Facility, several small businesses along U.S. Highway 31 (US 31) to the east, and a subdivision, The Estates at Eagle's Pointe, originally built as military housing to the north.

Some of the small businesses located near the intersection of US 31 and State Road (SR) 218, along with Grissom Air Museum, are in Grissom's Clear Zone (CZ) or Accident Potential Zone (APZ) I, and thus are moderate encroachment concerns. Nonetheless, the lack of high-density residential and other noise-sensitive land uses (e.g., churches, schools) indicate a high degree of compatibility exists between the installation and surrounding community. (AICUZ Study, Grissom Air Reserve Base, July 2014). Analysis conducted during the JLUS indicated that current conditions suggest the surrounding land will remain compatible with military operations. This is due in large part to the absence of the water and wastewater infrastructure required to support anything other than agricultural uses.

Zoning also can affect land use compatibility. As detailed in Chapter 4, in 2016, Cass County adopted the "Grissom Air Reserve Overlay District," as Section 406 of the Cass County Zoning Ordinance. This overlay further regulates the use of land and maximum building heights of buildings and vegetation within the overlay areas. The Overlay District does not apply in the Towns of Galveston or Onward because Cass County zoning powers do not extend into these jurisdictions and neither town has adopted additional protections for the areas nearest to Grissom ARB. Miami County and the Town of Bunker Hill (which has an extraterritorial zoning jurisdiction overlapping with some of Grissom ARB impact areas) are in the process of adopting overlay districts and standards similar to Cass County's. (Grissom Air Reserve Base Joint Land Use Study SWOC Analysis, White & Smith, et al., 2017)

### *Airborne Operational Noise*

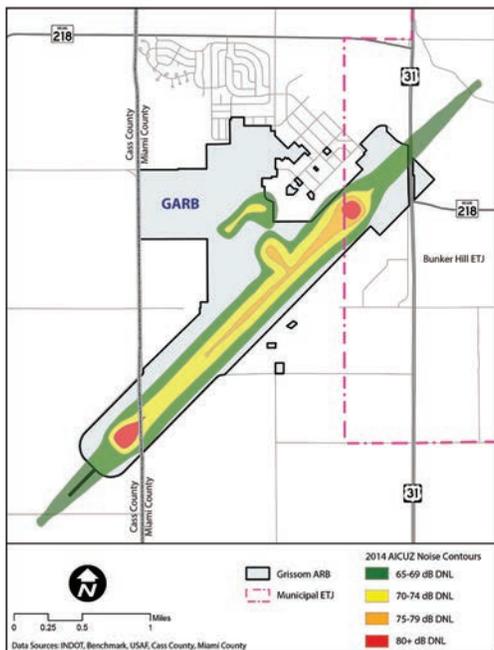
Aircraft Noise is any noise associated with military readiness activities (e.g., aircraft operations, engine maintenance, etc.) that can affect nearby communities. (AFI 90-2001, Encroachment Management, United States Air Force, 2014). Noise impacts occur both on the installation and within the local community. The level of impact is generally related to the



proximity of the noise source. Noise generated from Grissom ARB is predominately from aircraft operations. Since 1995, Grissom ARB has seen a reduction in the number of aircraft assigned to the 434 ARW, and a corresponding reduction in the number of aircraft operations. Although Grissom ARB has seen the introduction of civilian aircraft businesses and, consequently, an increase in civilian operations, civilian aircraft used at Grissom are generally quieter than military aircraft. Flight patterns have been designed to minimize conflict with civilian populations. For example, maintenance engine run-ups are performed on aircraft located on the parking apron on the north side of the airfield between 7:00 a.m. and 10:00 p.m. (AICUZ Study, Grissom Air Reserve Base, July 2014)

**Survey Results**  
 A majority (67%) of respondents stated they rarely or never hear aircraft noise associated with Grissom ARB.

Figure 2-4. 2014 AICUZ Noise Contours



The noise contours established in the 2014 AICUZ (see Figure 2-4) are based on the average day-night noise level (expressed as dB DNL) projected to be generated by aircraft operations at Grissom ARB. Since the contours are based on average sound levels, exposure levels from a single aircraft operation may be higher or lower than the level indicated by the noise contour at any given location.

Most of the land within the noise zones (approximately 86%) is located on the installation, much of which experiences 70 dBA or greater. The remaining 14% derives from 98 acres of off-installation located within the 65–69 DNL Noise Zone. The land uses and relative compatibility of these 98 acres break down as follows:

- » 28 acres of commercial, industrial, and transportation land uses are considered compatible with USAF land use guidelines.
- » 70 acres of open-space/agricultural/low-density land use within Miami and Cass Counties are considered compatible. (AICUZ Study, Grissom Air Reserve Base, July 2014).

Based on results received from the JLUS Public Survey, noise has an insignificant impact within the region. Although 16% of respondents can hear noise on a daily or weekly basis, 17% indicated hearing noise sometimes, 50% rarely hear noise, and another 17% never hear noise associated with aircraft operations. Respondents who indicated hearing noise do not find the noise disruptive (see [Appendix A](#)).

*Aircraft Accident Potential*

Areas immediately beyond the ends of military runways and along the approach and departure flight paths are considered to have significant potential for aircraft accidents. The DoD has defined three levels of relatively high accident potential: the CZ, APZ I, and APZ II. CZs and APZs are not predictors of accidents; rather, they are areas where an accident is most likely to occur, if one occurs. (AFI 32-7063, AICUZ Program, United States Air Force, 2015)

The CZ is considered to be the most hazardous, given its proximity to the end of the runway. The overall risk is high enough that the DoD generally acquires the land through purchase in fee simple or acquiring restrictive easements to prevent development. The CZ is 3,000 feet wide and 3,000 feet long from the end of the runway. As shown in Figure 2-5, the majority of the northeastern CZ is within the Grissom ARB boundary; however, the majority of the southwestern CZ is outside of the installation's boundary in Cass County. (AICUZ Study, Grissom Air Reserve Base, July 2014)

APZ I, the area beyond the CZ, has significant potential for accidents as well. APZ I is 3,000 feet wide and extends 5,000 feet from the CZ. APZ II is an area beyond APZ I with a lesser, but still significant, potential for accidents. APZ II is 3,000 feet wide and extends 7,000 feet from APZ I. Though aircraft accident potential in APZs I and II may warrant acquisition (e.g., easements) by the USAF, land use planning and controls are strongly encouraged in these areas to protect the public from potential aircraft accidents. As shown in Figure 2-5, there are a few residences scattered throughout the APZs in both Miami and Cass Counties. (AICUZ Study, Grissom Air Reserve Base, July 2014)

The majority of land in the northeastern CZ is within the installation boundary (approximately 169 acres). Approximately 2 acres of commercial and 23 acres of industrial property are present in the CZ northeast of the installation. The majority of off-installation land in APZ I consists of open-space/agricultural/low-density property. There are 17 acres of residential land north of Pipe Creek, and 11 acres of commercial and 1 acre of industrial land adjacent to US 31. Similar to APZ I, land within the northeastern APZ II consists mostly of open-space/agricultural/low density property; however, there are 36 acres containing residences in the southern region of the northeastern APZ II. (AICUZ Study, Grissom Air Reserve Base, July 2014). Incompatible land uses in the northeastern CZ and APZs are identified in Table 2-2. Table 2-2 is based on the 2014 AICUZ Study, and the compatibility analysis was updated during the 2018 JLUS (see [Chapter 3](#)).

About 75 acres of land in the southwestern CZ are within the installation boundary. The off-installation land in the CZ consists of open space, agricultural, low-density and five acres of incompatible transportation land uses. Off-installation land within APZ I includes six acres of scattered residential property and open-space/ agricultural/ low-density and transportation use. Off-installation land within APZ II includes 21 acres of residential and open space/agricultural/low-density. Incompatible land uses in the southwestern CZ and APZs are identified in Table 2-3. Table 2-3 is based on the 2014 AICUZ Study, and the compatibility analysis was updated during the 2018 JLUS (see [Chapter 3](#)).

Figure 2-5. Existing Land Uses in APZs

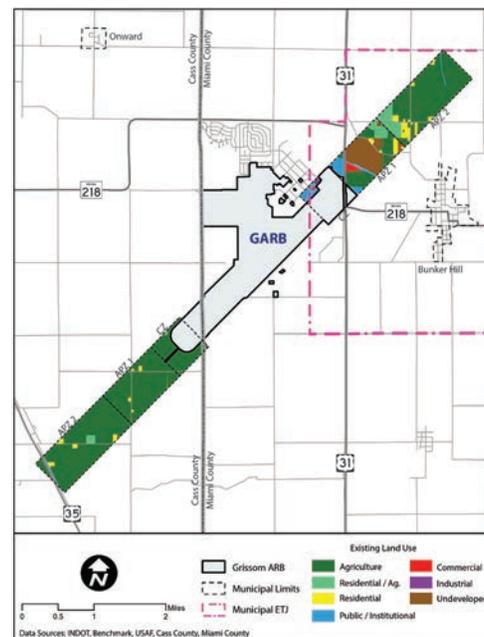


Table 2-2. Existing Off-Installation Incompatible Land Use Within the Northeastern CZ and APZs

Category	Acreage within Northern APZs			Total
	CZ	APZ I	APZ II	
Commercial	2	CO*	0	<b>2</b>
Industrial	23	CO*	0	<b>23</b>
Open-Space/Agriculture/ Low-Density	0	CO	CO	<b>0</b>
Residential	0	17	36	<b>53</b>
Transportation/Right-of-Way	12*	CO*	CO	<b>12</b>
<b>Total Acreage</b>	<b>37</b>	<b>17</b>	<b>36</b>	<b>90</b>

CO = The land use is considered compatible.

CO\* = The land use is considered compatible with restrictions.

\* = The placement of structures, buildings, and aboveground utilities lines are subject to severe restriction in the CZ.

0 = No acreage of this category is present.

Source: Air Installation Compatible Use Zone (AICUZ) Study. Grissom Air Reserve Base, July 2014.

Table 2-3. Existing Off-Installation Land Use Within the Southwestern CZ and APZs

Category	Acreage within Southern APZs			Total
	CZ	APZ I	APZ II	
Open-Space/Agriculture/ Low-Density	CO*	CO	CO	<b>0</b>
Residential	0	6	21	<b>27</b>
Transportation/Right-of-Way	5*	CO*	CO	<b>5</b>
<b>Total Acreage</b>	<b>5</b>	<b>6</b>	<b>21</b>	<b>32</b>

CO = The land use is considered compatible.

CO\* = The land use is considered compatible with restrictions.

\* = The placement of structures, buildings, and aboveground utilities lines are subject to severe restriction in the CZ.

0 = No acreage of this category is present.

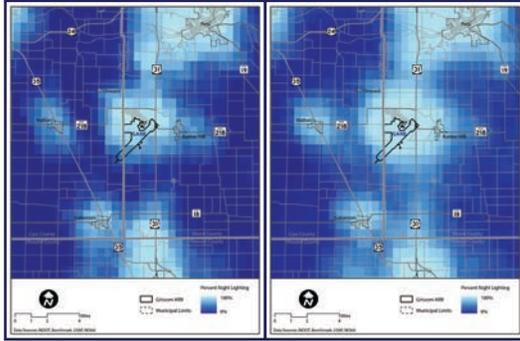
Source: Air Installation Compatible Use Zone (AICUZ) Study. Grissom Air Reserve Base, July 2014.



### Light Pollution

According to the 2014 AICUZ, “approximately 32 percent of the 434 ARW aircraft operations occur during nighttime hours (10:00 p.m. to 7:00 a.m.)”. Light pollution can limit the military’s ability to conduct nighttime training around Grissom ARB. With the use of

Figure 2-6. Nighttime Radiance Change between 1994 and 2013



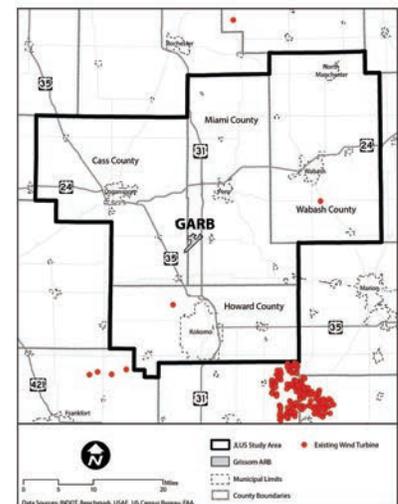
night-vision equipment, a significant portion of military training is now conducted at night. These exercises simulate combat situations, helping Airmen develop their situational awareness. Light encroachment threatens the loss of a valuable military resource: darkness. This translates into reduced training effectiveness and mission competency. Light pollution from the Miami County Correctional Facility and the surrounding area may affect the ability of the 434 ARW to operate effectively and train realistically when conducting night vision goggle training, but is not currently creating an issue. As urbanization around the installation increases, nighttime light pollution also increases. Figure 2-6 shows the nighttime radiance in 1994 compared to the nighttime radiance in 2013. Several protections against light pollution encroachment will need to occur around Grissom ARB, such as implementing a dark skies policy that includes limiting hours of lighted signs, and encouraging downward directed outdoor lighting and/or limiting certain nighttime construction. (AICUZ Study, Grissom Air Reserve Base, July 2014)

## B. Wind Energy Infrastructure Compatibility

The development, siting, distribution, or transmission of energy resources, including wind energy, can create conflicts in airspace training, which can cause encroachment and sustainment challenges for Air Force installations. Wind turbine infrastructure impacts include interference with spectrum dependent systems (e.g., radars, microwave systems, and satellite communications systems), and tall structures that can obstruct low-level flight training and testing. (AFI 90-2001, Encroachment Management, United States Air Force, 2014). Large-scale commercial wind farms near Grissom ARB and its training and operational areas can create the potential to interfere with Grissom’s air operations and communications.

According to the American Wind Energy Association, Indiana ranks 12th for installed wind capacity. Indiana has been successful in attracting wind energy manufacturing, with at least 15 manufacturing facilities in the state creating high-quality jobs and producing components for the wind industry. In addition, the state’s impressive wind capacity has created economic development throughout the state. Meadow Lake Wind Farm is the 12th largest wind project in the United States, with 303 wind turbines, stretching across White, Jasper, and Benton Counties, directly west

Figure 2-7. Existing Wind Turbines

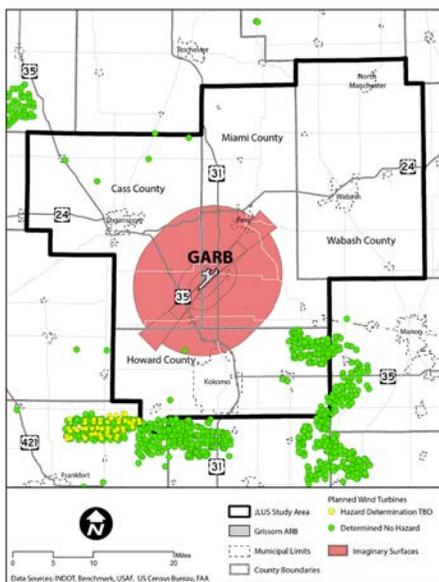


of Grissom ARB. It is expected that wind energy development in Indiana will continue to grow. (Indiana State Wind Energy Fact Sheet, American Wind Energy Association).

Currently, most of the energy development projects in Indiana are located relatively far from the installation (Figure 2-7), thus currently not posing any challenges to mission impacts. Grissom ARB has raised concerns that wind development in Cass County could have effects on radar approaches and aircraft navigational radar. As the interest in wind power continues to grow, the region may see a surge of wind energy development. In recent years, multiple wind turbines and wind energy farms have been proposed and/or developed near (within 65 miles) Grissom ARB (Figure 2-8). None of the existing wind turbines currently constitute

a hazard to air operations or obstacle to air navigation, nor are any located immediately adjacent to, or within, line of sight of the installation. (Installation Interview with Grissom Air Reserve Base Personnel, 2017)

Figure 2-8. Proposed Wind Development



Miami and Cass Counties have established Wind Energy Conversion Systems (WECS) siting ordinances that provide a regulatory framework for the development and production of wind generated electricity, facilitate economic opportunities for residents, and promote the supply of wind energy in support of Indiana’s alternative energy sources potential and other such economic development tools. “No applicant shall construct, operate, or locate a WECS within Miami County or Cass County without having fully complied with the provisions of the Ordinance.” However, the ordinances make no specific reference or regulatory structure on the installation of WECS in or near the proximity of Grissom ARB. (Wind Energy Conversion Systems Siting Ordinance, Miami County Zoning Ordinance, Miami County, Indiana; Small and Large Wind Ordinance, Cass County Zoning Ordinance, Cass County, Indiana)

### C. Security & Safety

Security encroachment can compromise the safety of the installation, resulting in potential impacts to installation mission and the community. These can include, but are not limited to, anti-terrorism, vantage points, and lines of sight issues onto installations. (AFI 90-2001, Encroachment Management United States Air Force, 2014). The below three potential security concerns were raised at Grissom ARB as a result of the JLUS analysis:

- » joint use of the airfield with Grissom Aeroplex, as well as commercial and civil tenants
- » vantage points around the installation from older properties and structures
- » potential changes to access points dependent on proposed changes to US 31

As a result of BRAC, Grissom revised its Cantonment Area and perimeter boundary, which is now shared with the Grissom Aeroplex. Foreman Drive ,currently open to public traffic, bisects the installation and creates an “Annex” located outside the main Cantonment Area. Due to the reconfiguration of this area, securing the entire installation and protecting all personnel are challenges for the Security Forces Squadron and constitute potential encroachment and sustainment challenges. Two major tenants of the Grissom Aeroplex, Dean Baldwin Aircraft Painting Services and the MCEDA, need regular access to the runway. (Installation Interview with Grissom Air Reserve Base Personnel, 2017)



Second, the vacant steam plant, located near the main gate of the installation, is a security and safety hazard to Grissom ARB. The vacant steam plant offers an elevated perspective into the installation and main gate. Portions of the building rise to a height of approximately 35 feet, when most of the buildings on base do not exceed one or two stories, providing an ideal vantage point from the second floor of the abandoned facility to the installation. Due to its off-post location, the former steam plant presents a security concern to Grissom ARB. (Grissom Air Reserve Base Joint Land Use Study SWOC Analysis. White & Smith, et al., 2017)

There are concerns that a limited access freeway would create hardships for many land and business owners, including Grissom ARB. Hoosier Boulevard potentially may be eliminated as the primary point of access, due to a proposed interchange at State Road 218, thereby providing the installation with only one main gate/access point along Foreman Drive. This is a security and safety concern for motor vehicles gaining access to the installation. Furthermore, the Grissom Aeroplex, as it continues to grow, would have to share with the installation this one point of access to the entire property. Currently, traffic at times backs up on Hoosier Boulevard during high peak times and is expected to exacerbate. The future alignment of US 31 may influence the decision to change fence lines or alter road networks around the installation, which could further increase security concerns. (Installation Interview with Grissom Air Reserve Base Personnel, 2017)

#### D. Others

Other encroachment factors with the potential to affect Grissom ARB were also evaluated, but further analysis showed the below encroachment challenge and sustainment areas did not appear to be issues within the JLUS Study Area. The military attempts to mitigate these encroachment impacts through service-level programs, like the JLUS program, and to manage encroachment through established and effective collaborative land use planning processes.

- » **Airspace and Land Restrictions** – As mentioned in the Urban Growth section, competition for land resources within the main installation and joint use of the airfield can be a concern, but it is not creating any additional airspace and land restrictions.
- » **Spectrum Encroachment** – The installation staff continues to work with the Department of Commerce National Telecommunications and Information Administration (NTIA) on spectrum management. Cell tower development around the installation has not interfered with installation communications. Drones (personal UAS) run on a compatible frequency and, though there have been security concerns from drones, spectrum interference has not been noted.
- » **Endangered Species and Critical Habitat** – No state or federal threatened, endangered, or candidate species exist on, or near, Grissom ARB. Within the state of Indiana, 23 threatened and endangered species have been identified, none of which are located on the installation. There are no areas of critical habitat. It is reported that most of the habitat present on Grissom ARB has a moderate to low value in relation to its ability to support the maximum native species richness of birds, mammals, reptiles, and amphibians. Current methods and programs for encroachment control and engagement are adequate. (USFWS Bloomington Ecological Services Office <https://www.fws.gov/midwest/Bloomington/>; Grissom ARB Installation Development Plan (IDP), Chapter 8-Sustainability Development Indicators, 2014; KC-46A Third Main Operating Base (MOB 3) Beddown Environmental Impact Statement (EIS) April 2017)



- » **Air** – Despite being located within an attainment area, there exist no significant air quality or emission issues for Grissom ARB to resolve. Criteria pollutant emissions at Grissom ARB were below permitted limit levels, and are expected to continue to stay within the permitted limits. (Grissom ARB IDP, Chapter 8-Sustainability Development Indicators, 2014)
- » **Water** – There are no known water-related challenges affecting Grissom ARB. Through its privatized contract with Peru Utilities, the installation uses an average of 23,000 gallons of water per day (based upon 2014 usage) with a potential capacity of 2.2 million gallons per day. The supply of potable water is not a limiting factor at the installation, nor is it anticipated to be threatened in the foreseeable future. There are no known water quality issues affecting the installation. (Grissom ARB IDP, Chapter 8-Sustainability Development Indicators, 2014; KC-46A MOB3 Beddown EIS, April 2017; Stakeholder interviews with Utility Providers 6/6/17)
- » **Cultural Resources** – Several cultural resource investigations were performed at Grissom ARB during BRAC that identified six prehistoric, and seven historic, archaeological sites in the old cantonment area. These were evaluated as not eligible for the National Register. In addition, twelve architectural resources were evaluated; eleven of which were determined as not eligible; with one considered eligible for the National Register. (Grissom Air Reserve Base Cultural Resources Management Plan. Science Applications International Corporation, December 2010)
- » **Unexploded Ordnance (UXO) and Munitions** – There are no known UXO sites on Grissom ARB or known sites off base.
- » **Marine Resources** – Due to the geographic location of Grissom ARB and the missions at the installation, there are no Marine Resources encroachment challenges associated with the installation.
- » **Natural Factors** – Like many midwestern states, Indiana is subject to severe weather such as thunderstorms, hail, and tornadoes. Grissom ARB acknowledges severe weather events can be a potential and emerging issue, but does not consider it an encroachment threat at this time. There have been no studies or analyses completed to forecast in greater detail the potential impacts of climate change on Grissom ARB operations or to identify potential climate adaptation and mitigation opportunities the installation could undertake with the surrounding region. (Grissom Air Reserve Base Joint Land Use Study SWOC Analysis. White & Smith, et al., 2017)

## E. Future and Potential Operations at Grissom ARB

The installation’s capacity to accommodate current and future missions is evaluated by examining the existing condition of facilities, supply, demand, and potential for expansion. Current military operations at Grissom ARB are centered around airfield operations and the installation’s aerial refueling mission. The strategic geographic location of the installation supports all types of military, humanitarian, disaster relief, and emergency airlift operations, and the long runway accommodates almost any type/size of airframe, load, or mission. With a generous surplus of apron/ramp space, Grissom ARB can support a broad range of new or expanding activities. However, at the time of this JLUS, there are no known immediate future mission changes anticipated at Grissom ARB. (Grissom Air Reserve Base IDP, HDR, 2017)



## IV. Environmental Resources Program and Management

As specified in Air Force Instruction (AFI) 32-7001, Environmental Management, Grissom ARB must comply with all applicable environmental compliance program requirements. Although most of these environmental compliance areas are not directly related to land use compatibility off the installation, a brief description of each is included for background purposes.

### A. Air Quality Management

Air quality management requirements include compliance with all federal, state, and local laws, regulations, and ordinances on USAF active and reserve installations and activities. This includes all air quality and emissions requirements for stationary, mobile, and fugitive sources of emissions. The Indiana Department of Environmental Management (IDEM) is responsible for air compliance, monitoring, and enforcement. (Air Quality in Indiana, <http://www.in.gov/idem/airquality/index.htm>)

### B. Hazardous Waste Management

Classified as a large-quantity generator, the typical hazardous wastes generated by Grissom ARB during operations and maintenance activities include: solvents, rags, paint, paint thinners and strippers, blasting media, used filters, waste oils cleaners, hydraulic fluids, lubricants, aerosols, and sealants/adhesives. Grissom ARB has a Hazardous Waste Management Plan in place. As required by federal and state laws and regulations, the Plan provides policies and procedures to properly manage the hazardous wastes generated during installation operations and aircraft maintenance. (KC-46A MOB3 Beddown EIS, April 2017; Grissom ARB Hazardous Waste Management Plan, AFRC, June 2011).

### C. Water Quality Management

Water quality management includes compliance with federal water pollution control requirements under the Clean Water Act (CWA) for wastewater discharges; stormwater runoff; non-point source pollution; sewage sludge generation; and facilities involved in the transfer, storage, and transportation of hazardous materials that may involve discharge or runoff. Compliance with the national federal permit program under the CWA is required through the National Pollutant Discharge Elimination System, administered by the Environmental Protection Agency (EPA). Water quality for the state of Indiana is overseen by the IDEM Office of Water Quality. (Water Quality in Indiana, <http://in.gov/idem/cleanwater/2429.htm>)

### D. Installation Restoration Program

The installation restoration program requires the identification, investigation, and cleanup or control of hazardous substance released from past waste disposal operations and spills at USAF installations. It includes compliance with Environmental Response, Compensation, and Liability Act and the Superfund Amendments and Reauthorization Act. Grissom ARB has 14 Installation Restoration Program sites, of which eight have been closed. Administration of these sites is in accordance with the Installation Restoration Management Action Plan. In accordance with applicable laws and regulations, the Installation Restoration Management Action Plan provides a comprehensive strategy for implementing essential response actions for the protection of human health and the environment. (KC-46A MOB 3 Beddown EIS, April 2017; Land Quality in Indiana, <http://www.in.gov/idem/landquality/2453.htm>)



## E. Solid Waste Management and Resource Recovery

Solid waste management and resource recovery must be in compliance with statutory and procedural requirements including the Resource Conservation and Recovery Act of 1976, Indiana Department of Environmental Management Title 329 - Solid Waste Management, and Executive Order (EO) 13693. Grissom ARB creates between 200 and 250 tons of nonhazardous municipal waste per year, of which approximately 65% is recyclable. These figures do not include waste generated during construction and demolition, which is the responsibility of the contractor. Nonhazardous waste is collected and transported by Waste Management of Central Indiana and disposed of in the Oakridge Landfill (Cass County). The installation has made great efforts to reduce waste generation and has met all current EO 13693 goals. (KC-46A MOB3 Beddown EIS, Chapter 3-1.8, April 2017; Grissom ARB IDP, Chapter 8-Sustainability Development Indicators, 2014; Grissom ARB Hazardous Waste Management Plan, Air Force Reserve Command, June 2011)

## F. Natural Resources Management Program

In contrast to the environmental compliance elements described above, natural resource management may relate, in some instances, more directly to land use compatibility near or on the installation, while implementing responsibilities and procedures for managing natural resources. There are only two acres of jurisdictional wetlands located on the installation. To date, there are no federally listed threatened or endangered species at Grissom ARB. Grissom ARB is currently designated as a Category II installation and has received a waiver relieving the installation of the requirement to develop and maintain an Integrated Natural Resources Management Plan. However, the installation is required to annually review the circumstances of any endangered or threatened species presence at Grissom ARB. (Declaration of Category II Installation, Department of the Air Force, 1997)

## G. Wastewater Management Program

All the installation's wastewater is discharged into public-owned treatment plants. Peru Utilities owns and operates the sanitary sewer system and has ample capacity to satisfy the primary and secondary treatment demands of the installation. However, wastewater management can be problematic, and is becoming increasingly so due to several factors: aging infrastructure; regional discharge demand to receiving waters which are increasing due to frequency and intensity of storm events; stricter and broader water regulations; and increasing operation and maintenance costs. The installation currently does not have any wastewater management issues and regularly engages with Peru Utilities. (KC-46A MOB3 Beddown EIS, Chapter 3-1.8, April 2017; Grissom ARB IDP, Chapter 8-Sustainability Development Indicators, 2014)

## H. Storm Water Management Program

In accordance with US EPA storm water regulations, Grissom ARB maintains a 2014 Storm Water Pollution Prevention Plan (SWP3) to minimize pollution runoff from the installation's many industrial activities, including aircraft maintenance, vehicle maintenance, and aircraft refueling. In August 1990, the Indiana Department of Environmental Management (IDEM) issued an individual permit to the former Grissom AFB (Permit No. IN0024902), which permitted certain storm water discharges associated with industrial activities. (SWP3 for Grissom ARB, Air Force Reserve Command, 2014)



Grissom ARB conducted a Storm Water Capacity Analysis in 2004 to monitor and evaluate the current conditions of its storm water collection system. The study evaluated the installation storm water network's ability to handle 10-year/24-hour and 100-year/24-hour storm events. The results of the study indicated the open channel ditches could effectively handle a 10-year/24-hour storm event without flooding of the network. During periods of heavy precipitation, surface water captured on the installation is transported to several open canals and ditches that flow into two different watersheds. Current infrastructure is adequate to handle the installation's runoff and is not creating an on-base encroachment issue. (Storm Water Capacity Analysis for Grissom Air Force Reserve Base, EA Engineering Science and Technology, Inc., 2004)

## I. Cultural Resources Program and Management

Previous inventories of cultural resources and historic sites were performed according to AFI 32-7065. There is one historic structure at Grissom ARB, a sign on building 600, which dates to the Cold War Era. There are no other registered historic structures, nor any significant cultural resources that present a challenge to future operations or long-term sustainment. In 2013, Grissom ARB received a waiver from having to maintain an Integrated Cultural Resources Management Plan (ICRMP) due to the installation's having no identified historic properties or other cultural resources. This waiver exempts Grissom ARB from developing and maintaining an ICRMP, but does require the installation to continuously monitor aspects of cultural resources on a regular basis, especially as installation facilities reach the 50-year-old mark. (Grissom ARB Waiver from ICRMP Requirements, Department of the United States Air Force, 2013)

## V. Community Context

### A. JLUS Study Area Community Demographics

A demographic overview establishes a firm understanding of the region's existing demographic and economic profile. The overview below includes an analysis of recent trends in population, households, income, and labor force and employment. This overview can be useful for regional planning and future economic development strategies.

#### *Growth Trends*

According to the 2010 U.S. Census, the JLUS Study Area is home to over 190,000 people. Historical data indicates the regional population has remained stable with only minimal increases or decreases except for two points in time: the first, a significant increase in the 1950s; and the second, a noticeable decline during the 1980s and early 1990s. Both shifts in population can be explained by exploring the history of Grissom AFB, during increases in active duty population, their families, and support services. In the last 15 years, the total population of the region has remained somewhat stable, in fact recording a slight increase in 2010 when compared to the 2000 Census. Long-term trends show, however, that this growth in population is anticipated to reverse, decrease through the year 2020, and even experience a higher percentage decrease by 2030. Table 2-4 provides an overview of the regional population through the years. (STATSIndiana: Indiana's Public Data Utility, 2016)

According to estimates by the U.S. Census Bureau, all the communities in Cass County have declined in population since 2000 and are expected to continue to decline. However, the



Table 2-4: Regional Population Trends

Location	1900	1950	1990	2000	2010
City of Peru	8,463	13,308	12,843	12,994	11,417
Miami County	28,344	28,201	36,897	36,082	36,903
Cass County	34,545	38,793	38,413	40,930	38,966
City of Kokomo	10,609	38,672	44,962	46,113	45,468
Howard County	28,575	54,498	80,827	84,964	82,752
Wabash County	28,235	29,047	35,069	34,960	32,888
State of Indiana	2,516,462	3,934,224	5,544,159	6,080,485	6,483,802

Source: STATSIIndiana: Indiana's Public Data Utility.

Table 2-5: Regional Urban and Rural Population Counts

Location	Urban Population	Urban Population as Percentage of Total	Rural Population	Rural Population as Percentage of Total
Miami County	19,748	53%	17,155	47%
Cass County	21,561	55%	17,405	45%
Howard County	64,931	78%	17,821	22%
Wabash County	16,449	50%	16,439	50%

Source: U.S. Census, American FactFinder, Urban and Rural Universe: Total population 2010 Summary File 1, Miami County, Cass County, Howard County, Wabash County, Indiana.

city of Kokomo has experienced a steady increase since the 1990s. The total population of the city increased by 26% between 2000 and 2015. At the Census count in 2015, the population was just shy of 58,000, which is the highest the city's population has been in 55 years. A large portion of the population gain is a result of individuals moving in from other locations within the state, different states, and abroad. This growth trend is much more exaggerated than that of Howard County, which saw a decrease in population by 2% between 2000 and 2014, mostly due to individuals moving outside of the county. (U.S. Census, American FactFinder, Urban and Rural Universe: Total Population 2010 Summary File 1)

### Urban and Rural Population

The regional population within the JLUS Study Area is composed of more urban (122,689) than rural/unincorporated (68,820). According to data from the U.S. Department of Agriculture's National Agricultural Statistics Service, the four-county area had a total of 2,575 farms in 2012 with an average size of 280 acres, totaling 717,312 acres. This acreage amounts to over 74% of the region's total land area of approximately 964,460 acres. (United States Department of Agriculture's National Agricultural Statistics Service: Indiana County Profiles, 2012). This predominance of agricultural land provides the opportunity to maintain and preserve productive farmland as a source for viable agricultural activities that will enhance the county's economy and contribute to its rural character. Table 2-5 provides a breakdown of the regional urban and rural population.



### *National Plan of Integrated Airport Systems (NPIAS) Application*

Grissom Aeroplex is not governed by an Airport Authority. The MCEDA is the landowner and manager of the Aeroplex surplus properties, but an Airport Authority would assist with the end of the runway challenges that could affect Grissom ARB. An Airport Authority, in conjunction with recent efforts by the MCEDA to have Grissom ARB adopted into the NPIAS as prepared by the FAA, would allow the MCEDA to gain access to funds for infrastructure development projects, such as airfield improvements, that will bring airports up to current design standards. Funding can also be used to conduct studies and protect the land around the airport. (Grissom Regional Defense Alliance Strategies and Objectives, Grissom Regional Defense Alliance, 2017)

Should the civil airport at Grissom ARB be approved and included in the NPIAS, the community would then become eligible to apply for grant funds under the Military Airports Program (MAP) for certain improvements to the civil airport facilities. The Feasibility Study was funded in part by the US Department of Agriculture (USDA) and the Indiana Office of Community and Rural Affairs (OCRA). If successful, it is anticipated that NPIAS inclusion would increase the sustainability of Grissom ARB air operations and support the long-term economic development objectives of the Aeroplex and community. (Grissom Regional Defense Alliance website, <http://grissomrda.com>, 2017)

## **B. Socioeconomic Trends**

The following pages provide an overview of the existing population and housing characteristics, future population projections, and background information pertaining to economics within the Central Indiana Region. In addition to the economic characteristics of the region, this section describes the economic benefits of Grissom ARB, and describes a number of recent or on-going economic development initiatives related to Grissom ARB.

### *Population and Housing*

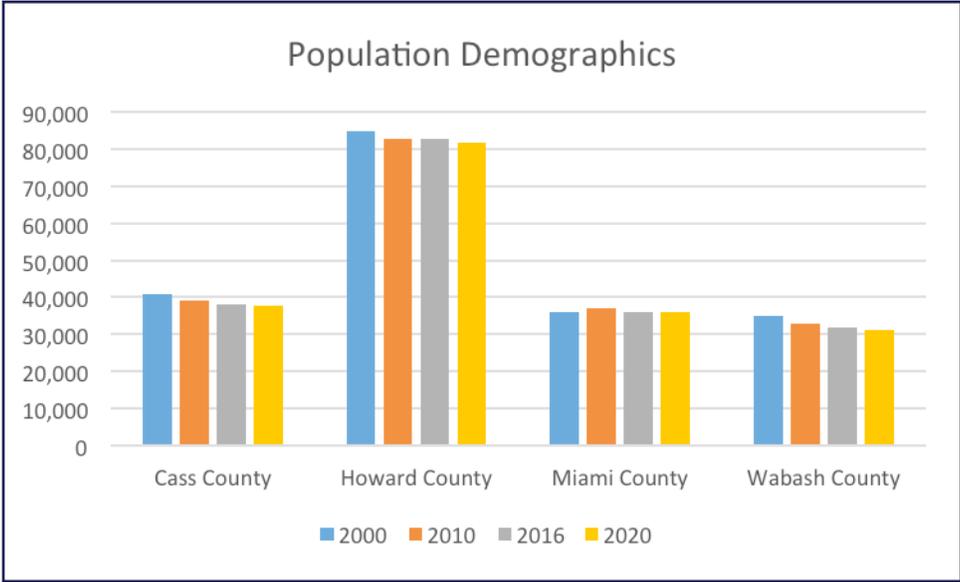
The long-term population trend from 1990–2010 for the six-county region had peaks and troughs, with the highest population of 232,952 reported in the 2000 decennial census, and the lowest of 225,586 in 1995. After 2000, the region's total population gradually declined and the decennial census in 2010 had 228,617 persons. There are various reasons for the decline in population (e.g., birth and death rates, social trend of single-person household, out-migration, etc.); however, recent economic downturn, loss of jobs, and out-migration of workers and their families are contributing factors to the population decline in the JLUS region. (United States Census Bureau, <https://www.census.gov/programs-surveys/decennial-census/data/datasets.html>)

Manufacturing continues to be an economic stronghold in the region, employing 22.6% of the region's workforce, followed by government, retail trade, and healthcare. Prime farmlands account for 20.4% of the entire area, according to USDA Natural Resources Conservation Service. Areas that are prime farmland when drained contribute another 64.8% of total area, with most agriculturally valuable soils located in the northern part of the region in Fulton, Cass, and Miami Counties. This makes agriculture one of the significant driving forces of the economy of this region. (North Central Indiana Region Comprehensive Economic Development Strategy, North Central Indiana Regional Council, 2012)

Historical data indicates the regional population has remained stable, with only minimal increases or decreases, except for two points in time: the first, a significant increase in the



Figure 2-9. Regional Population Trends



Source: U.S. Census, American FactFinder, Urban and Rural Universe: Total population 2010 Summary File 1, Miami County, Cass County, Howard County, Wabash County, Indiana.

1950s; and the second, a noticeable decline during the 1980s and early 1990s. As of 2016, Miami County was home to 36,318 people; a 1.59% decrease from 2010. Cass and Howard Counties saw a 0.43 and 0.32% increase in population, respectively, from 2010 to 2016; whereas Wabash County’s population declined by 0.87% within the same period. (U.S. Census, American FactFinder, Urban and Rural Universe: Total Population 2010 Summary File 1, Miami County, Cass County, Howard County, Wabash County, Indiana)

Despite some areas seeing a decline in population, there has been an increase in the number of housing units across each of the counties. One of the primary drivers of this movement is the decline in overall household size that has occurred over the past several decades. Within the JLUS Study Area, there are an estimated 84,710 housing units, with most homes located in Howard County. In 2016, Howard County issued over 300 housing permits, indicating a stronger housing market than in the three surrounding counties. (STATSIndiana: Indiana’s Public Data Utility, 2016)

**C. Economic Context**

A major goal of the JLUS is to protect investment in national defense, as well as to expand the jobs and positive economic impacts created by the DoD, and specifically Grissom ARB. It is important to partner with the installation on relevant and long-range planning initiatives to ensure the viability and sustainability of the regional economy and ongoing community benefits.

*Overview*

Employment estimates show the region’s economy is concentrated in a few industries, specifically manufacturing, government, educational services and health care, and retail trade. As shown in Table 2-6, manufacturing employs 22.6% of the region’s workforce, followed by government, retail trade, and healthcare. The unemployment rate for the region averages around 2.8%, which is in line with the state average (2.8%), but lower than the national average of 4.5%. (Miami County Comprehensive Plan, 2015)

Table 2-6: Employment Industry Sector

Employment and Earnings by Industry, 2015	Employment	Pct Dist. in Region	Earnings (\$000)	Pct Dist. In Region	Avg. Earnings Per Job
Manufacturing	25,375	22.6%	\$1,966,102	38.9%	\$77,482
Government	15,511	13.8%	\$781,200	15.4%	\$50,364
Retail Trade	12,357	11.0%	\$316,923	6.3%	\$25,647
Health Care, Social Serv.	7,823	7.0%	\$379,999	7.5%	\$48,575
Accommodation, Food Serv.	6,157	5.5%	\$106,597	2.1%	\$17,313
Construction	5,448	4.9%	\$265,655	5.2%	\$48,762
Wholesale Trade	2,522	2.2%	\$157,356	3.1%	\$62,393
Trans., Warehousing	2,517	2.2%	\$131,430	2.6%	\$52,217
Professional, Tech. Serv.	2,318	2.1%	\$89,718	1.8%	\$38,705
Arts, Ent., Recreation	733	0.7%	\$6,754	0.1%	\$9,214
Information	730	0.7%	\$30,744	0.6%	\$42,115

Source: STATSIndiana: Indiana's Public Data Utility; U.S. Bureau of Economic Analysis. [www.stats.indiana.edu](http://www.stats.indiana.edu).

### *Economic Characteristics of the Region*

Industry sectors that are a priority to the county and a source for much of the employment in the region include advanced manufacturing, agriculture, aviation, energy, warehousing/logistics, and tourism. All industries bring the total employment numbers to 14,787 people working in Miami County, in comparison to 18,829, 36,840, and 15,655 in Cass, Howard, and Wabash Counties, respectively, and 2.98 million in the state. As evidenced, Howard County remains the economic hub for the region, due to its presence in the automotive, manufacturing, and technology industries. (STATSIndiana: Indiana's Public Data Utility, 2016)

### Survey Results

The majority of respondents (64%) believe the military presence has a very substantial impact on the regional economy.

## D. Local and Regional Economic Impacts of Grissom ARB

The DoD contributes billions of dollars each year to state economies through the operation of military installations. This spending helps sustain local communities by creating employment opportunities across a wide range of sectors, both directly and indirectly. Active duty and civilian employees spend their military wages on locally produced goods and services, while pensions and other benefits provide retirees and dependents a reliable source of income. States and communities also benefit from defense contracts with private companies for equipment, supplies, construction and various services such as health care and information technology.



Table 2-7: Total Grissom ARB Personnel in Fiscal Year 2016

<b>Key Economic Categories</b>	
Number of military personnel including active duty and traditional reserve	1,618
Number of Department of Defense civilian employees	508
Number of civilian contractors	80
Annual military and civilian payroll	\$72.8 million
Annual expenditures to include equipment, supplies, service contracts, and minor construction	\$22.3 million
Local community job creation	\$26.8 million
<b>Total Economic Impact</b>	<b>\$122 million</b>

Source: 434th Air Refueling Wing FY2016 Economic Impact Report, Grissom Air Reserve Base, 2016.

Grissom ARB is a vital factor in the economy of the north central Indiana region. As one of the largest employers in Miami County, Grissom ARB has been a major contributor to the local economy since 1942, with a total economic impact of \$122 million for fiscal year 2016. As shown in Table 2-7, during 2016, Grissom ARB expended \$22.3 million in equipment, supplies, contracts, and minor construction, having a direct impact of more than \$26.8 million on local community job creation. (434th Air Refueling Wing FY2016 Economic Impact Report, Grissom Air Reserve Base, 2016)

## E. Economic Development Initiatives in the Region

The following pages describe recent or ongoing economic development initiatives that relate to the Grissom ARB JLUS project.

The MCEDA, in coordination with the USAF, FAA and INDOT, is working to have Grissom ARB listed in the NPIAS to provide for the long-term sustainability of Grissom ARB as an aviation asset, and to maintain adequate public facilities within the regional and national airport systems. As noted above, a feasibility study (including a preliminary capital improvement plan) has been completed demonstrating the degree to which Grissom ARB’s listing within the NPIAS would provide Grissom Aeroplex the ability to accommodate growth in the industrial, commercial, and general aviation sectors of the state and regional economy. (NPIAS Feasibility Study, MCEDA, March 2017) Inclusion in the NPIAS is expected to help with economic development in the region.

The Grissom Regional Defense Alliance (GRDA), a subcommittee of MCEDA, exists to enhance regional cooperation for continued defense growth and development in north central Indiana. The alliance also serves as the civilian advocacy group for continued growth within both Grissom ARB and the Grissom Aeroplex. The four major centers of focus are to:

- » protect the Grissom airfield from encroachment during times of economic growth and development;
- » grow military presence at Grissom by adding active duty, reserve, national guard units and other assets of the DoD;
- » pursue more DoD contracts and other federal uses of the Grissom Aeroplex; and
- » educate local, regional, state and federal elected and appointed officials about the Grissom ARB to the current and future economies of the region, and the state. (GRDA Strategies and Objectives, 2015)



The Miami County Economic Development Strategy includes both economic and workforce development recommendations aimed at:

- » increasing educational attainment levels to meet the needs of existing employers looking for unskilled and semi-skilled workers (regardless of where they live);
- » attracting more employers that offer the types of management, technical/professional, and non-manufacturing jobs that residents were leaving the county for;
- » increasing the capacity of the US 31 and US 24 corridors to add opportunities for warehousing and distribution, as well as “advanced logistics capabilities,” especially as it relates to suppliers of the manufacturers that are based outside of Miami County, some of them just outside the region;
- » adding value to the region’s agricultural land uses through value-added technological advances in agricultural production, specifically biofuel; and
- » increasing tourism in terms of recreational amenities, lodging, and conference facilities. (Miami County Economic Development Strategy, Miami County Economic Development Association, 2006)

In a joint publication titled “Centralized warehousing of mobility/excess military equipment,” MCEDA and GRDA describe a concept under which the centralized warehousing operations for USAF/AFRC mobility or excess equipment at Grissom ARB/Grissom Aeroplex. The publication suggests the use of a public-private partnership capable of:

- » eliminating the requirement to add buildings or land to the base’s existing ownership or inventory by using contiguous property within the Grissom Aeroplex and a third-party developer to finance and construct the warehouse facility;
- » providing the opportunity for securing, controlling access, and jurisdictional control through the 434th ability to fence and enclose the facility within their cantonment area; and
- » streamlining and enhancing the USAF’s ability (possibly others) to manage and control mobility equipment and assets required for its global commitments and involvement at a single location: Grissom ARB. (Centralized Warehousing of Mobility/Excess Military Equipment: Conceptual Outline, MCEDA in partnership with the GRDA, date unknown)

The 2012 North Central Indiana Region Comprehensive Economic Development Strategy is a five-year strategy to build stronger local and regional economies while enhancing the quality of life offered throughout the entire region. It defines four strategic priorities, and issues a call to action to formally establish a regional development organization that could assume the role of implementing the recommendations of the study. The priorities include:

- » preparing and developing the local labor force for the jobs of today and the jobs of tomorrow, while intentionally attracting and retaining talent;
- » improving and further developing downtown space and demand capacity; maximizing the potential of the air and highway transportation infrastructure; and
- » ensuring quality infrastructure to meet the needs of residents and businesses throughout the region. (North Central Indiana Region Comprehensive Economic Development Strategy, Office of Community and Rural Affairs, 2012)

Expanding both the list of partners and areas of focus described in the 2012 North Central Indiana Region Comprehensive Economic Development Strategy, the North Central Indiana Regional Economic Development Plan aims to:



- » address the over \$1B of leakage in animal and crop production, as well as aquaculture;
- » increase Tier 2 support of original equipment manufacturers (OEMs) suppliers;
- » establish a cultural foundation and network of regional and put the “R” in “regionalism”;
- » develop career pathways that lead to higher-paying, higher-skilled jobs;
- » better connect roads, bridges, sewer, water, drainage systems, housing, broadband, fiber and public transportation to maintain the highest level of service; and
- » undergo placemaking initiatives, starting with housing and area amenities, to help retain and attract working professionals.

### North Central Indiana Regional Planning Council

Officially established towards the end of 2014 in response to the recommendations of the 2012 North Central Indiana Comprehensive Economic Development Strategy, the North Central Indiana Regional Planning Council was created – again with representation from Cass, Clinton, Fulton, Howard, Miami and Tipton Counties – to: 1) serve as the region’s community development organization, and 2) update the comprehensive economic development strategy for the region using the Purdue Center for Regional Development’s Stronger Economies Together program for its ability to deliver a step-by-step, asset-based, capacity-building process. (Regional Economic Development Plan, North Central Indiana Regional Planning Council, 2017)

Of importance is the identification of aviation/Grissom runway as the third most important strength for the region, which can offer opportunities for aircraft manufacturing, aircraft repair and rehabilitation, and general civil aviation use. This is evidenced by the existing operations of Dean Baldwin Painting, which continues to service B777, A340, and B747 aircraft in the Grissom Aeroplex. (Regional Economic Development Plan, North Central Indiana Regional Planning Council, 2017)

The City of Kokomo’s economic development and workforce development work together to focus on business retention and expansion, while simultaneously provide education and training opportunities to meet the needs of employers now and in the future. The plan also prescribes several “quality of life” initiatives geared toward retaining and attracting residents to the region. (Kokomo Comprehensive Plan, Kokomo-Howard Plan Commission, 2017)

Completed in 2016, the Logansport Comprehensive Plan addresses a number of issues and opportunities pertaining to community and economic development, and workforce development. One primary area of focus is for the city to elevate its position within the North Central Indiana Economic Development Partnership, which includes the cities of Kokomo (Howard County) and Lafayette (Tippecanoe County). The plan stresses the need to attract higher wage jobs in order to stabilize the Logansport-Cass County workforce by targeting the types of businesses and industry that support strong wages, have limited environmental impacts, and strengthen the city’s position within the region. The plan calls for being careful “not to place overwhelming design requirements on the area which are not supported by market driven factors” if the community is to remain competitive in the region. The plan emphasizes the need for the City of Logansport to implement a handful of critical path strategies which include: revitalizing area neighborhoods (i.e., housing renovations and infill development); consolidating economic development resources to create a single point of contact; promoting the K-12 school system; securing ‘shovel-ready’ designations for land within the industrial park; and initiating quality of life initiatives. (Logansport Comprehensive Plan, City of Logansport-Cass County, 2016)



Developed in partnership with the Wabash City Plan Commission, the Economic Development Group of Wabash County, Wabash Marketplace, and the Wabash Chamber of Commerce, the Draft 2013 Amendment of the City of Wabash Comprehensive Economic Development Plan describes economic development in terms of the educational attainment levels and size of the labor force, and the number of jobs available within the city. Success will be measured in terms of “pre-recession levels,” and on the community’s ability to reverse a decline in total population. The plan identifies three target areas for growth and development, including: industrial/commercial area along US 24; Historic Downtown Wabash; and the South Wabash Area. (Draft 2013 Amendment of the City of Wabash Comprehensive Economic Development Plan, Wabash Redevelopment Commission, April 2013)

## F. Grissom Aeroplex

### *History/Establishment*

The Grissom Aeroplex is a result of the civil redevelopment of the former Grissom AFB, which was realigned as part of the 1991 BRAC process. Grissom AFB is now a combination of the US Air Reserve Base, civilian residential neighborhoods, and businesses supported by the general aviation airport under control of the MCEDA. In 2008, Grissom ARB opened its runway to civilian operations through a joint-use agreement, resulting in the establishment of the Grissom Aeroplex. The combined workforce of both military personnel and civilians ranks Grissom ARB as the largest employer in Miami County, and the third largest employer in north central Indiana. “Today, the Grissom Aeroplex is an FAA and Transportation Security Administration certified air carrier facility where MCEDA and Dean Baldwin Painting are located.” (Miami County Comprehensive Plan, 2015)

### *Current Status*

Grissom Aeroplex has been a successful example of the conversion of a former US AFB into a multiple-use economic asset for Miami County. There continues to be a high level of interest in remaining parcels and buildings in the former cantonment area and in the South Industrial Park. The Miami County Economic Development Strategy provides recommendations for future development at the Grissom Aeroplex and the area surrounding Grissom ARB. The future land use for this area includes industrial, commercial, agricultural, and open space. (Miami County Economic Development Strategy, 2006). The availability of buildings is an important asset that will continue to attract businesses to the community. The Grissom Aeroplex currently features two main development areas, a series of available buildings

### City of Wabash Target Growth Areas

#### *Industrial/commercial area along US 24*

The designated area for future industrial expansion including the transportation improvements/projects needed to support future development.

#### *Historic Downtown Wabash*

An area that encompasses the historic central business district, legacy industrial properties, and some residential neighborhoods where economic development has meant the preservation of historic buildings (e.g. adaptive reuse and façade improvements), placemaking initiatives (e.g. signage and pedestrian connectivity) which are further complimented by efforts to provide more in terms of tourism and entertainment.

#### *South Wabash Area*

An area that has only seen a nominal amount of investment, and one in which area stakeholders are more concerned with connecting the residential neighborhoods with the Historic Downtown/River Corridor and enhancing the aesthetic offered by the natural landscape by making this area the primary gateway to the city than they are in attracting (more) non-residential development to the area.



and sites in the former cantonment area of the installation and a new development area south of the runway.

The conversion of the installation to private uses has been largely successful since BRAC occurred. Given the success Montgomery Aviation provided to the region, Miami County and the MCEDA will work to identify additional opportunities to grow aircraft maintenance and expand manufacturing services using the existing assets. The installation facilities, coupled with the experience machining labor base and licensed training programs at Ivy Tech, Purdue, and Vincennes, provide the area with some competitive advantage for attracting aircraft maintenance operations, which could further retain Airmen and residents in the region. (Miami County Economic Development Strategy, HNTB Engineers Architects Planners, 2006)

## VI. Local Infrastructure Context

The term infrastructure typically refers to the technical structures that support a society, such as roads, water supply, sewer, storm drains, electrical grids, and telecommunications. It can be defined as the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living. Each county within the JLUS Study Area, as outlined in its respective Comprehensive Plan, identifies several key infrastructure projects.

### A. Transportation

#### *Overview*

North Central Indiana has been described as “an optimal place to do business relative to the rest of the state and the country,” where the region’s attractiveness is due in large part to the direct access offered by US 31. (North Central Indiana Comprehensive Economic Development Strategy, Office of Community and Rural Affairs, 2012). As described in the Miami County Comprehensive Plan, there are two national highways serving Miami County: US Highway 24 (east-west), and US Highway 31 (north-south). The national highway network has been identified as being the most important in terms of economic development, mobility and national defense. State Roads (SR) provide much of the rest of the east-west and north-south connectivity. Absent an interstate highway, both US 24 and US 31 have and will continue to play a significant role in community and economic development throughout the county and beyond. (Miami County Comprehensive Plan, 2015)

SR 16 stretches (primarily) east and west in the northern part of the county connecting the communities of Denver, Stockdale and Chili. SR 18 is another east-west route through the communities of Bennetts, Switch, Waupecong and Town of Converse. SR 19 cuts through much of the county; extending from the northernmost county line to SR 18 to the south, it connects Gilead, Chili, Peru, Santa Fe, North Grove, and Amboy. SR 19 is significant in that it is one of the few north-south routes spanning both the Eel and Wabash Rivers. SR 124 offers east-west access near the City of Peru; passing north of Frances Slocum State Forest and Mississinewa Reservoir. SR 218 is an east-west route that abuts the northern boundary of the Grissom ARB before continuing east at US 31, to Bunker Hill and eventually SR 19.

Some County Roads (CR) have become critical thoroughfares within the county. For example, CR 800S, which crosses US 31, carries a significant amount of traffic to and from Maconaquah High School.



US 24, known as the Hoosier Heartland Corridor, connects the cities of Fort Wayne and Lafayette, was upgraded in 2013 to near freeway status, and serves as a major economic development corridor for much of the north central Indiana region.

US 31 extends from Mackinaw City, Michigan, to Mobile, Alabama. Only the section of US 31 that is north of Indianapolis-Marion County is considered part of the national highway system. Three sections of US 31 in Hamilton, Howard and Marshall Counties have been or are being relocated or upgraded with the intent to convert the entire stretch of US 31 from South Bend to Indianapolis-Marion County to full freeway status. From Hamilton County to the Indiana/Michigan state line just north of Interstate-80, US 31 remains as a divided, four-lane highway; however, INDOT has initiated plans aimed at determining the feasibility of various access management and controlled access upgrades, including a strategy that would upgrade the entire remaining sections to full freeway status.

Begun in 2008 as part of INDOT's Major Moves Project, the US 31 Kokomo Bypass was completed in 2013 to serve as a limited access highway (primarily limited to Howard County) with five interchanges at SR 26, E Boulevard (CR 100 S), US 35/SR 22 (Markland Ave), Touby Pike, and US 35. Following the completion of the bypass, the former section of US 31 was (re)designated as SR 931. Also in 2008, the section of US 31 connecting the cities of Plymouth and South Bend was relocated to a new alignment between US 30 and US 20/St. Joseph Valley Parkway. This section was completed in 2014 and the former section was designated as a segment of SR 931. Between 2011 and 2016, US 31 in Hamilton County became a 13-mile freeway comprised of 49 new bridges and 12 new interchanges serving the communities of Carmel and Westfield. In Indianapolis-Marion County, US 31 traffic is routed onto Interstate 465 providing connectivity to the rest of the interstate highways that have made (Indianapolis) Indiana the Crossroads of America. (INDOT: Major Projects, <https://www.in.gov/indot/2371.htm>, accessed October 2017)

### *Potential Improvements to US 31*

The following is a summary of the conclusions and recommendations stemming from a number of transportation studies related to potential improvements to US 31, and commuting patterns in and around the North Central Indiana Region.

A feasibility study is currently being conducted by INDOT for the two remaining northern segments of the US 31 corridor between Hamilton County (SR 38) and Howard County (southern terminus of the Kokomo Bypass), and between Howard County (the northern terminus of the Kokomo Bypass) and Marshall County (US 30). According to the US 31 Corridor Study: Existing Conditions Report, an interim deliverable for the US 31 Corridor Study, the longest (unaddressed) segment of the US 31 corridor is in Miami County and runs the entire length of the county. It explains that a [freeway] interchange has already been constructed where US 31 intersects US 24 as a result of previous improvements to the US 24 corridor. Existing conditions are being studied to identify the ongoing problems:

- » issues that pose an immediate safety concern and therefore need to be addressed in the short-term; and
- » issues that will require further strategy to get the remaining sections of the US 31 Corridor to full freeway status.

The Existing Conditions Report concludes that, to the exclusion of no single community within Miami County, "Grissom ARB and the City of Peru will continue to be the economic drivers for the county...resulting in a net benefit to the [State's] economy." Referencing



several conclusions and recommendations from a number of previous studies completed for INDOT and/or the US 31 Coalition, the recommendations of the Existing Conditions Report are based on land uses, emergency service needs, and economic development potential, and include a set of priorities from the perspective of local leaders and stakeholders. (US 31 Corridor Study, INDOT, In-progress)

According to the Kokomo Comprehensive Plan, the Grissom Aeroplex benefits from being visible and accessible by US 31. With respect to the Grissom Aeroplex, the study describes opportunities for (secondary) aircraft maintenance (including training), and aircraft re-manufacturing (upgrading and refurbishment) for general aviation aircraft. Secondary users are anticipated to include small scale warehousing, light manufacturing, research and development, and office space. The southern part of the Aeroplex is intended to accommodate larger scale warehousing, light manufacturing, heavy industrial, and/or distribution users. In order to adequately accommodate future users, access to both the Grissom ARB and Grissom Aeroplex from US 31 needs to be maintained and enhanced. The comprehensive plan specifically calls for a “master planning approach,” and for the establishment of “a network of roadway connectivity and capacity that supports development goals while providing access and mobility to and from US 31 after the institution of strict access controls and elimination of most existing access points.” (City of Kokomo Comprehensive Plan, 2017)

In 2016, the MCEDA commissioned a very high-level engineering assessment pertaining to potential interchange improvements at or near Grissom ARB/Grissom Aeroplex along the US 31 corridor. The study indicates that, “when military alerts are high, the access points into the base experience relatively high levels of congestion.” The study adds that, “with school bus routes in and around Grissom ARB, safety is a major concern,” specifically as it relates to the risks that bus drivers encounter when crossing US 31 at CR 800. Multiple interchange configurations were developed at SR 218W and CR 800S to assess impacts to adjacent properties and traffic operations, and to develop total project costs. Local stakeholder meetings were used to solicit input for each of the alternatives, which resulted in the community arriving at a preferred alternative. Refer to Figure 2-10 for proposed combined alternatives (US 31 Interchange Study, Miami County Economic Development Authority, 2016)

The Miami County Comprehensive Plan explains that “connectivity throughout the county can be cumbersome as many of the primary arterials were based on county roads, and still retain many right angle turns.” It highlights potential improvements and realignments as having the ability to “vastly improve the connectivity

Figure 2-10. Grissom Interchange Study, Combined Alternatives

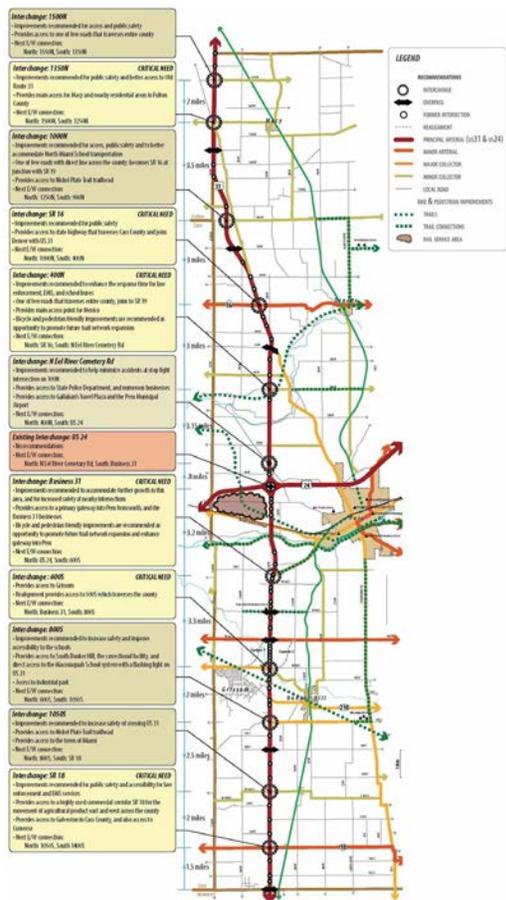


throughout the county” and “enhance public safety and emergency response times for law enforcement and EMS services.” As a result, the comprehensive plan includes a specific set of recommendations (as shown in Figure 2-11) for the US 31 Corridor.

In addition to this complete list of suggested improvements, the Miami County Board of Commissioners, in January 2018, identified seven priority intersections considered important to its support of US 31 achieving freeway status. In order of priority, these intersections (of the identified road and US 31) are:

- » State Road (SR) 18
- » SR 218W
- » County Road (CR) 800S
- » Business 31
- » CR 100N
- » SR 16
- » CR 200N

Figure 2-11. US 31 Corridor Recommendations for Miami County



Source: Miami County Comprehensive Plan 2015

projects on its priority list”, and identified “those projects with the greatest statewide significance. (Blue Ribbon Panel on Transportation Infrastructure, Governor Pence’s Office, July 2014)

The US 31 Corridor Comprehensive Plan was a joint project between the City of Kokomo and Howard County. The plan addresses land use issues, complete streets implementation, zoning regulations, and redevelopment opportunities to plan and provide for appropriate growth around the new US 31 corridor, while improving transportation flow and aesthetics throughout the new SR 931 corridor. The US 31 Corridors Comprehensive Plan identifies



Table 2-8: Top Transportation Projects in Indiana

Recommendation 1-1: Address top priority projects.

The following chart identifies those projects with the greatest statewide significance for Indiana.

Projects				
Name	#	Tier 1	Tier 2	Tier 3
I-65: Added Travel Lanes	15			
I-70: Added Travel Lanes	14			
I-69 Ohio River Bridge	17			
Commerce Connector	7			
I-69: Added Travel Lanes	16			
SW Indiana Port Connections	5A			
Mid-States Corridor	12			
US 30- Fort Wayne to Valparaiso	8			
Port Bridge Over National Rail Corridor	6			
Municipal Connector: Madison	19			
Municipal Connector: Connersville	18			

Source: Blue Ribbon Panel on Transportation Infrastructure, Governor Pence's Office, July 2014

strategies to maintain and enhance access, mobility, safety, economic development, potential redevelopment strategies, and environmental quality. Adopted in 2010, the plan is relatively limited to establishing redevelopment areas along the former US 31 corridor, now the SR 931 corridor. (US 31 Corridors Comprehensive Plan, 2010)

The 2012 North Central Indiana Comprehensive Economic Development Strategy describes transportation conditions and needs in terms of the major transportation hubs and corridors in the North Central Indiana region. The US 31 corridor will draw connections between the US 24 corridor, Interstate-65, and Interstate-75. Major arterial roadways identified include: US 35, US 24, US 52, US 31 and US 25. The strategy calls for the development of "transportation infrastructure to improve the quality of life and enhance economic growth," and the growing need to "develop a regional transportation plan" for the US 31 and US 24 corridors. Using a Regional Prioritization Model for Infrastructure and Development Investment, the 72-member Strategy Committee ranked over 130 projects throughout the region. Priority was given to projects with some combination of: environmental improvements, investment in economic development, quality of place, public safety, sustainable growth, and government efficiency.

*In January 2018, the Miami County Board of Commissioners identified seven priority intersections considered important to its support of US 31 achieving freeway status:*

1. State Road (SR) 18 and US 31
2. SR 218W and US 31
3. County Road (CR) 800S and US 31
4. Business 31 and US 31
5. CR 100N and US 31
6. SR 16 and US 31
7. CR 200N and US 31

The projects identified for Miami County include:

- » Project #99: Water/wastewater/roads US 24 corridor in Peru;
- » Project #100: US 31 Corridor Strategy;
- » Project #104: RR Property Purchase and Development in Peru;
- » Project #114: Miami Wastewater Facility in County;

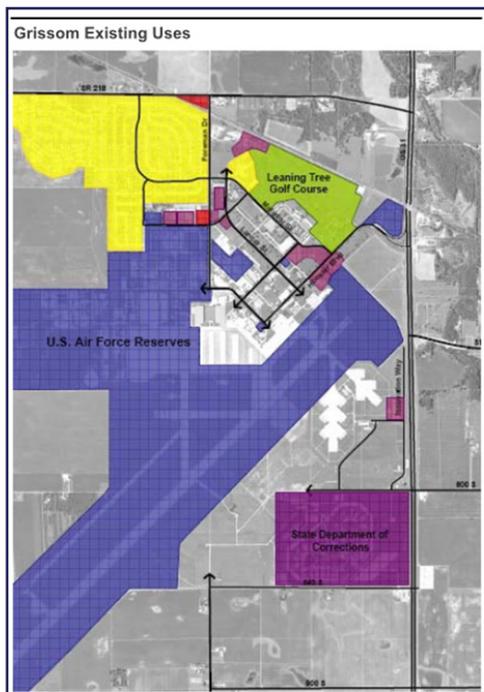


» Project #107: Broadband in Converse. (North Central Indiana Comprehensive Economic Development Strategy, Office of Community and Rural Affairs, 2012)

The Miami County Economic Development Strategy proposes that the most logical spot for a [freeway] interchange would be the intersection of SR 218 and US 31, but points out a number of additional upgrades/improvements necessary for Grissom ARB and the Grissom Aeroplex. First, the eastern and western segments of SR 218 are two miles apart along US 31. To create a single [freeway] interchange for US 31/SR 218, both the western and eastern segments would need to be re-routed to create a single point of

(direct) access to the former cantonment area from US 31. The economic development strategy describes a new alignment for SR 218 along an old railroad right of way that directly abuts the former cantonment area. Second, if a single interchange was created at a newly re-routed SR 218, the partial interchange at the existing intersection of Hoosier Boulevard and US 31 would likely be eliminated. If the Hoosier Boulevard access point were eliminated, both Hoosier Boulevard – the roadway connecting the main security gate and secondary security gate – Foreman Drive would need to be reconfigured for Grissom ARB and the former cantonment area portion of the Grissom Aeroplex to maintain a dedicated ingress and egress point along the newly re-routed SR 218 corridor. Finally, because the airfield serves as a physical barrier between the former cantonment area and the south industrial park (that together make up the Grissom Aeroplex) Innovation Way, which would have direct access via an interchange at CR 800 S and US 31, would need to be extended to the newly reconfigured Hoosier Boulevard to facilitate mobility throughout the Grissom Aeroplex. (Miami County Economic Development Strategy, Miami County Economic Development Association, 2006) Refer to Figure 2-12: Grissom Existing Uses.

Figure 2-12. Grissom Existing Uses



### Commuting Patterns

Using the Longitudinal Employer-Household Dynamics Origin Destination Employment Statistics from the US Census Bureau, "Howard County emerges as a significant labor market." "The total inflow and outflow of commuters to and from the six-county region was nearly 50,000 people in 2009 with people traveling from as far as Gary and South Bend to work in the region. (North Central Indiana Comprehensive Economic Development Strategy, 2012) Refer to Figure 2-13: Commuting Patterns.

The number of people who live in Miami County but work outside the county is approximately 5,300. The number of people who live in another county (or state) but work in Miami County is just over 2,000. The top five counties sending workers *into* Miami County includes: Howard, Cass, Wabash, Grant, and Fulton Counties. The top five counties receiving workers *from* Miami County is comprised of the same; Howard, Cass, Wabash, Grant, and Fulton Counties. (STATSIndiana, Indiana Business Research Center at Indiana University's Kelley School of Business, <http://www.stats.indiana.edu/about/commuting.asp>, accessed December 2017) Refer to Figures 2-14 and 2-15: STATS Indiana Commuting Profiles, Tax Year 2015.



Figure 2-13. Commuting Patterns

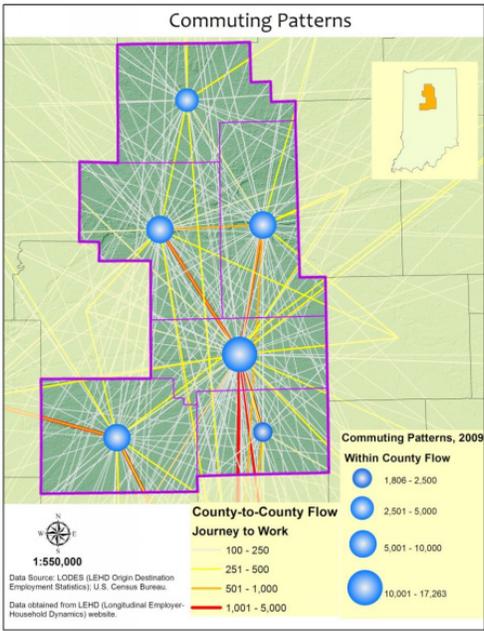


Figure 2-14. Commuting Patterns into Miami County

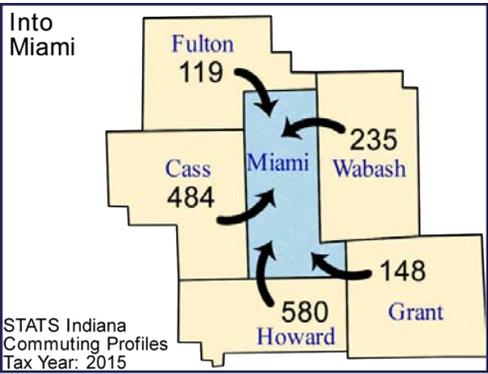
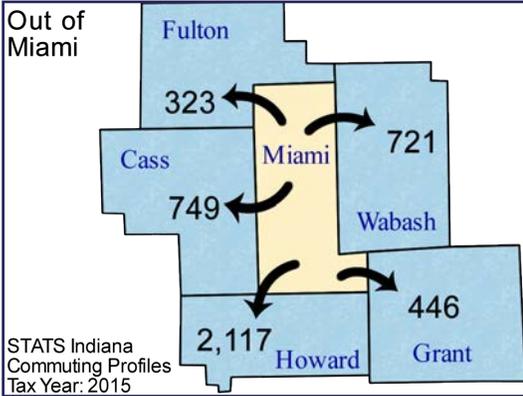


Figure 2-15. Commuting Patterns from Miami County



*GARB Main Entrance*

Grissom ARB benefits from (1) very few, if any, significant encroachment or sustainment challenges due in large part to the rural character of the surrounding communities, and (2) a transportation network that is safe, efficient, flexible, multimodal, and supportive of current and future missions. A sustainable installation is one that has the capacity to accomplish the installation mission without compromise, and to operate without negative effects on the mission or the natural and man-made systems that support it. Access points, and the on-site circulation of personnel and freight, are critical elements of Grissom ARB’s ability to plan for the future.

To enhance safety and security in and around the Grissom ARB, both the regional transportation network and the local roadway network need to fully comply with the mobility needs of both personnel and motor freight, in accordance with USAF Entry Control Facility and AT guidelines.

## B. Water and Wastewater

Like transportation infrastructure, water and wastewater infrastructure acts as a driver of development and potential encroachment by guiding potential new development and allowing for increased density in developed areas. There are three State-regulated water systems operating in Miami County. The City of Peru Water Department is the largest supplier, with over 5,000 customers. The other two systems are Bunker Hill Municipal Water System and Peru Utilities. The rural majority of the county is not serviced by public water or sewer systems; therefore, residents and some businesses must rely on individual water wells and sanitary septic systems for water and wastewater needs. (Miami County Comprehensive Plan, 2015)

Grissom ARB privatized its water distribution system in 1996, and it is now owned and managed by Peru Utilities. The water supply for Grissom is drawn from a bedrock aquifer drawn from four wells in the immediate vicinity of the installation. Much of the domestic water supply for the county's population consists of individual wells. Given the relatively high water table in this general area, the supply is readily available at relatively moderate depths. (Miami County Comprehensive Plan, 2015)

Miami County will continue to coordinate with local municipalities to ensure adequate sewer capacity. The below has been identified as "areas in need" when considering new construction or expanded facilities, to help maintain the effectiveness of the county's septic systems.

- » New growth areas are recommended to tie into existing sewer services.
- » Existing septic systems falling within floodplain areas are recommended to tie into existing wastewater treatment facilities.
- » Encourage coordination among local municipalities regarding expanded services.

Cass County and the City of Logansport, as well as the Towns of Galveston, Royal Center, and Walton, have a municipal water treatment and distribution system, and sanitary sewer systems. Unincorporated communities that lack access to public wastewater systems rely on septic systems, which often are failing and not being maintained. The County will work with the municipalities to identify residential growth areas and ensure adequate public infrastructure, while maintaining a public infrastructure plan that supports the future land use goals of the community. (Cass County Comprehensive Plan, 2009)

The Howard County Comprehensive Plan seeks to utilize the county's current or future infrastructure system, specifically by extending storm and sanitary sewers to various parts of the county as a tool to direct growth. This is one way to accomplish the County's development goals. (Howard County Comprehensive Plan, 2004)

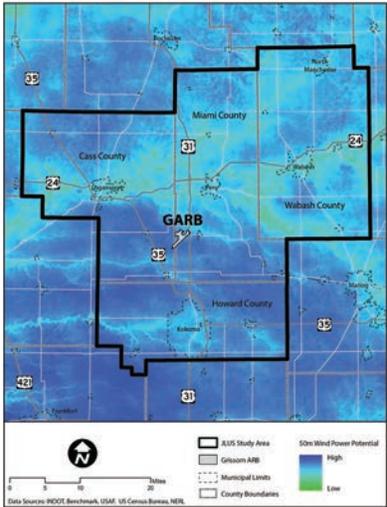
The expansion of public utilities, in particular, sanitary sewer, water distribution, storm water management, and telecommunications, will play a significant role in the future development and quality of life for Wabash County. (Wabash County Comprehensive Plan, 2010)



### C. Renewable Energy

As previously mentioned, multiple wind turbines and wind energy farms have been proposed and/or developed within the JLUS Study Area. None of the existing wind turbines currently constitute a hazard to aircraft operations or present an obstacle to air navigation. However, the continued proliferation of new wind energy projects anticipated for the region could pose a growing challenge to Grissom ARB. Outside communities—those

Figure 2-16. Regional Wind Energy Potential



falling within the outlying areas of Grissom ARB where the potential for incompatible renewable energy development is the highest—should engage with the installation regarding proper siting of future wind turbines.

In Miami County, electric service is provided by five sources. These include the Miami-Cass Rural Electric Membership Corporation (REMC), Fulton County REMC, Wabash County REMC, City of Peru Utilities, and Duke Energy. City of Peru Utilities is a municipally owned facility, Duke Energy is investor-owned, and the REMCs are rural cooperatives serving rural and some urban areas, with service areas that commonly extend across county boundaries. (Miami County Comprehensive Plan, 2015)

Miami County has great wind areas for harnessing wind energy in the south quarter of the county and in the north quarter (See Figure 2-16). Due to the location of Grissom ARB and its limitations, the southern portion of the county is not suitable for future wind energy development. The northern portion of the county provides the best areas for harnessing wind

energy. Permitting for turbines starts at the state utility commission; however, the counties have regulations and local approval authority. There are opportunities to coordinate with renewable energy developers and utility companies to prevent potentially incompatible renewable energy development in the region as the likelihood of wind development continues to grow.





## **VII. Coordination Between Grissom ARB and the Community**

North Central Indiana has a history of regional collaboration and building multi-jurisdictional partnerships to enhance economic development opportunities and to improve the quality of life throughout the region. Collaboration among local government and military agencies is a vital component of the JLUS process and will be vital to ongoing land planning efforts in the community related to its military land uses. It is also necessary to promote increased coordination between local, regional, and state agencies and Grissom ARB officials regarding planned infrastructure extensions and potential encroachment impacts. Below are some partnerships that have developed between the installation and community.

### **A. Community Partnerships**

The GRDA was created as a subcommittee of the MCEDA to enhance regional cooperation for continued defense growth and development in the North Central Indiana region. The subcommittee, made up of volunteer members from the participating counties of Cass, Howard, Miami, and Wabash, along with Board members of the Economic Development Authority, comprise the Alliance. The Alliance focuses on growth and expansion of the defense and military industries, and leverages the presence of existing, nearby companies such as GE Aviation in Lafayette and Rolls-Royce in Indianapolis.

The Grissom Community Council is a civilian nonprofit organization working in partnership with Grissom ARB to promote programs to benefit both the installation and the local community. The council sponsors various projects and activities in support of Grissom ARB and its military and civilian personnel. The executive board consists of business and community leaders from the Kokomo, Logansport, Peru, and Wabash regions.

Although Grissom ARB enjoys a positive relationship with its neighbors, no formal channels of communication or recurring outreach opportunities currently exist. Establishing formal mechanisms for communication will allow Grissom ARB, the City of Peru, the City of Bunker Hill, Miami County, Cass County, and other partners (e.g., industry groups, Indiana Office of Defense Development) to regularly communicate and coordinate on issues of mutual concern, including potential mission changes associated with Grissom ARB, regional development proposals, infrastructure plans, transportation improvements, storm water conveyance, water quality issues, and potential planning and zoning changes. (Grissom Air Reserve Base Joint Land Use Study SWOC Analysis. White & Smith, et al., 2017)



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*Chapter 3:  
Conflict &  
Compatibility  
Analysis*

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## **I. Introduction**

The Land Use Compatibility Analysis is intended to provide insight into the current and future state of compatibility between operations occurring at Grissom Air Reserve Base and the neighboring civilian communities that host the installation. This analysis focuses on the most prominent impacts created by the ongoing training mission at the installation, most notably noise from aircraft operations and aircraft accident potential in the vicinity of Grissom Air Reserve Base's runway.

In order to gauge the degree of compatibility that exists, the analysis provides insight into current land use and development patterns; the current regulatory environment, including compatible use regulations; and the plans of the local governments for future growth and development. These are analyzed in the context of both the current operational environment (i.e., largely KC-135 aircraft operations) and the potential future operational environment (i.e., introduction of the KC-46A aircraft), based upon the most reliable information available. Taken as a whole, this analysis will help to inform the recommendations of the Joint Land Use Study and provide background information to support the decisions of local governments as they seek to promote ongoing compatible growth and land use in the region.

A map detailing the geographic scope of the Study Area for the JLUS is shown in Figure 3-1. The Study Area includes the entirety of Miami, Cass, Howard and Wabash counties in central Indiana, and the municipalities therein. For the purpose of conducting the detailed portion of the analysis, the JLUS oversight committees adopted a "Joint Land Use Study Focus Area" that is more closely aligned to the immediately proximate impacts of military operations at Grissom ARB. The JLUS Focus Area is discussed in more detail in the following section.

## **II. JLUS Study Area and Focus Area**

In order to narrow the geographic scope of the compatibility analysis, the JLUS Policy Committee and Technical Working Group established a defined study area within which the analysis is focused. The Focus Area (see Figure 3-2) is based upon the known military operational impacts that the participating communities and Grissom ARB have identified through the 2014 Air Installation Compatible Use Zone (AICUZ) Study, as well as local knowledge of land use, growth patterns and military operational impacts, both current and future.

The Focus Area for the Grissom ARB JLUS extends to the outer limits of the combined "local" military operational impacts – aircraft noise zones and accident potential zones – or one mile from the external boundary of the installation, whichever is greater. The Focus Area includes portions of the jurisdictions of Miami County, Cass County, the Town of Bunker Hill's extraterritorial jurisdiction, as well as a very small portion of the town proper. In total, the JLUS Focus Area encompasses an area of approximately 10,300 acres (16 square miles), inclusive of the area contained within the installation.



Figure 3-1. Grissom ARB JLUS Study Area

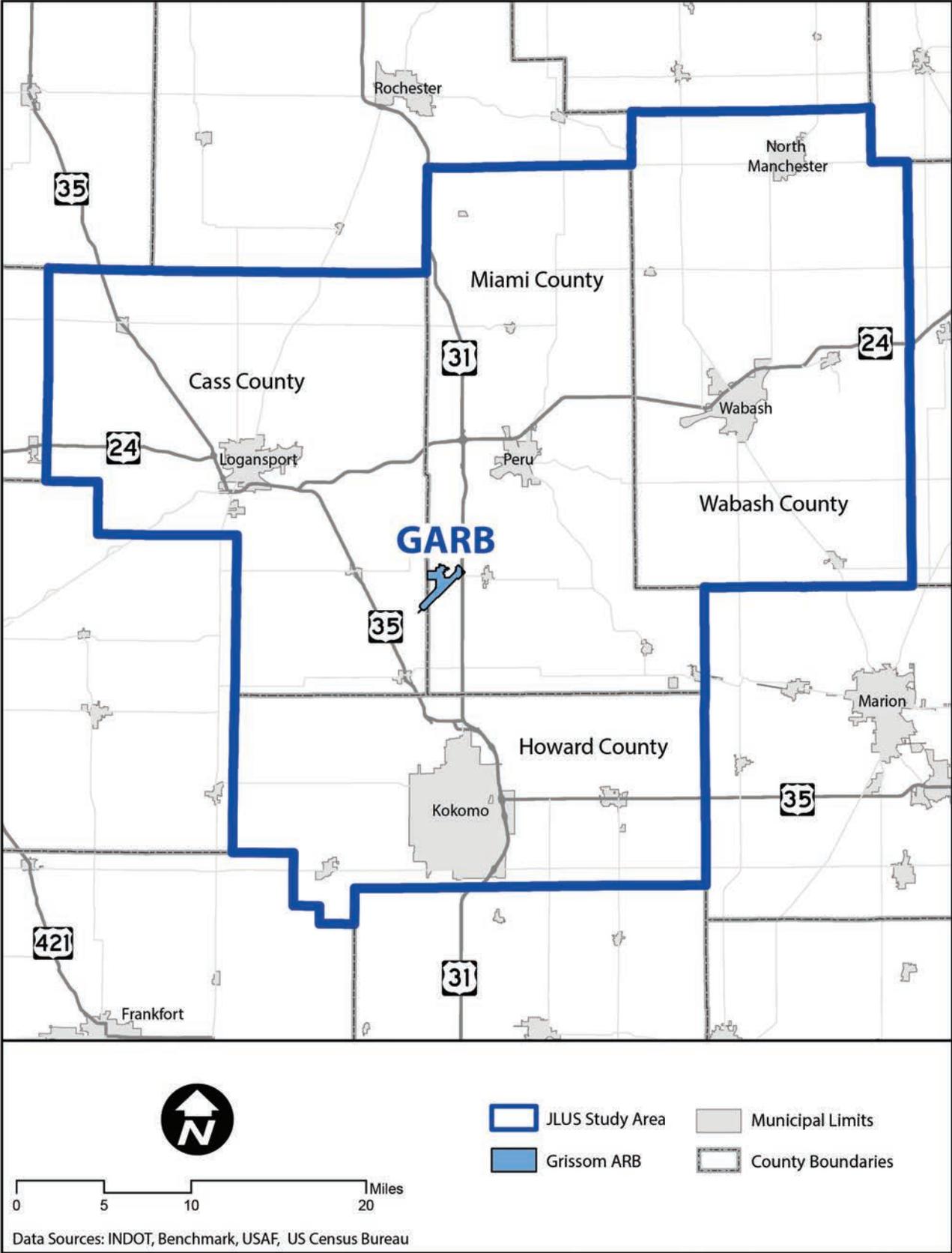
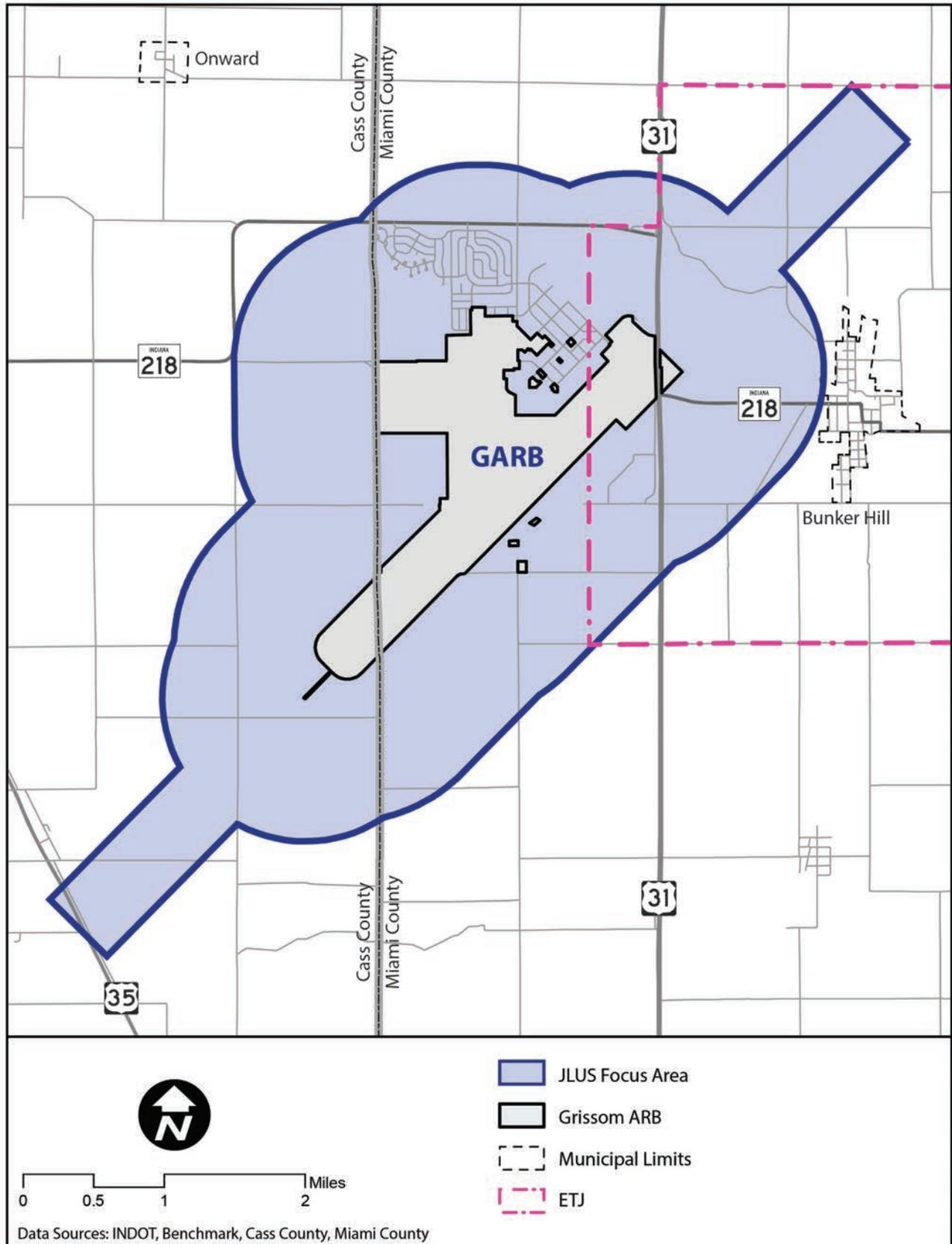


Figure 3-2. Grissom ARB JLUS Focus Area



Once the JLUS Focus Area was defined, the next phase of the analysis was to collect data related to land use patterns, land use regulations, adopted plans, and other pertinent data that would feed into and inform the overall land use compatibility analysis. The majority of the spatial (GIS) data collected for the study was obtained from Miami and Cass counties' GIS service provider. Some data, however, including zoning and future land use data for Miami County and the Town of Bunker Hill, were digitized from other maps provided by the county and town or included in adopted plans. Due to the variety of sources and types of data included in the analysis, there is some degree of difference between certain measurements of area/acreage, typically resulting in margins of error of 0.1% or less. It should also be noted that the maps provided in this chapter display the *proposed* extraterritorial jurisdiction boundary for the Town of Bunker Hill, which was in the process of modifying its current extraterritorial boundary during the development of the JLUS Study.

Once compiled, the data was used to prepare an overview of the JLUS Focus Area, with particular regard to the existing land use pattern, land subdivision pattern, zoning regulations and future land use plans adopted by the local governments having jurisdiction over this area. This information helps to paint a clear picture of the current land use environment in the vicinity of the installation, as well as how adopted plans and regulations may influence future growth and development. The information developed as part of the analysis of the overall JLUS Focus Area was then used to inform the more detailed analyses of the compatibility of the existing and future land use patterns with military operational impacts. The following is an overview of the overall land use environment around Grissom ARB revealed by this initial analysis.

### A. Generalized Existing Land Use Pattern

Observations of the existing land use pattern in the Focus Area (see Figure 3-3 and Table 3-1) reveal an overall land use pattern that is primarily rural and agricultural in nature, with around 75% of the area comprised of parcels in use for farming, pastures, and related agricultural uses, including residences on parcels used for farming. This pattern is particularly pronounced in the areas to the west of the installation, especially in the Cass County portion of the Focus Area. A significant concentration of residential development exists just to the north of the installation, between it and Highway 218. This area is the former base housing area from when Grissom was an active Air Force installation. Otherwise, residential uses in the area tend to be dispersed throughout the countryside, and are typically associated with an agricultural use.

Of note, a significant portion of the Focus Area immediately around the airfield is occupied by the Grissom Aeroplex, an emerging aviation-focused industrial park occupying much of the land once part of Grissom Air Force Base. Commercial uses in the Focus Area tend to be scattered along US Highway 31, which is the primary highway route in the area, or located in repurposed buildings on what was once part of the active installation. Also of note, there is a large state prison located on US 31 just south of the installation.



Figure 3-3. JLUS Focus Area Existing Land Use Pattern

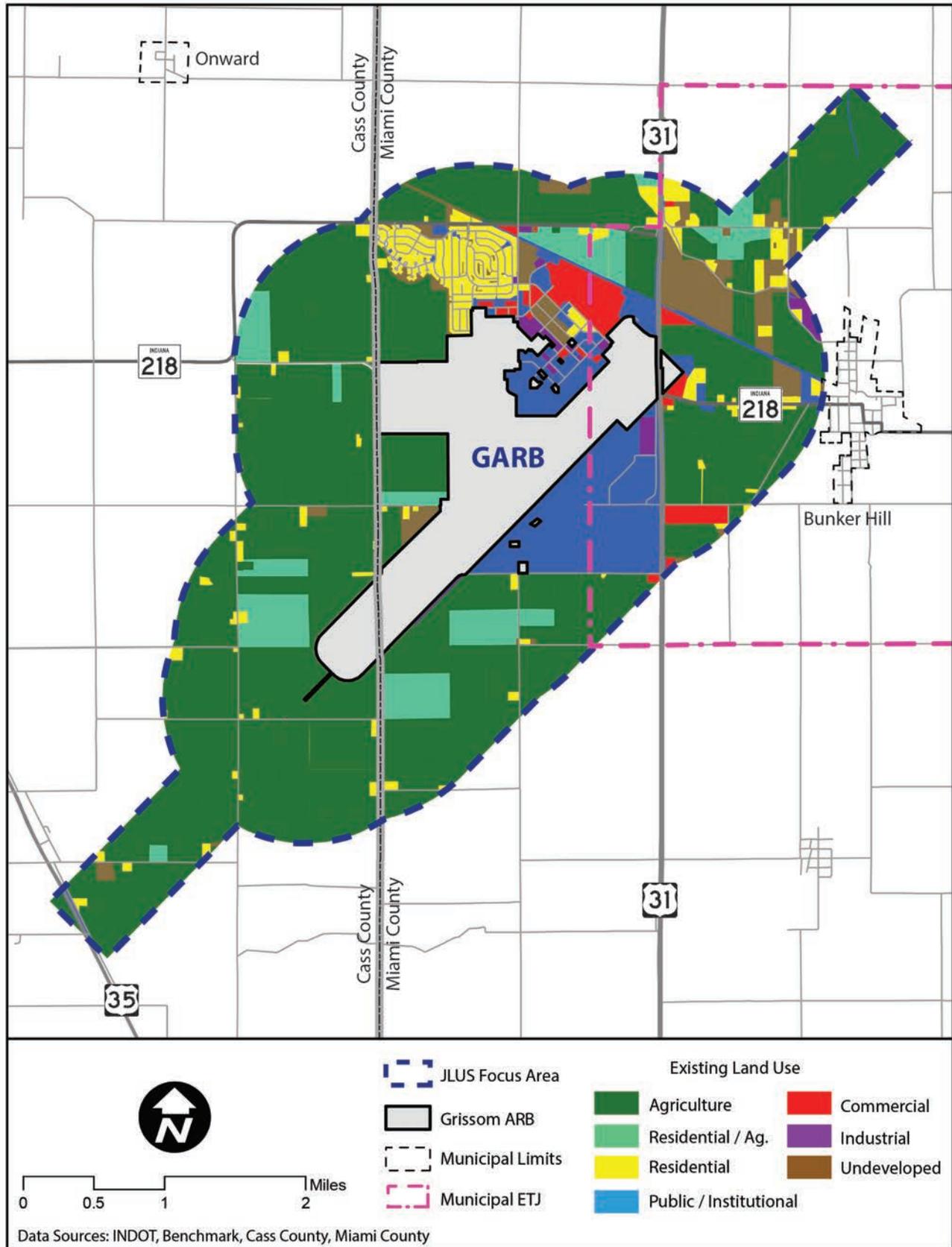


Table 3-1. JLUS Focus Area Generalized Existing Land Use Summary

Existing Land Use	Acres	% of Focus Area
Agriculture	5,954	67.2%
Agriculture / Residential	692	7.8%
Residential	547	6.2%
Public / Institutional	950	10.7%
Commercial	214	2.4%
Industrial	92	1.0%
Undeveloped	410	4.6%
<b>Total</b>	<b>8,859</b>	<b>100.0%</b>

### B. Land Subdivision Pattern

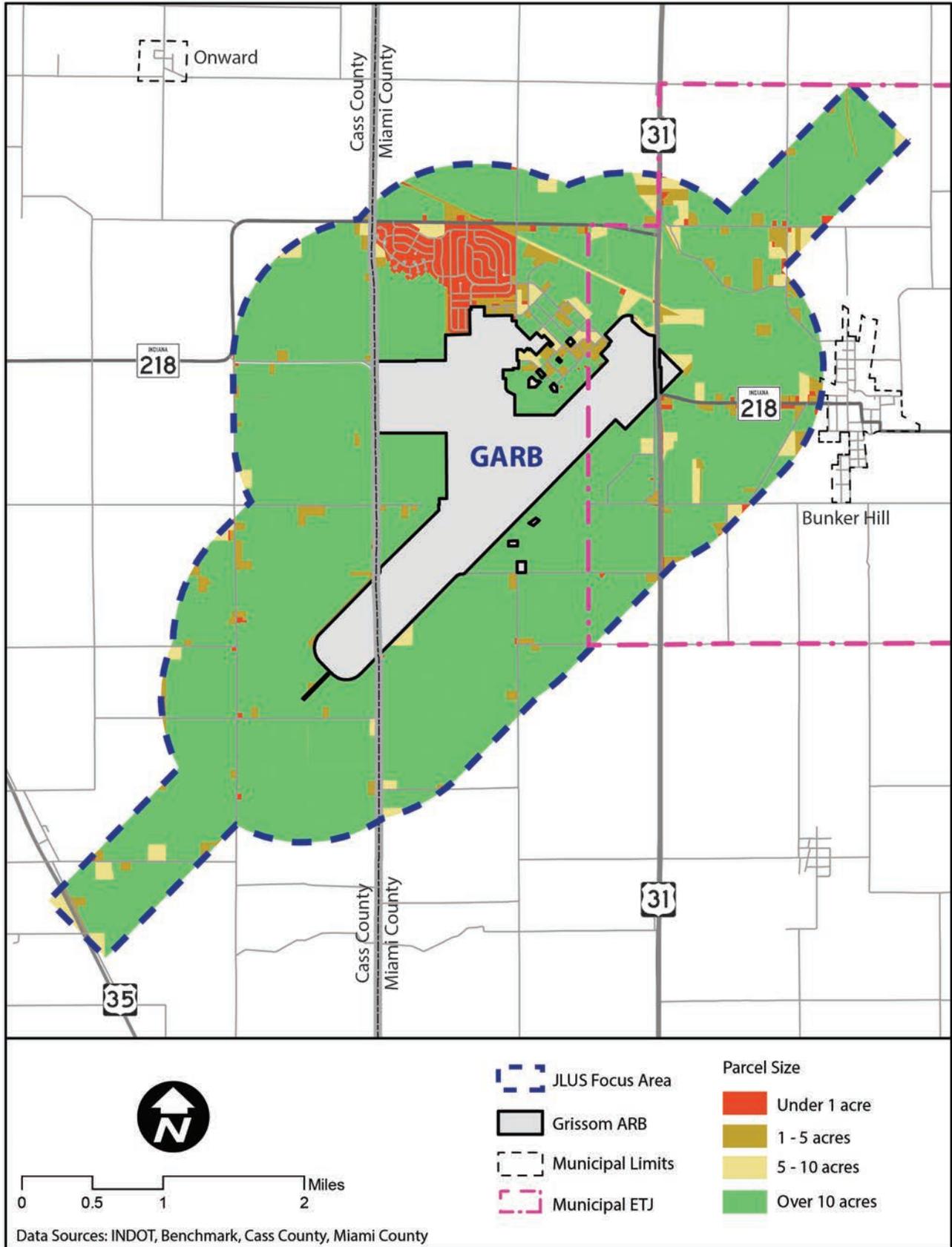
The land subdivision pattern map shown in Figure 3-4 and the statistics detailed in Table 3-2 are consistent with the observations of the existing land use pattern. While there are a significant number of small parcels (under 1 acre in size) in the Focus Area, these nearly 1,300 parcels occupy only 3% of the land. The largest parcels, those over 10 acres in size, account for nearly 90% of the acreage in the Focus Area, thus reinforcing the low density rural and agricultural character of the area. Parcels that have been subdivided into the smallest lots in the Focus Area are found primarily, and as expected, in the former base housing area. While some small residential lots exist outside of this area, they are certainly the exception, and tend to be unplatted lots associated with larger agricultural parcels. Parcels between 1 and 10 acres in size are more common along US 31 where they have been platted for commercial development, and in areas closer to Bunker Hill, where more “rural” residential development has taken place with houses being constructed in agricultural areas, but not necessarily associated with a farm use.

Table 3-2. JLUS Focus Area Land Subdivision Summary

Parcel Size (acres)	Parcels	Acres	% of Focus Area
Less than 1	1,293	288	3.3%
1 – 5	208	429	4.8%
5 – 10	63	382	4.3%
Greater than 10	310	7,759	87.6%
<b>Total</b>	<b>1,874</b>	<b>8,858</b>	<b>100.0%</b>



Figure 3-4. JLUS Focus Area Land Subdivision Pattern



**C. Zoning**

The generalized base zoning districts applied to the Focus Area by the respective local governments (see Figure 3-5) are fairly consistent with the previously discussed existing land use pattern. Just as agricultural uses occupy the majority of the Focus Area, agricultural zoning districts have been applied to preserve and promote that use. While the various agricultural districts tend to permit residential uses in association with a farm use, they do typically prohibit the subdivision of land for residential purposes, thus requiring a rezoning to a residential district for any substantial residential development to take place. Commercial zoning districts have been applied to the area along the east side of US 31, across from the airbase and the Aeroplex, as well as on the nonresidential portions of the property that was formerly part of the installation. The Aeroplex portion of the joint airfield is zoned for industrial use, as is the land on the southeast side of the installation between it and US 31. This area is being developed as an industrial park by the Miami County Economic Development Authority (MCEDA), and is also where the state prison is located.

*Table 3-3. JLUS Focus Area Generalized Zoning Summary*

<b>Zoning District</b>	<b>Acres</b>	<b>% of Focus Area</b>
Agriculture	7,238	81.7%
Residential	273	3.1%
Commercial	650	7.3%
Industrial	698	7.9%
<b>Total</b>	<b>8,859</b>	<b>100.0%</b>

Cass County has adopted compatible use regulations in the form of an overlay district that seeks to maintain and enhance compatibility with the Accident Potential Zones (APZ) falling within the County’s jurisdiction and to prevent intrusions into the imaginary surfaces associated with the airfield. These overlays, shown in Figures 3-6 and 3-7, are not entirely consistent geographically with the United States Air Force (USAF) boundaries for the various APZs and imaginary surfaces, but do provide a significant degree of protection within the areas that they cover. At the time of the writing of the study, Miami County and the Town of Bunker Hill were in the early stages of adopting similar regulations to enhance compatibility in their jurisdictions, and Cass County may follow suit at some point to realign its districts with the districts adopted by the other entities.

Figure 3-5. JLUS Focus Area Generalized Zoning

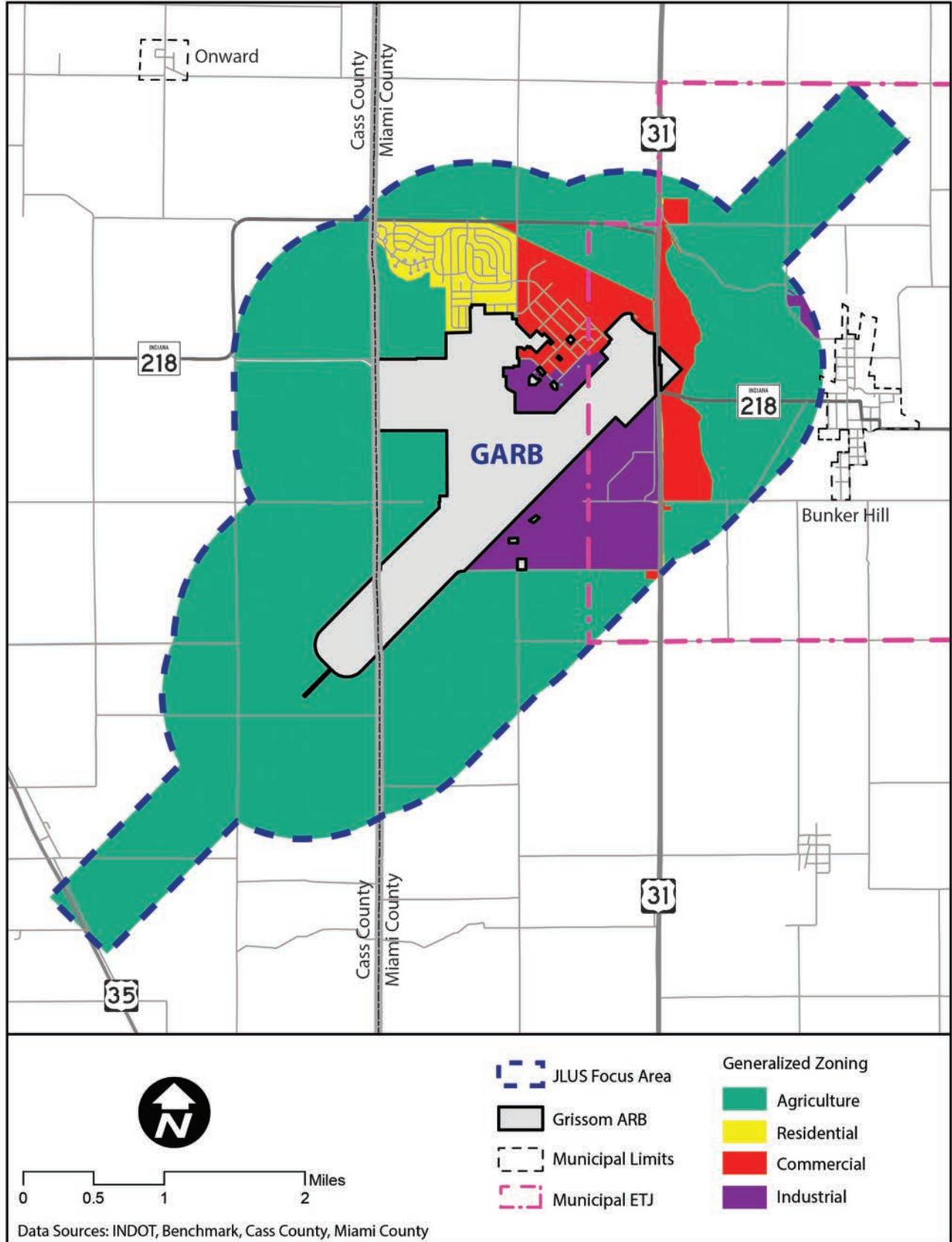


Figure 3-6. Cass County APZ Overlay Zoning

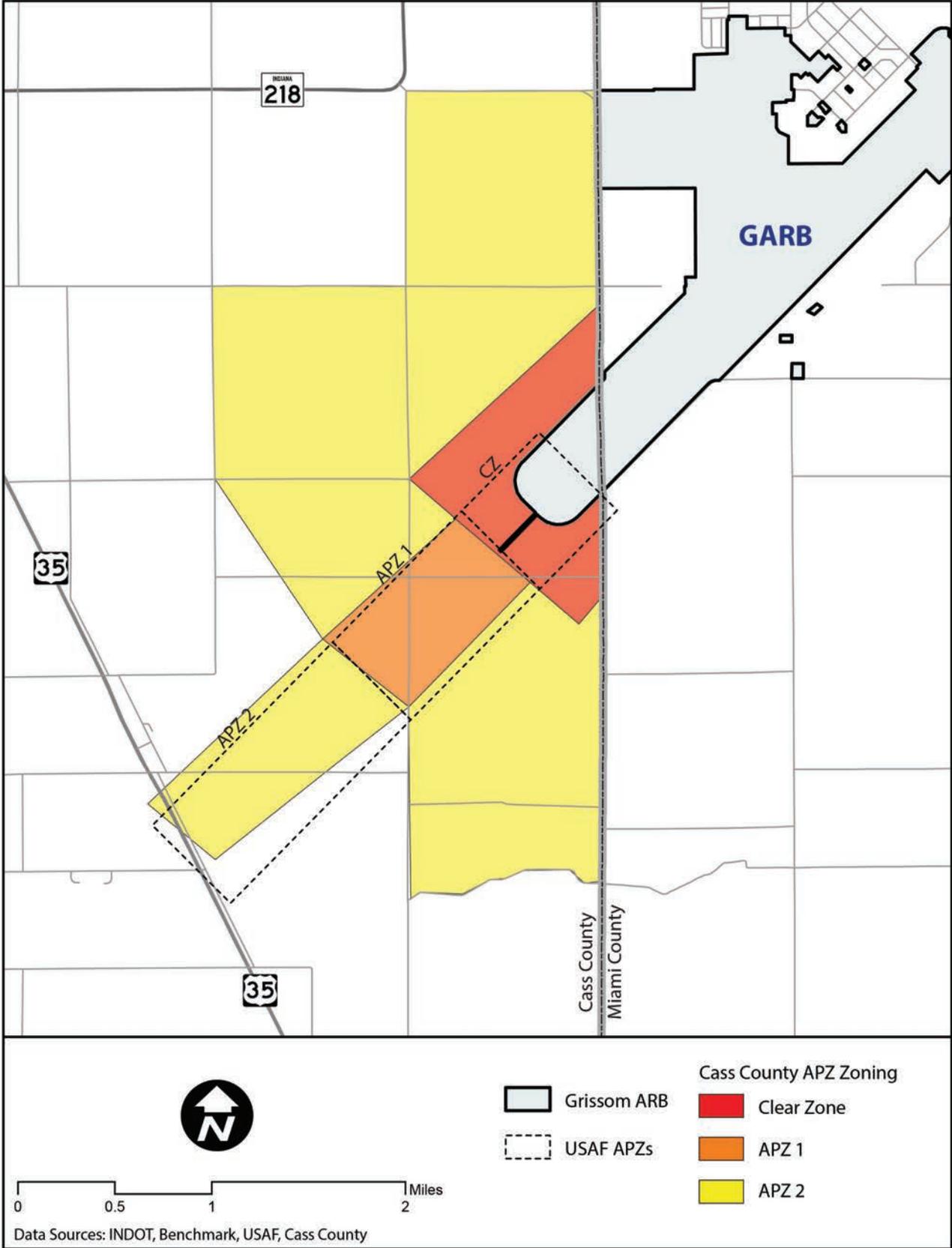
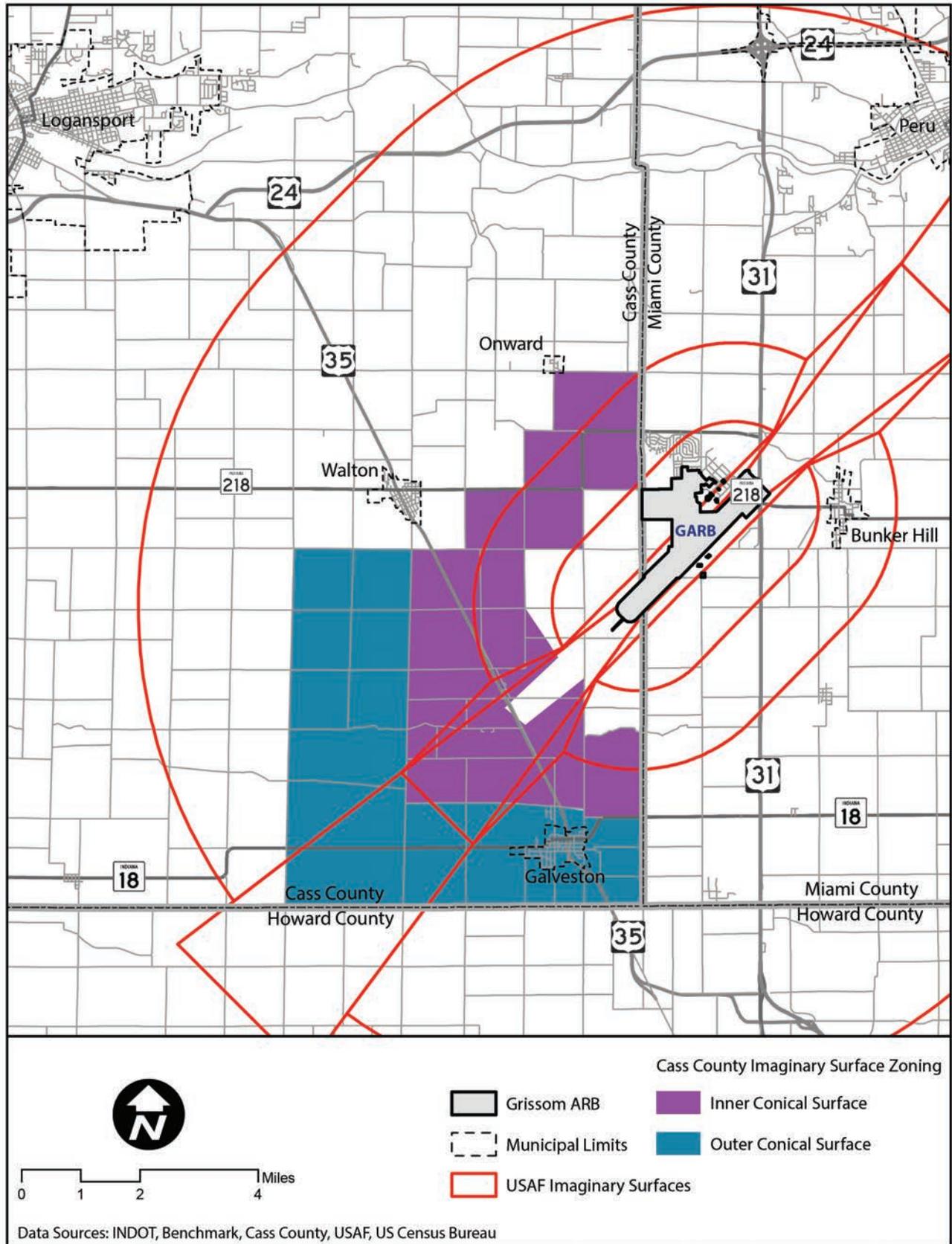


Figure 3-7. Cass County Imaginary Surface Overlay Zoning



### D. Future Land Use

The future land use maps from the local governments’ comprehensive plans were merged and the various future land use categories were generalized to provide a consistent overview of what has been planned for the Focus Area from a land use perspective (see Figure 3-8). The adopted plans tend to track fairly closely, overall, with the existing land use pattern. The primary exception to this is the significant amount of land designated for commercial/industrial and mixed use development on the east side of US 31 between Bunker Hill and the highway. The plan for the portion of the Focus Area in Cass County shows a primarily agricultural landscape, which is consistent with the current land use pattern in this part of the Focus Area. The only contemplated major expansion of residential development in the Focus Area is in the area just west of the town of Bunker Hill – in association with the area designated for “mixed use” development, which would presumably include both residential and nonresidential development opportunities.

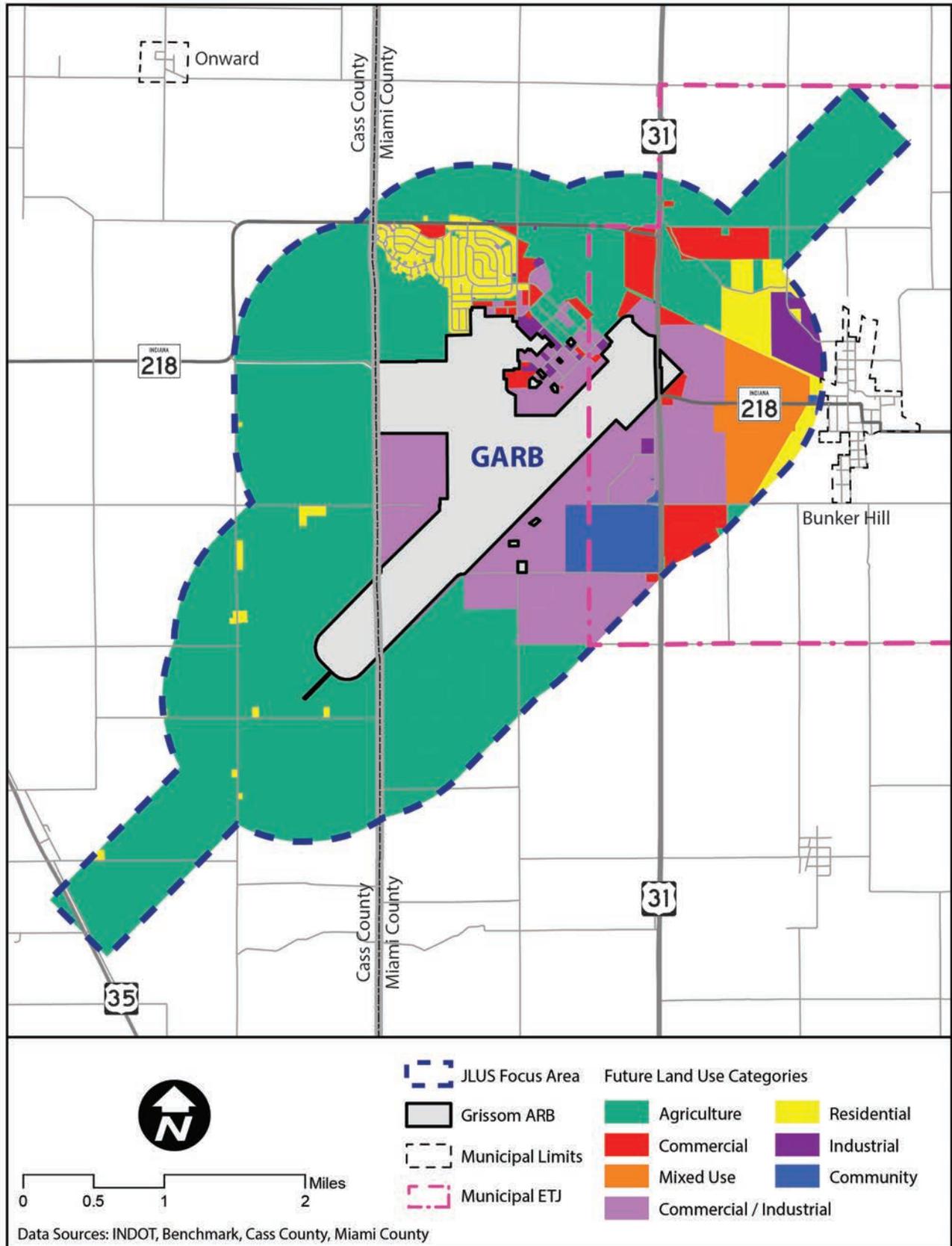
From an infrastructure perspective, the primary driver of growth in the area is US 31, which, as is discussed in Chapter 2, continues to be improved as part of a long-term initiative by INDOT to enhance the corridor. While major improvements have not yet occurred in the area immediately around Grissom, there are planning efforts underway to identify the most beneficial method of improving the highway (this is discussed in more detail at the conclusion of the Chapter). In any case, the increased traffic through the Focus Area is anticipated to increase development pressure, while improvements in access to Grissom ARB and the Aeroplex is anticipated to further industrial and commercial growth in close proximity to the base.

Table 3-4. JLUS Focus Area Future Land Use Summary

<b>Future Land Use</b>	<b>Acres</b>	<b>% of Focus Area</b>
Agriculture	5,916	66.8%
Residential	462	5.2%
Community	215	2.4%
Mixed Use	304	3.4%
Commercial	383	4.3%
Commercial / Industrial	1,433	16.2%
Industrial	146	1.6%
<b>Total</b>	<b>8,859</b>	<b>100.0%</b>



Figure 3-8. JLUS Focus Area Future Land Use Map



### III. Grissom ARB Aircraft Operational Impacts (2014 AICUZ Study)

The primary compatibility concerns related to land use and development activity in the communities around Grissom ARB are those associated with aircraft operational noise (largely associated with current KC-135 operations) and aircraft accident potential as identified in the 2014 Air Installation Compatible Use Zone (AICUZ) Study conducted by the US Air Force. These particular impacts are discussed in detail in this section.

#### A. Aircraft Operational Noise

The 2014 AICUZ Study identifies areas on and around the base that are subject to high noise potential. The contours, or gradient, associated with high noise potential correlates with noise levels generated by aircraft operations at Grissom. The noise contours established in the 2014 AICUZ Study (see Figure 3-9) are based on the average day-night noise level projected to be generated by aircraft operations at the base. Since the contours are based on average sound levels (expressed as *X dB DNL*), individual noise exposure levels from a single aircraft operation may be higher or lower than the level indicated by the noise contour at any particular location. Individual instances of exposure will also vary based upon meteorological conditions, time of day, and other factors that influence noise perception.

For the purposes of this study, the area contained within the 65+ dB DNL noise contour (see Figure 3-9) was chosen as the basis of analysis for aircraft noise impacts. A statistical breakdown of the area covered by the noise contours is shown in Table 3-5 below.

Table 3-5. 2014 AICUZ Noise Zones (65+ dB DNL)

Noise Zone (dB DNL)	On-Base Acres	Off-Base Acres	Combined Acres	% Off-Base
65-69	318	98	416	23.6%
70-74	221	0	221	0.0%
75-79	60	0	60	0.0%
80+	26	0	26	0.0%
<b>Total</b>	<b>625</b>	<b>98</b>	<b>723</b>	<b>13.6%</b>

As the data contained in Table 3-5 indicate, and as the map in Figure 3-9 shows, the overwhelming majority of the measured aircraft operational noise associated with Grissom ARB is contained within the installation boundary. Overall, only 13.6% of the entirety of the area covered by any level of noise zone falls off of the installation. Even more important, the only noise contour associated with KC-135 operations that falls outside of the installation is the lowest level noise zone, the 65-69 dB DNL, which has the fewest compatibility restrictions in the AICUZ compatibility guidance. As is discussed below, slightly more significant off-base noise impacts would be associated with KC-46A squadrons were they to be based at Grissom ARB.



## B. Aircraft Accident Potential

The areas identified in the 2014 AICUZ as being located within aircraft Accident Potential Zones (APZ) are shown in Figure 3-10. The APZs consist of a "Clear Zone," within which the highest degree of accident potential exists, and two additional zones, known as APZ 1 and APZ 2, which indicate areas of decreasing, though still significant, risk for aircraft accident potential. The size and configuration of these zones, which are associated with all military airfields, is dictated by the classification of the runway(s) and the typical flight tracks and operational profile of aircraft operating from the airfield. Therefore, the Clear Zone and Accident Potential Zones would be the same for operations associated with the KC-135 and the KC-46A.

As the data in Table 3-6 indicates, and as the map in Figure 3-10 shows, nearly 90% of the total area of the combined APZs at Grissom ARB fall outside of the installation boundary, including just over 40% of the Clear Zone (CZ), which has the highest degree of recommended protection in the USAF AICUZ land use compatibility guidance (Air Force Instruction AFI 32-7063). While the Clear Zone at the northeastern end of the runway is located almost entirely on the installation, the majority of the CZ at the southwestern end of the runway (primarily in Cass County) falls on private property.

Table 3-6. Aircraft Accident Potential Zones

Accident Potential Zone	On-Base Acres	Off-Base Acres	Combined Acres	% Off-Base
Clear Zone (CZ)	244	169	413	40.9%
APZ 1	3	686	689	99.6%
APZ 2	0	964	964	100.0%
<b>Total</b>	<b>247</b>	<b>1,819</b>	<b>2,066</b>	<b>88.0%</b>

## C. Combined Aircraft Operational Impacts

The combined extent of the area covered by aircraft noise contours and the Accident Potential Zones are shown in Figure 3-11.



Figure 3-9. 2014 Grissom ARB AICUZ Aircraft Noise Contours (DNL)

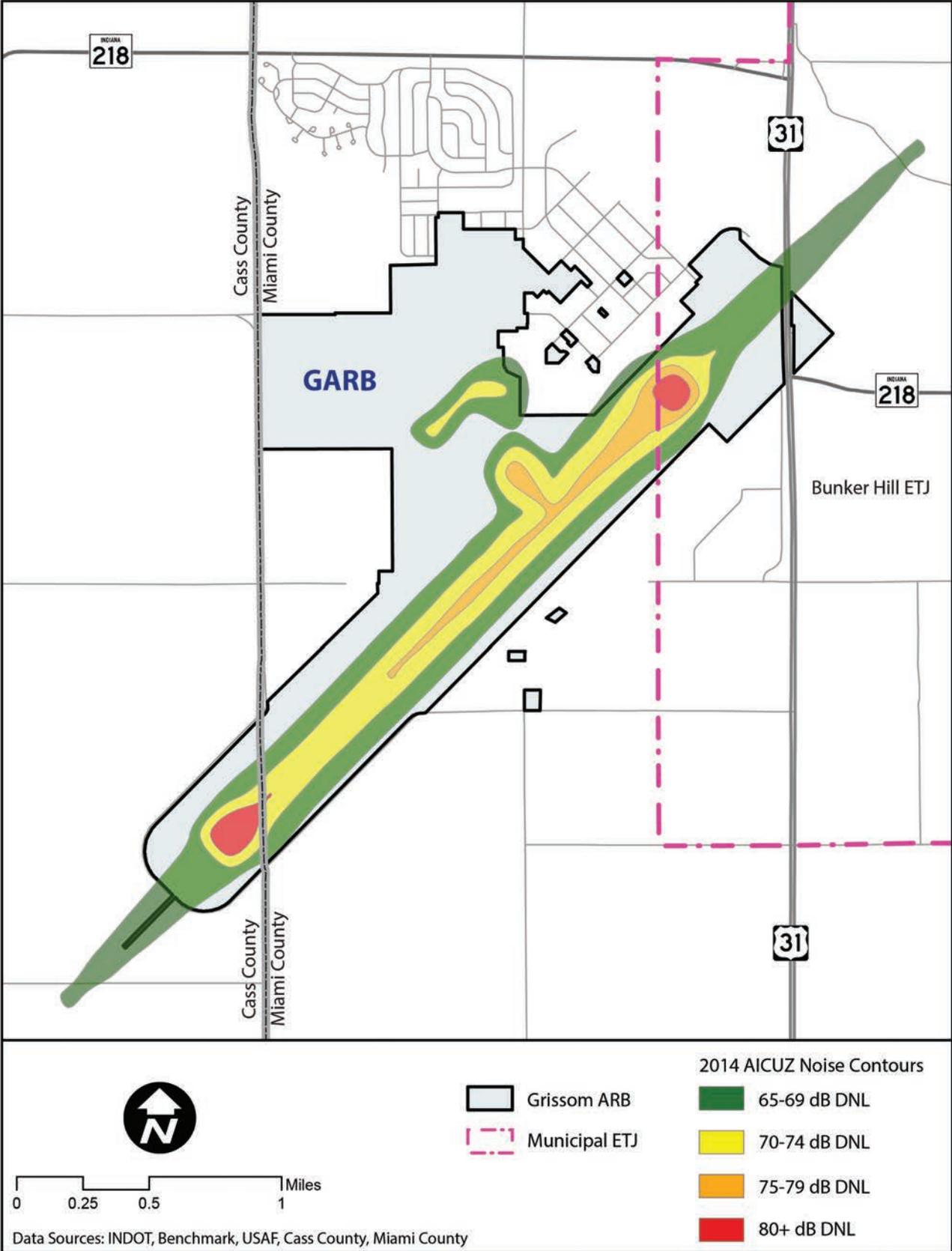


Figure 3-10. 2014 Grissom ARB 2014 AICUZ Accident Potential Zones (APZ)

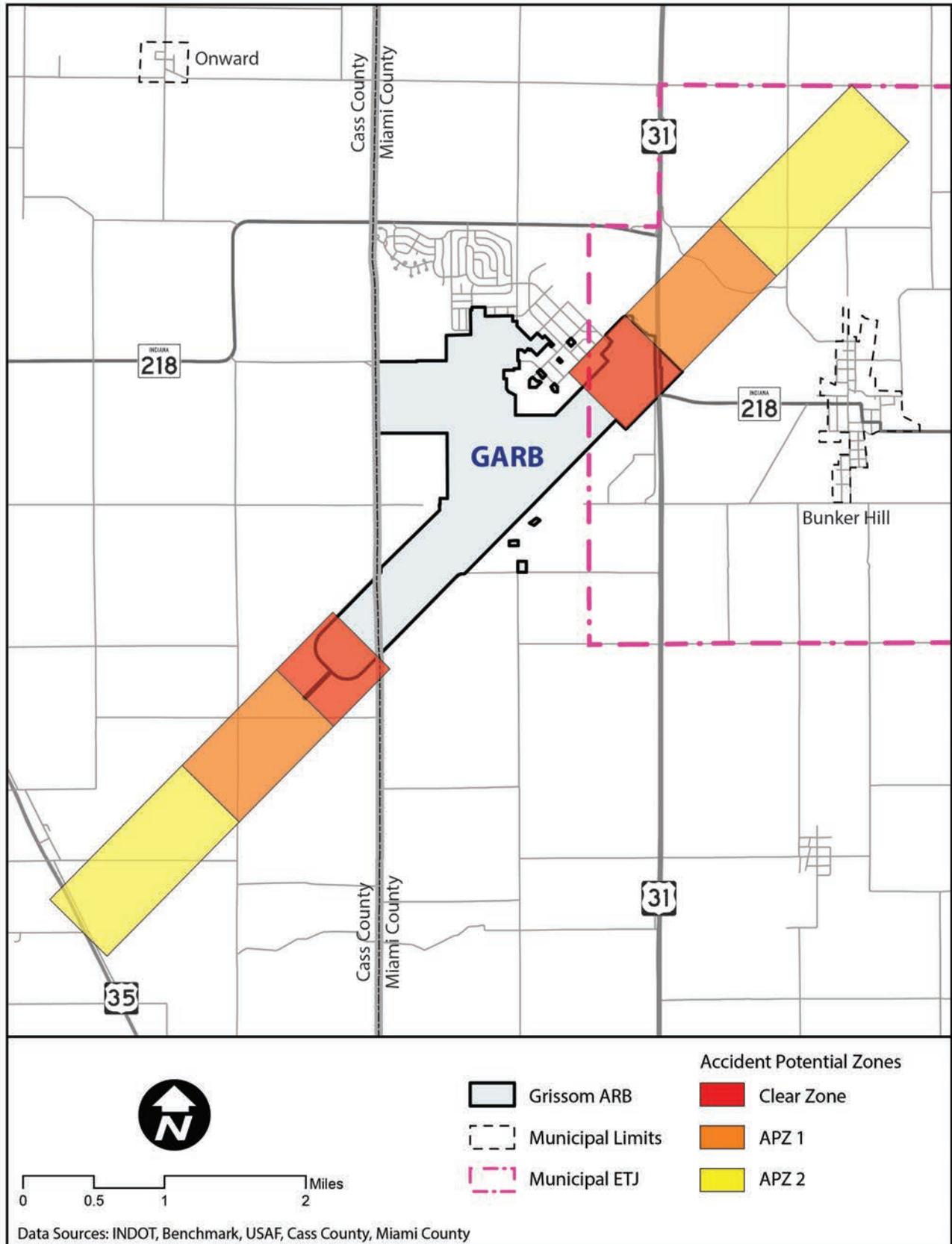
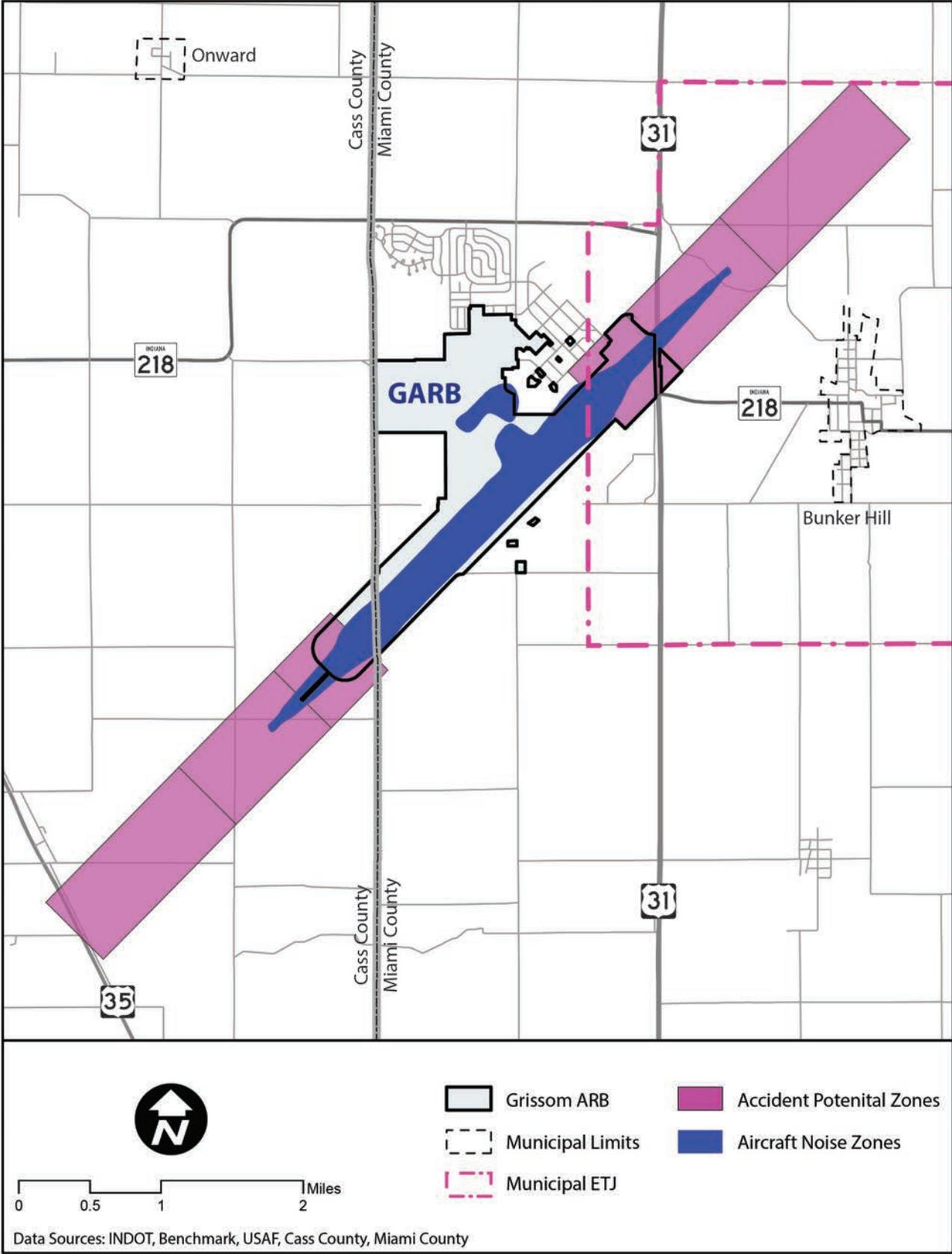


Figure 3-11. Combined Operational Impacts based on 2014 Grissom ARB AICUZ





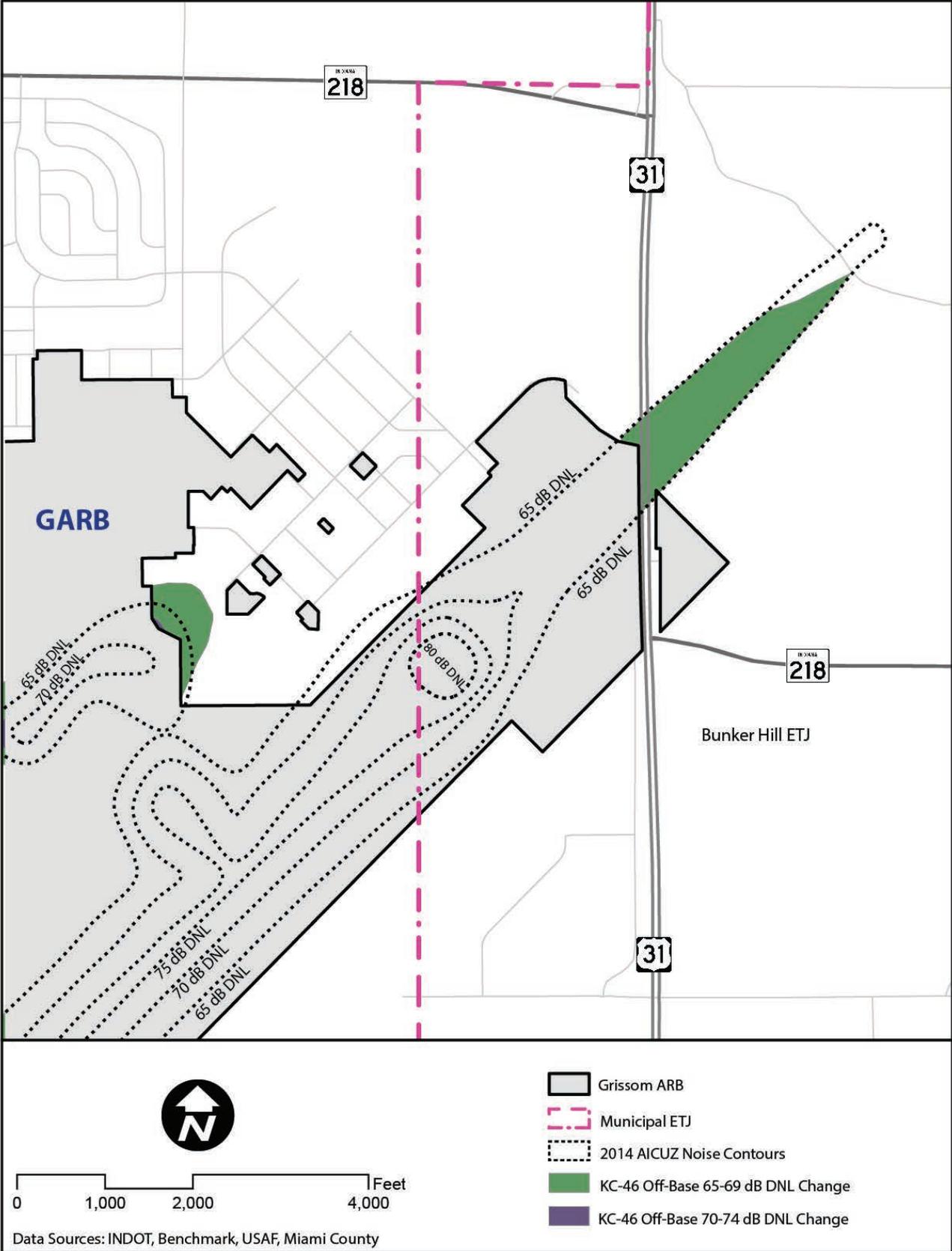
#### **IV. Potential Future Aircraft Noise Impacts – KC-46 Pegasus**

While not selected to receive the new KC-46A Pegasus tanker aircraft in the most recent round of basing selections, Grissom ARB remains under consideration, and well positioned, to be designated to receive the new aircraft at some point in the near future. As part of the analysis of the impacts of its basing decision, the USAF prepared an Environmental Impact Statement (EIS) which, among other things, identified the potential changes in noise impacts associated with the new aircraft. The map shown in Figure 3-12 was digitized from the noise contour map shown on page 3-3 of the KC-46 EIS, and due to the quality of the map, represents only an approximation of the change in the area of extent of the noise contours anticipated to be associated with the KC-46. Since the raw data was not available, this represents the best information available at this time.

As the map in Figure 3-12 indicates, very little change in the overall noise environment is expected with a potential transition to the KC-46. The observable off-base changes were a slight decrease in the outer extent of the 65-69 dB DNL noise contour at the northeastern end of the runway, a small expansion of the same noise contour on the tarmac of the airfield in the vicinity of the Dean Baldwin Aircraft Painting facility in the Aeroplex, and a very small off-base area within the Aeroplex that would experience 70-74 dB DNL. Taken as a whole, there should not be a significant change in the amount of noise impact, were the KC-46 introduced at the base, particularly in off-base areas.



Figure 3-12. KC-46 EIS Noise Contour Off-Base Change in Impact



## V. Grissom ARB 2014 AICUZ Noise Zone Compatibility Analysis

The following is an analysis and summary of the land use patterns and land use compatibility within the area covered by the 65+ dB DNL noise contours as established in the 2014 Grissom ARB AICUZ study and KC-135 operations. Topics covered include analyses of the existing land use pattern, land subdivision pattern, zoning, and future land use plans. These are followed by analyses of the compatibility of the established land use and regulatory patterns with the USAF AICUZ guidance for compatible land use within areas of high noise potential associated with aircraft operations.

### A. Generalized Existing Land Use Pattern

Areas of 65+ dB DNL noise contours fall outside of the installation boundary at each end of Grissom's runway. At the northeastern end of the runway, this noise zone falls primarily over a combination of undeveloped and agricultural land, along with a commercial development located on US 31, across the highway from the airfield (see Figure 3-13). At the southwestern end of the runway, only agriculturally used property is impacted by the noise zone (see Figure 3-14). The remainder of the off-base noise impact falls on an area that is part of the airfield portion of the Aeroplex, which is designated, for this purpose, as a "public / institutional" use.

Table 3-7. 2014 AICUZ Noise Zone Generalized Existing Land Use Summary

Existing Land Use	Acres	% of Noise Zone
Agriculture	50	52.1%
Public / Institutional	19	19.8%
Commercial	6	6.3%
Undeveloped	21	21.9%
<b>Total</b>	<b>96</b>	<b>100.0%</b>



Figure 3-13. 2014 AICUZ Noise Zone Generalized Existing Land Use Pattern (NE)

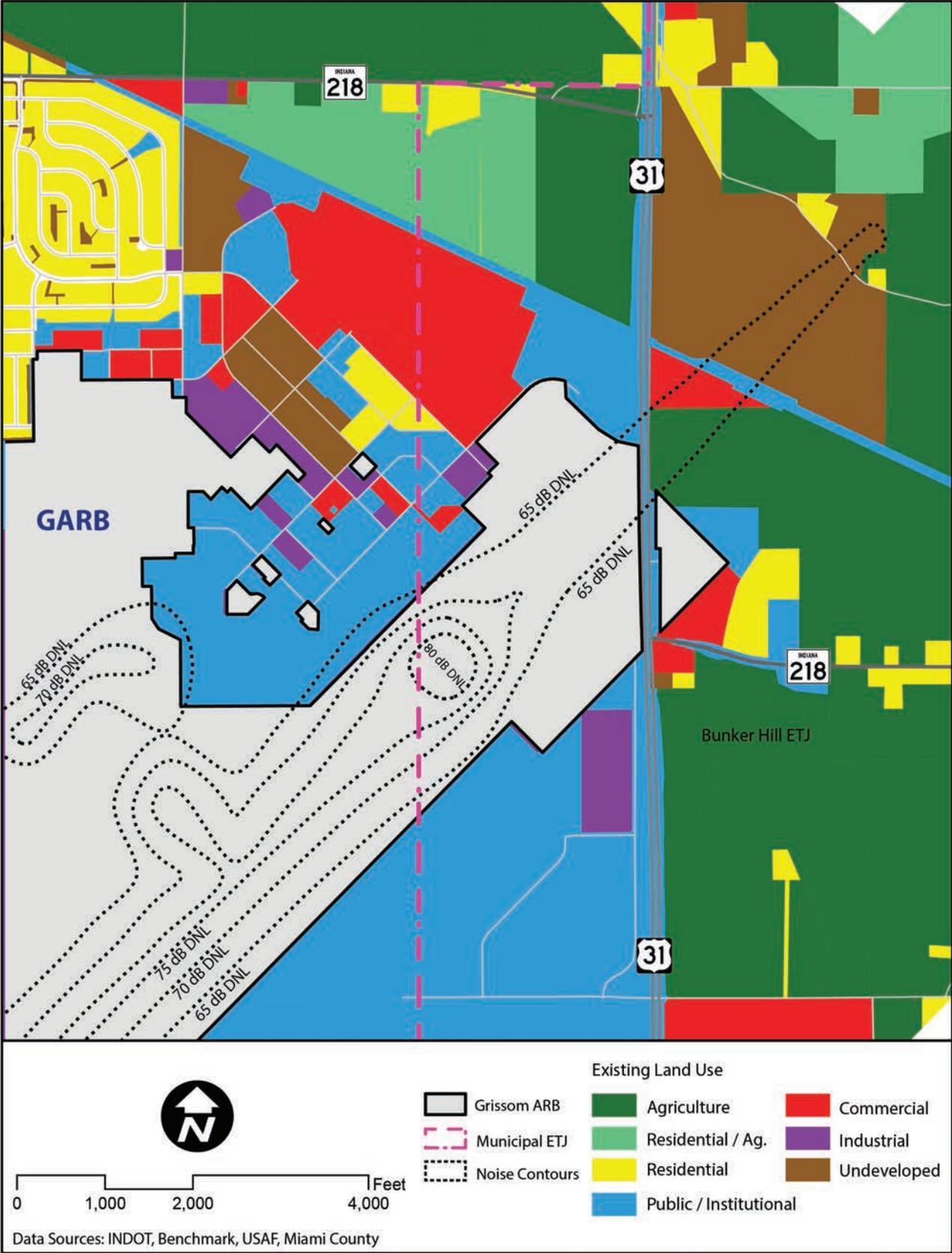


Figure 3-14. 2014 AICUZ Noise Zone Generalized Existing Land Use Pattern (SW)



## B. Land Subdivision Pattern

At the northeastern end of the runway (see Figure 3-15), the noise zone primarily impacts larger (10+ acre) tracts of land that lie either partially or wholly within the noise contour. The same is true for the portion of the noise zone at the southwestern end of the runway (see Figure 3-16). In both areas, there are no densely subdivided tracts of land in the immediate vicinity of the noise zone, which indicates a relatively sparse development pattern and lack of any pending residential development of any significant scale.

Table 3-8. 2014 AICUZ Noise Zone Land Subdivision Summary

Parcel Size (acres)	Parcels	Acres	% of Noise Zone
Less than 1	0	0	0.0%
1 - 5	3	2	2.1%
5 - 10	5	14	14.6%
Greater than 10	15	80	83.3%
<b>Total</b>	<b>23</b>	<b>96</b>	<b>100.0%</b>

## C. Zoning

At the northeastern end of the runway (see Figure 3-17) the land within the noise zone has been assigned a mixture of commercial and agricultural zoning districts, with the commercially zoned areas located along US 31 across from the airfield, and the agriculturally zoned areas farther away from the highway. The portion of the noise zone falling on the Aeroplex in this area is zoned for industrial use. At the southwestern end of the runway (see Figure 3-18), Cass County has applied agricultural base zoning districts to the land within and around the noise zone. This (southwestern) area is also subject to the various compatible use overlays shown previously in Figures 3-6 and 3-7, which apply additional use restrictions and other standards to enhance compatibility. During the JLUS process, Miami County and the Town of Bunker Hill were in the process of preparing similar overlay zoning ordinances.

Table 3-9. 2014 AICUZ Noise Zone Generalized Zoning Summary

Zoning District	Acres	% of Noise Zone
Agriculture	55	57.3%
Residential	0	0.0%
Commercial	29	30.2%
Industrial	12	12.5%
<b>Total</b>	<b>96</b>	<b>100.0%</b>



Figure 3-15. 2014 AICUZ Noise Zone Land Subdivision Pattern (NE)

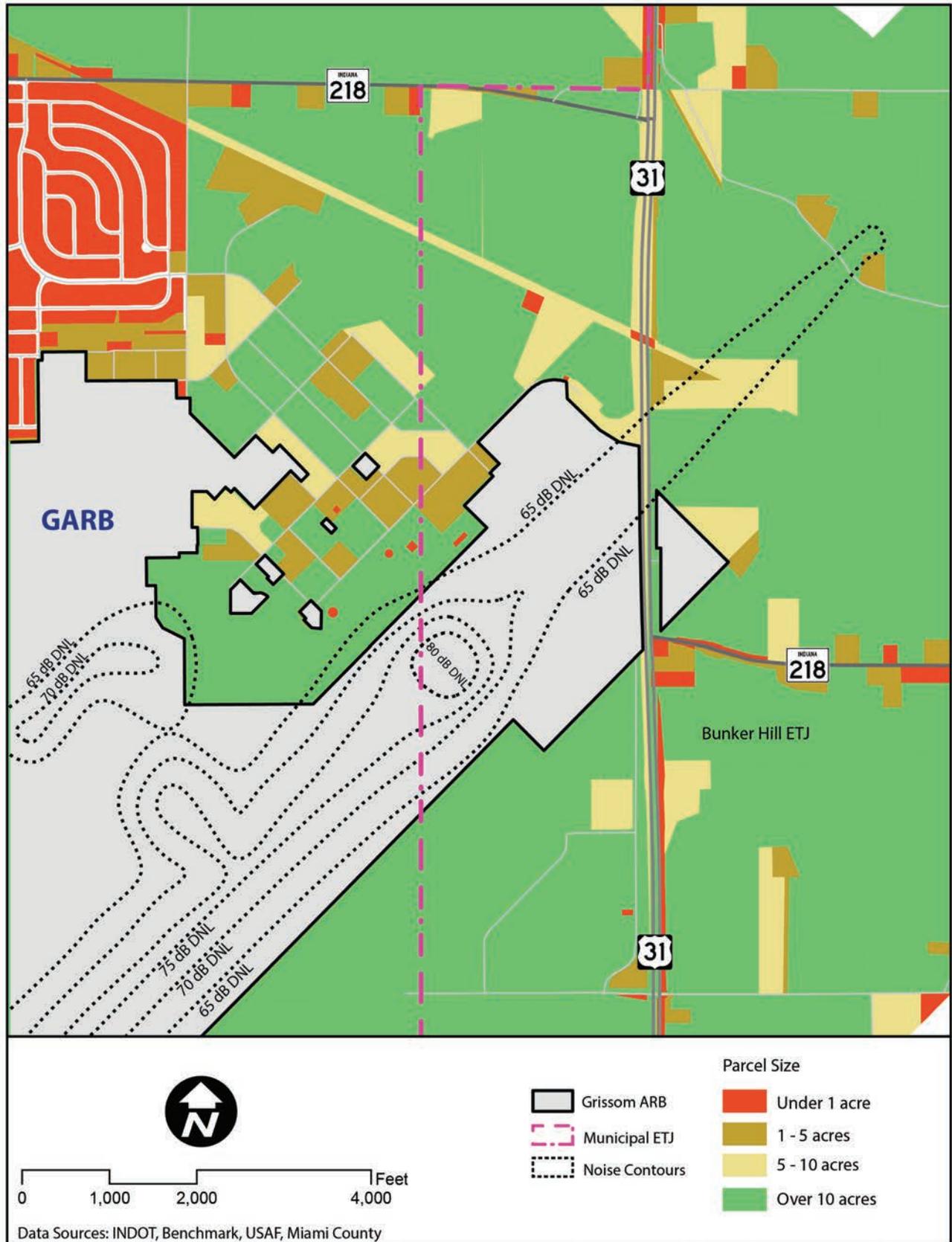


Figure 3-16. 2014 AICUZ Noise Zone Land Subdivision Pattern (SW)

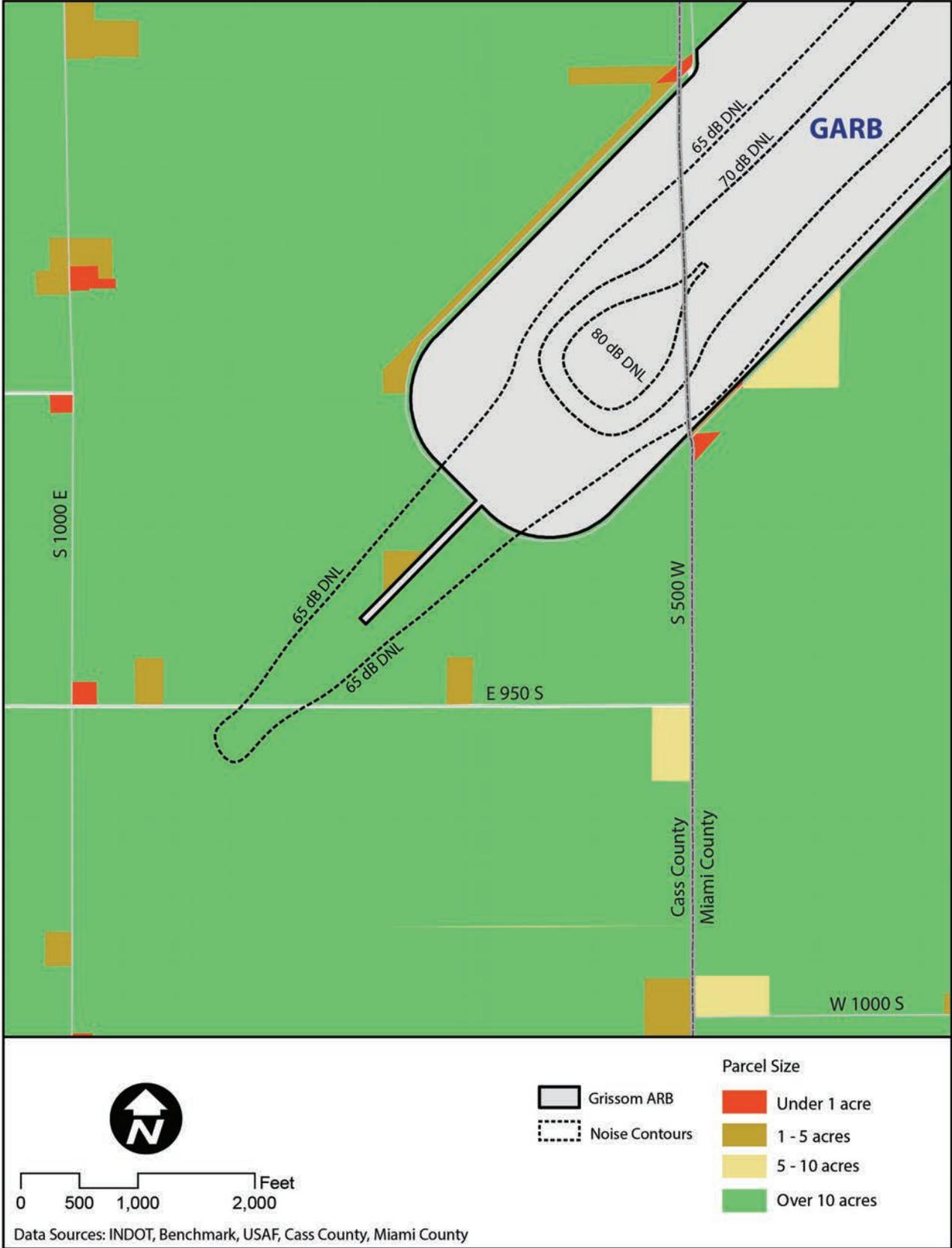


Figure 3-17. 2014 AICUZ Noise Zone Generalized Base Zoning Districts (NE)

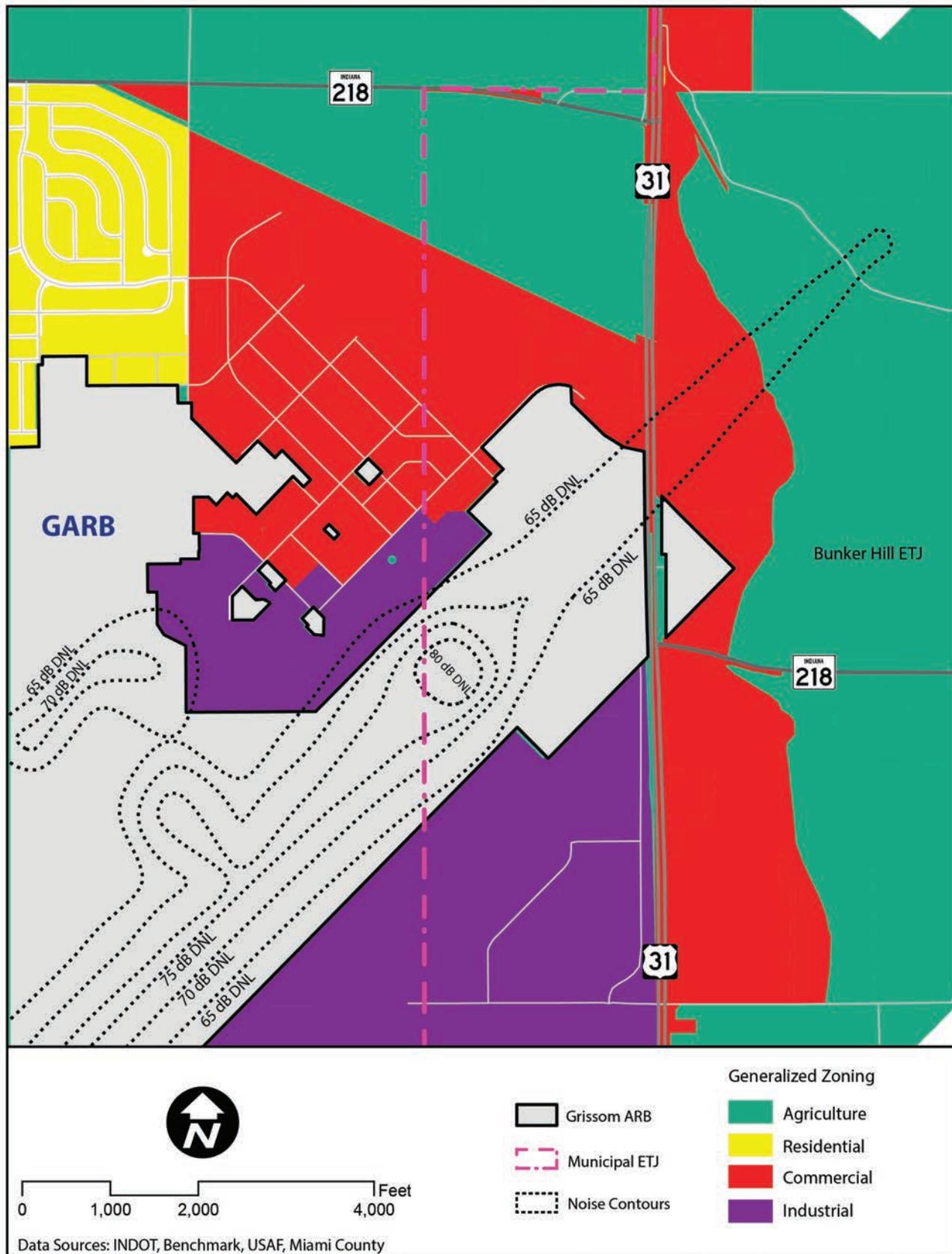
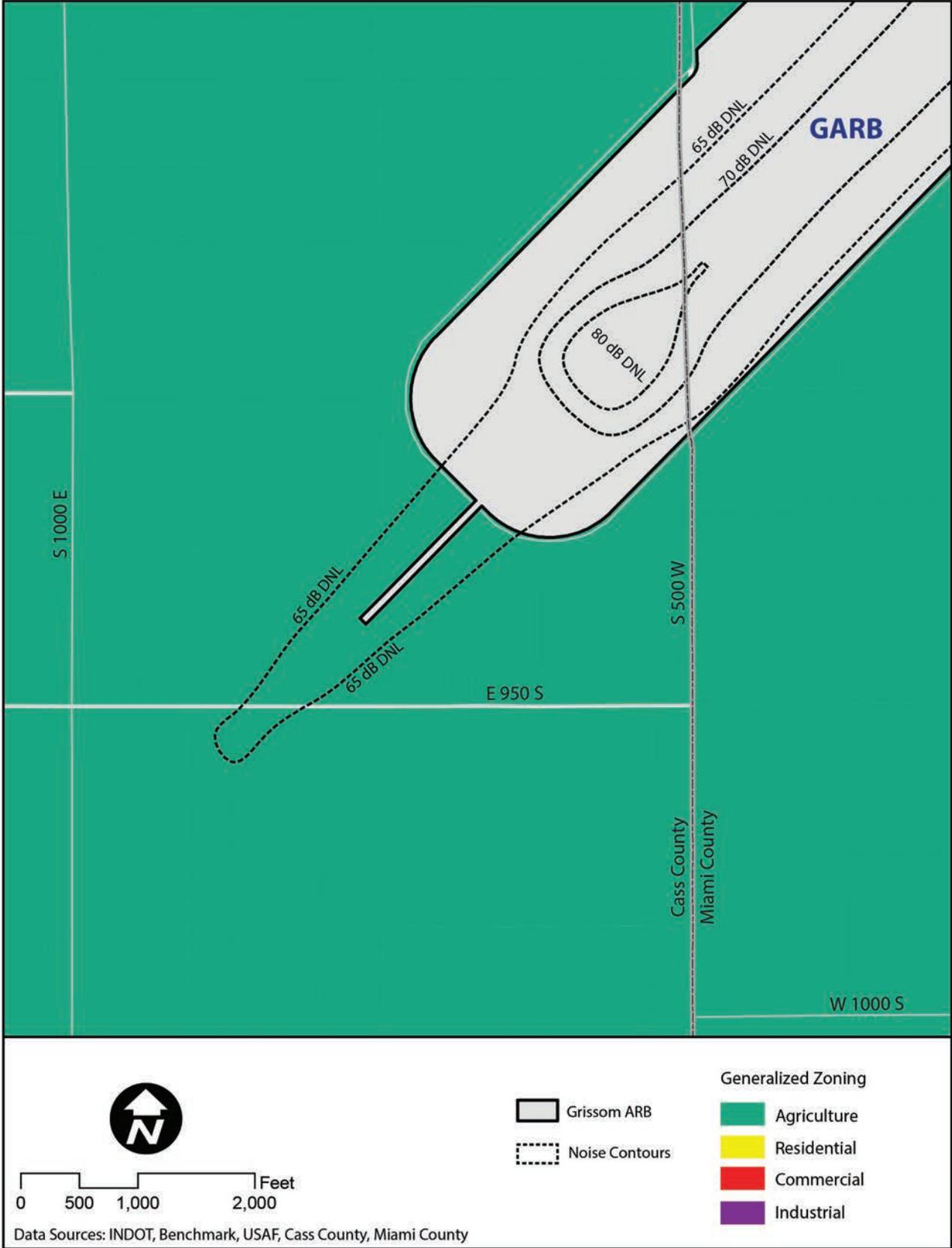


Figure 3-18. 2014 AICUZ Noise Zone Generalized Base Zoning Districts (SW)



## D. Future Land Use

The areas subject to high noise levels at the northeastern end of the runway have been designated primarily for commercial and industrial development in the future, according to the adopted plans for the areas (see Figure 3-19), while areas more distant from the Aeroplex and the US 31 corridor are designated for continued agricultural use. This is contrasted with the noise zone areas at the southwestern end of the runway (see Figure 3-20), where the overall area, both within and outside of the noise zone, is designated for agricultural use – a realistic reflection of the distance of this area from the primary growth drivers in the area.

Table 3-10. 2014 AICUZ Noise Zone Future Land Use Summary

Future Land Use	Acres	% of Noise Zone
Agriculture	61	63.5%
Commercial	7	7.3%
Commercial / Industrial	28	29.2%
<b>Total</b>	<b>96</b>	<b>100.0%</b>

## E. Existing Land Use Compatibility

Using the most recent AICUZ land use compatibility guidance, the existing land use pattern within the 2014 aircraft operational noise impact area was analyzed to determine its compatibility with recommended land uses. The resulting analyses revealed the mixture of land uses currently existing within the noise zone areas are 100% compatible with the guidance (see Table 3-11 and Figures 3-21 and 3-22).

Table 3-11. 2014 AICUZ Noise Zone Existing Land Use Compatibility Summary

Existing Land Use	Acres	% of Noise Zone
Compatible	96	100.0%
Potentially Compatible	0	0.0%
Incompatible	0	0.0%
<b>Total</b>	<b>96</b>	<b>100.0%</b>



Figure 3-19. 2014 AICUZ Noise Zone Future Land Use Map (NE)

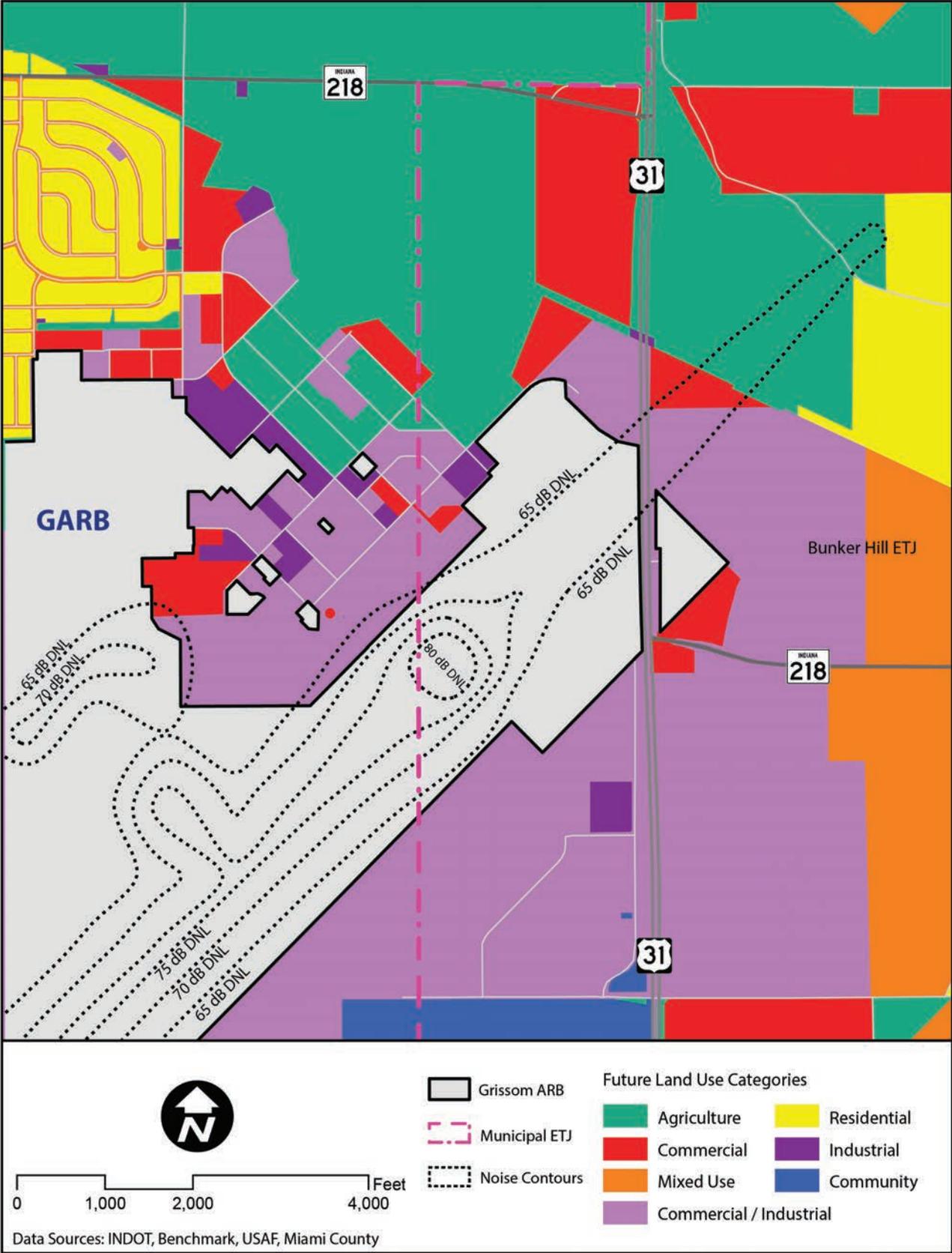


Figure 3-20. 2014 AICUZ Noise Zone Future Land Use Map (SW)

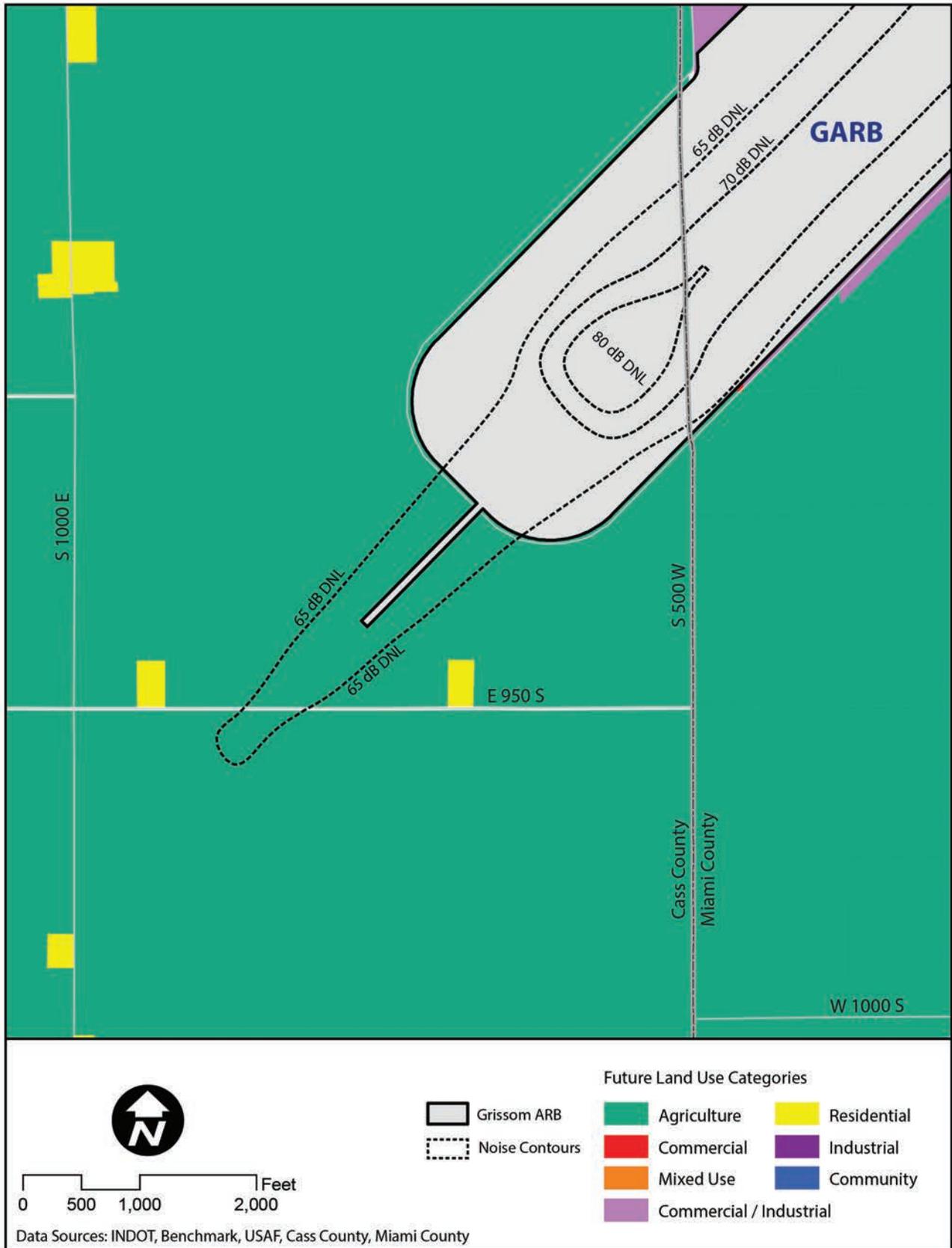


Figure 3-21. 2014 AICUZ Noise Zone Existing Land Use Compatibility (NE)

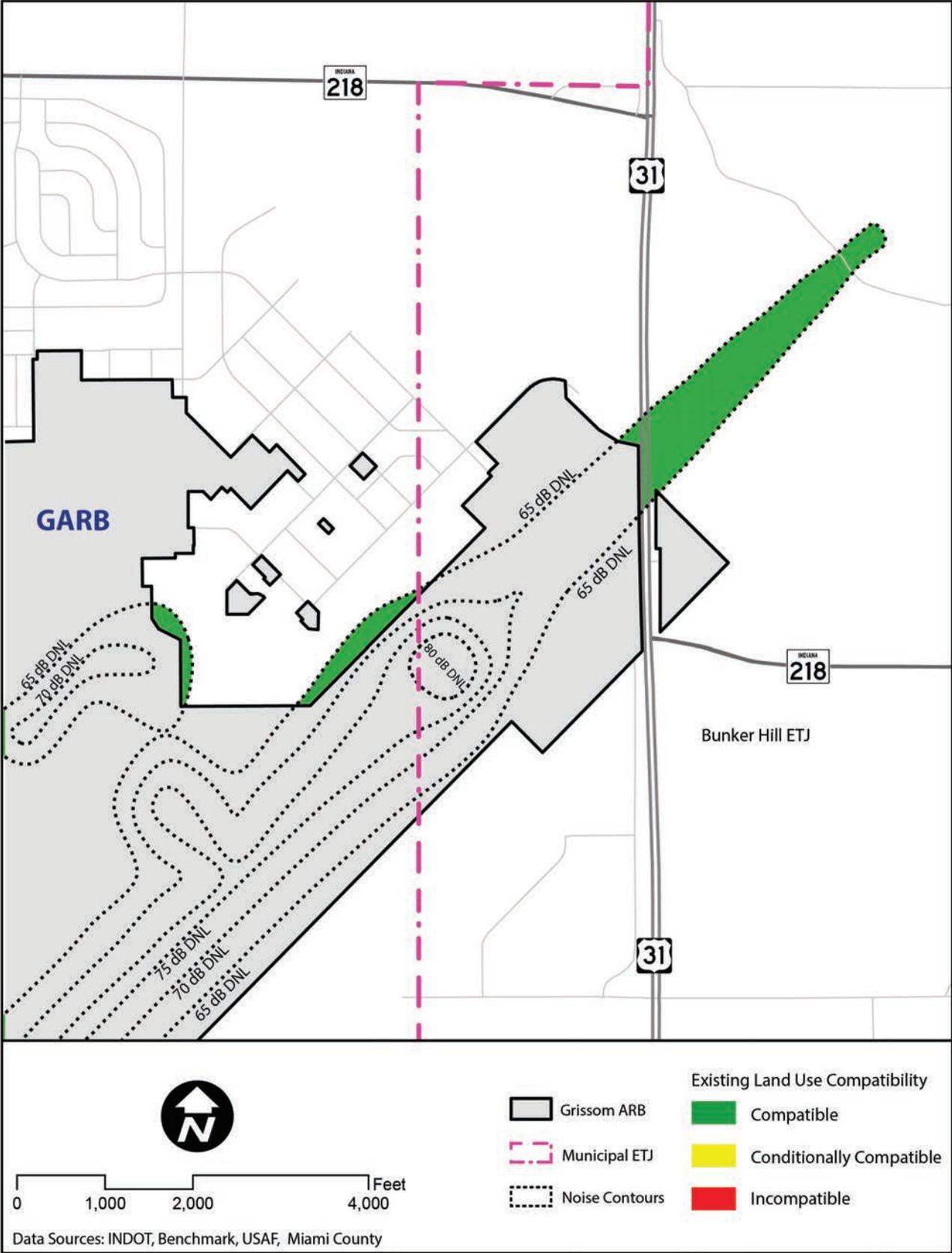
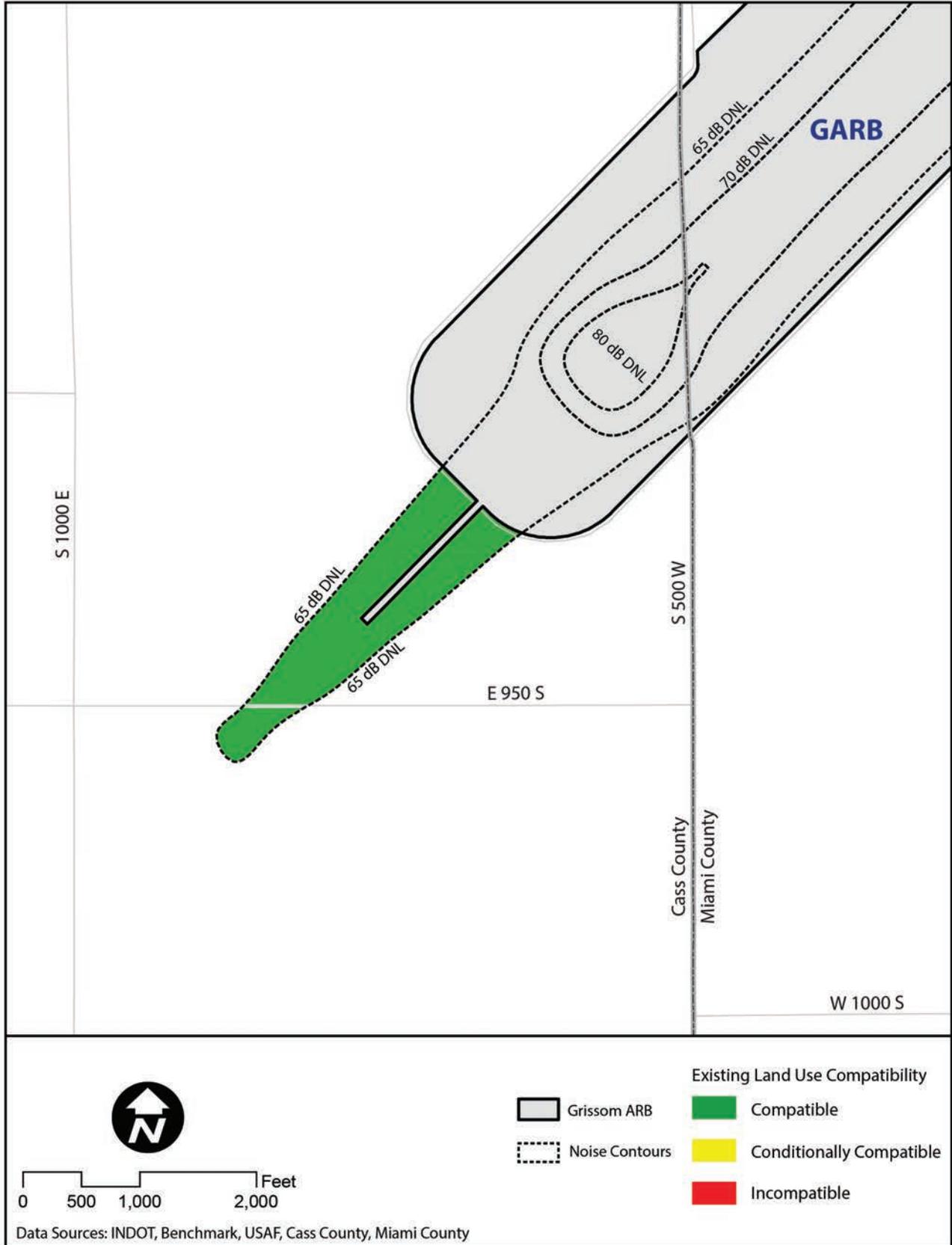


Figure 3-22. 2014 AICUZ Noise Zone Existing Land Use Compatibility (SW)



## F. Zoning Compatibility

The analysis of zoning compatibility is intended to identify areas where it is *possible* for incompatible uses to be established given the use regulations of the particular district, as well as other factors, such as overlay districts, which may enhance compatibility by imposing additional development standards or use restrictions.

The analysis of the uses permitted in the zoning districts at the northeastern end of the runway (see Figure 3-23) shows that the areas zoned for commercial and industrial use are generally compatible with the noise compatibility guidance, while the land zoned for agricultural use is *potentially* compatible given the permissive nature of the district, specifically with regard to allowing residences to be built, but tempered by the low level of interior noise level reduction necessary to achieve compatibility with the AICUZ guidance in the 65-69 dB DNL noise contour.

The southwestern end of the runway is identified as being compatible with regard to the current zoning in place in the area (see Figure 3-24). While the agricultural districts assigned to the land within the noise zone do allow residential uses on a limited basis, the compatibility of the area is enhanced by Cass County’s compatible use overlay that is in place, which restricts residential development (and most non-agricultural uses) – effectively preempting the base agricultural zoning district.

At the time of the JLUS, Miami County and the Town of Bunker Hill were in the process of adopting overlay ordinances that would require new land uses to be consistent with Air Force Guidelines related to noise encroachment. The adoption of these overlays would significantly increase compatibility of future land uses, based on zoning in Miami County and Bunker Hill’s extraterritorial jurisdiction (i.e., “zoning fringe” areas).

Table 3-12. 2014 AICUZ Noise Zone Generalized Zoning Compatibility

Zoning District	Acres	% of Noise Zone
Compatible	78	81.3%
Potentially Compatible	18	18.7%
Incompatible	0	0.0%
<b>Total</b>	<b>96</b>	<b>100.0%</b>



Figure 3-23. 2014 AICUZ Noise Zone Current Zoning Compatibility (NE)

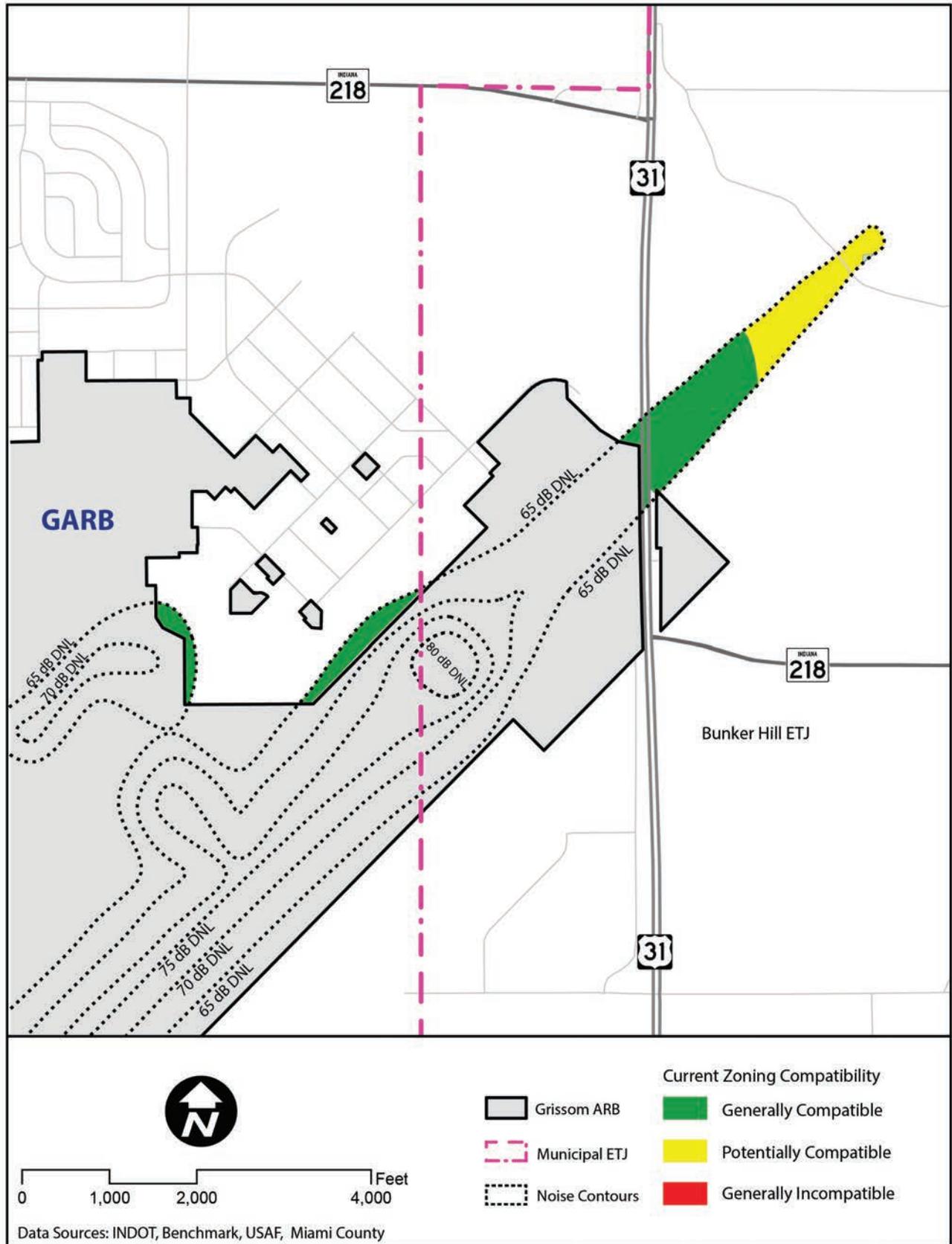
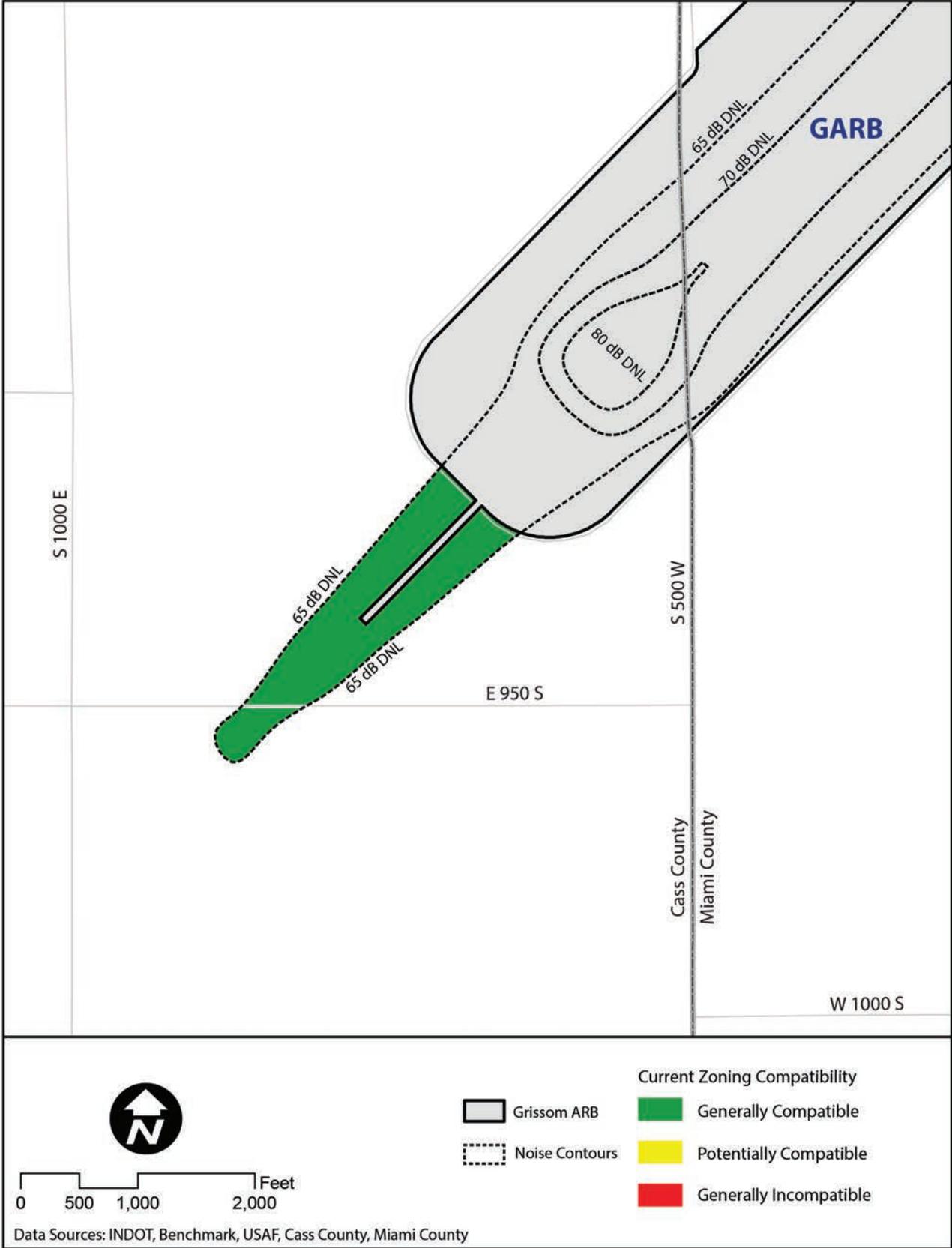


Figure 3-24. 2014 AICUZ Noise Zone Current Zoning Compatibility (SW)



## G. Future Land Use Compatibility

The compatibility of the noise zone areas with the adopted future land use maps takes into account both the stated intent of the particular land use category that is assigned, and the most likely type of zoning that would be applied to facilitate development in the intended manner.

The commercial and mixed commercial / industrial land use classifications assigned to portions of the noise zone areas at the northeastern end of the runway are generally compatible with the AICUZ guidance, while the agricultural future land use designation in this area is *potentially* compatible (see Figure 3-25). At the southwestern end of the runway, it is assumed the agricultural future land use designation will be generally compatible if the compatible use overlay district is maintained in this area (see Figure 3-26). If such regulations are not maintained, then the possibility of incompatible development would increase given the somewhat permissive nature of the agricultural land use classification for the establishment of limited residential uses, although this would still be tempered by the intent of the land use designation and agricultural zoning.

Table 3-13. 2014 AICUZ Noise Zone Generalized Zoning Compatibility

Future Land Use	Acres	% of Noise Zone
Compatible	72	75.0%
Potentially Compatible	24	25.0%
Incompatible	0	0.0%
<b>Total</b>	<b>96</b>	<b>100.0%</b>



Figure 3-25. 2014 AICUZ Noise Zone Future Land Use Compatibility (NE)

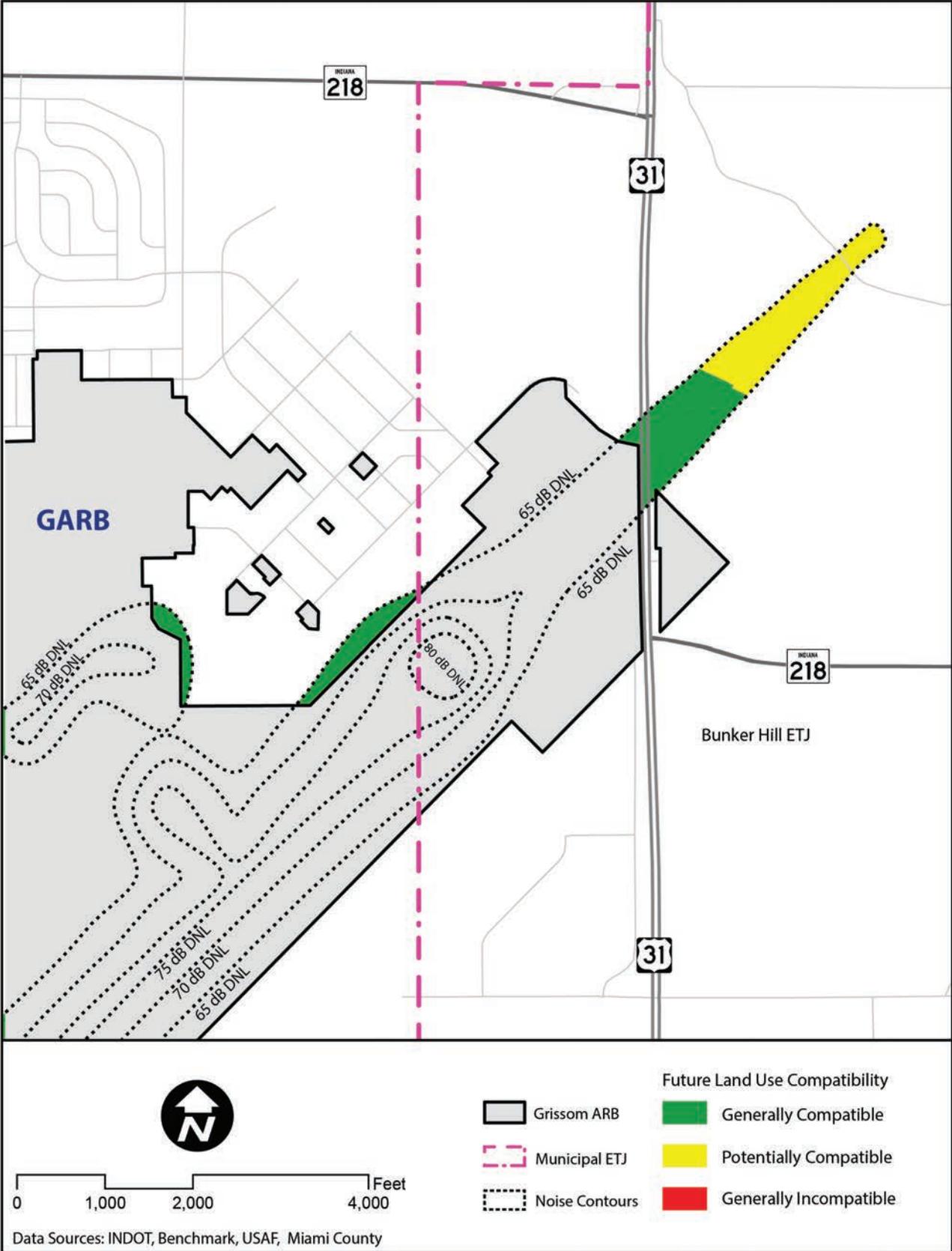
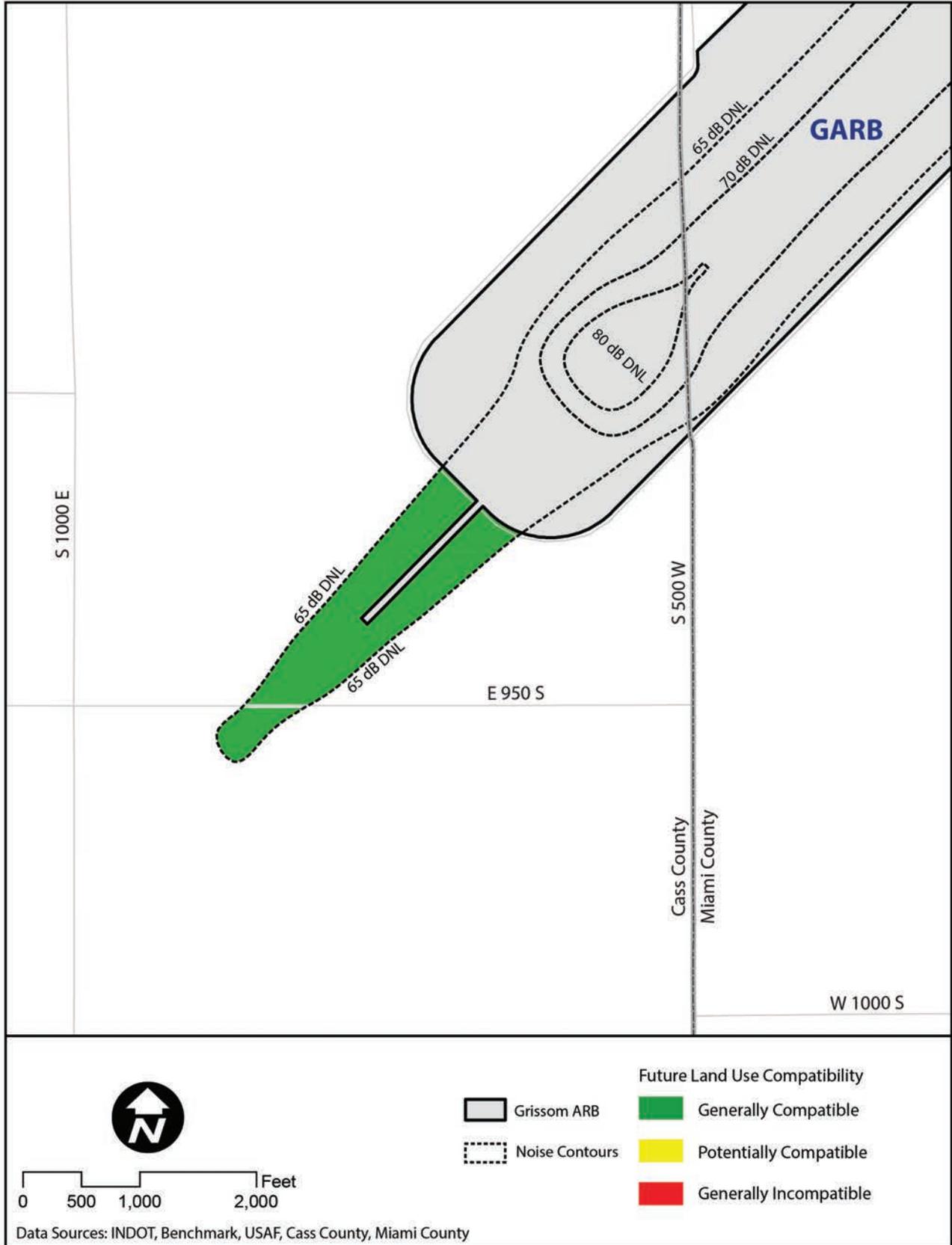


Figure 3-26. 2014 AICUZ Noise Zone Future Land Use Compatibility (SW)



## VI. KC-46 EIS Noise Zone Compatibility Analysis

Based on the limited changes anticipated with regard to the noise contours associated with the possible transition to the KC-46, it is assumed that the noise compatibility analysis for existing land use would look very similar to the analysis based on the 2014 AICUZ. The small reduction in area covered by the 65-69 dB DNL noise contour is not expected to confer any significant benefit on the overall noise compatibility environment, while the small increase in the area of the noise zone on the airfield portion of the Aeroplex is not anticipated to have any negative impact on the noise compatibility environment.

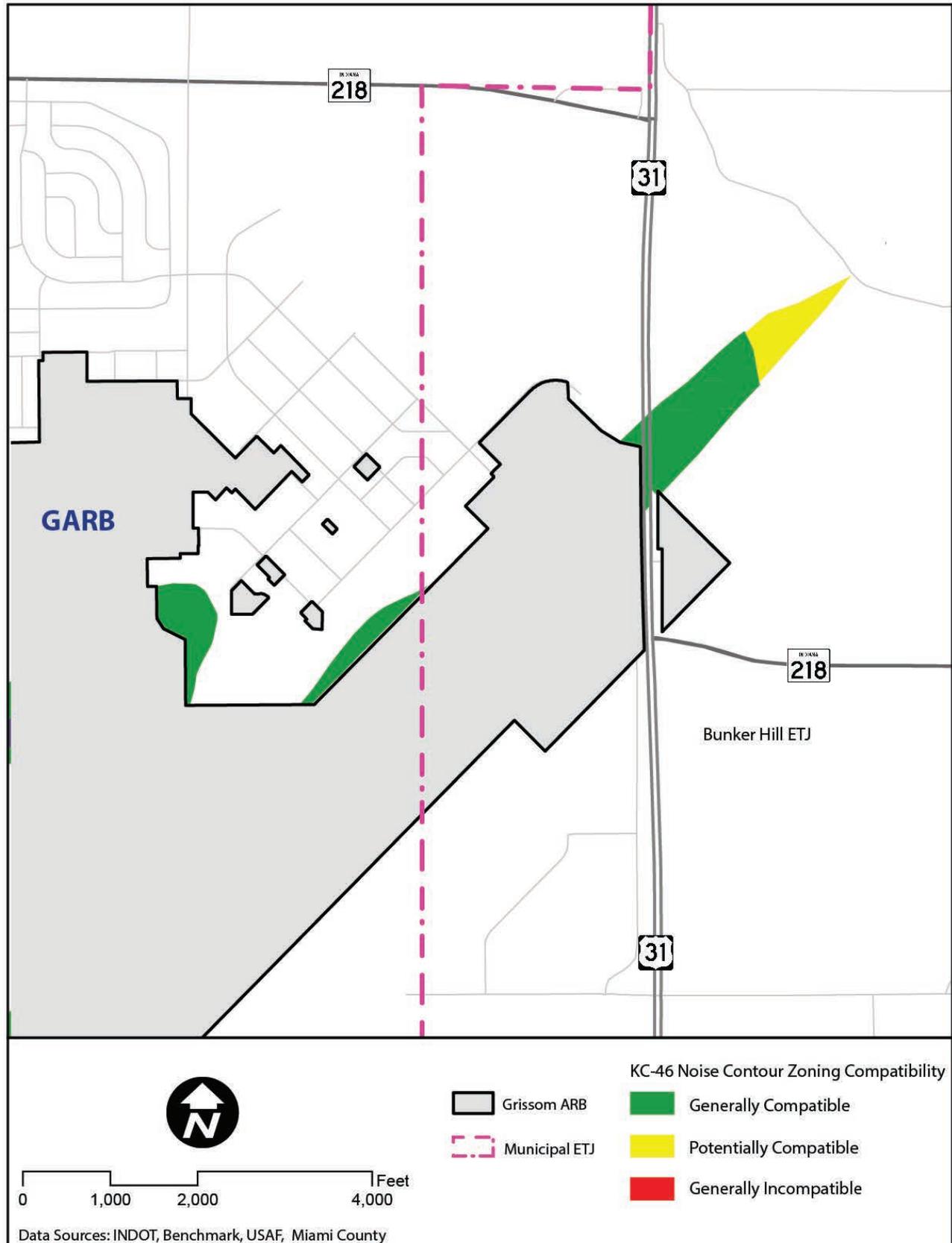
A map showing the expected compatibility of the KC-46 noise contours with the current zoning in Miami County and Bunker Hill is shown in Figure 3-27. Again, this is similar to the zoning compatibility analysis for the KC-135 noise contours. It is included in the study to provide additional insight into the consideration of compatible use overlays by the two affected jurisdictions. Note that the data used to prepare this map is based on a digitized version of the noise contour map from the EIS, and is approximate in its depiction of the location of the noise contours presented in that official map.

If adopted, the overlay ordinances being considered by Miami County and Bunker Hill during the JLUS Study would require new land uses to be consistent with Air Force Guidelines related to noise encroachment associated with the KC-46, as well as the KC-135. The draft overlays would increase noise compatibility of future land uses in these zoning jurisdictions.

It is advisable, however, to conduct an analysis prior to the expected transition to ensure land use changes and improvements in the KC-46 noise model are incorporated into a formal assessment of the compatibility of the new aircraft with existing and proposed land use plans at a point closer to the transition.



Figure 3-27. KC-46 Noise Contour Zoning Compatibility



## VII. Grissom ARB Accident Potential Zone Compatibility Analysis

The following is an analysis and summary of the land use patterns and land use compatibility within the areas that fall within the aircraft Accident Potential Zones established in the 2014 Grissom ARB AICUZ study for KC-135 or KC-46 operations, since accident potential zones are the same for each. Topics covered include analyses of the existing land use pattern, land subdivision patterns, current zoning, and future land use plans. These are followed by analyses of the compatibility of the established land use and regulatory patterns with the USAF AICUZ guidance for compatible land use within areas designated as aircraft Accident Potential Zones.

### A. Generalized Existing Land Use Pattern

Observations of the existing land use pattern within the aircraft Accident Potential Zones, as shown in Figure 3-28 and detailed in Table 3-14, reveal that nearly 85% of the land within the APZs is either undeveloped or used for agricultural purposes. The highest concentrations of agricultural and undeveloped land are found in the APZ areas at the southwestern end of the runway and in the APZ 2 area associated with the northeastern end of the runway. The off-base portion of the Clear Zone at the northeastern end of the runway has several commercial and other nonresidential uses within it, as does the APZ 1 zone, particularly along US 31. Residential uses are more prevalent in the northeastern APZ area, particularly around the transition area between APZ 1 and APZ 2. In summary, the southwestern APZ area is very rural in nature, with agricultural uses being the predominant type of land use in the area, while the northeastern APZ area is more developed and experiencing more transition to developed land uses, particularly in the area around Grissom and along the US 31 corridor.

Table 3-14. Accident Potential Zone Generalized Existing Land Use Summary

Existing Land Use	Acres	% of APZ
Agriculture	1,347	74.1%
Agriculture / Residential	111	6.1%
Residential	73	4.0%
Public / Institutional	95	5.2%
Commercial	13	0.7%
Industrial	10	0.6%
Undeveloped	169	9.3%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>



## B. Land Subdivision Pattern

The land subdivision pattern in the APZ area (see Figure 3-29) is consistent with the primarily agricultural existing land use pattern discussed in the preceding section. Emphasizing this is the fact that parcels larger than 10 acres in size account for close to 90% of the land area within the APZ, while parcels smaller than one acre in size make up less than 1% of the land area of the combined APZ. The only real concentration of smaller parcels in the combined APZ is found in the APZ 2 area associated with the northeastern end of the runway. Although a number of smaller parcels are also found in the southwestern APZ area, these tend to be scattered between the many large farms in the area, and not concentrated in a particular area.

Table 3-15. Accident Potential Zone Land Subdivision Summary

Parcel Size (acres)	Parcels	Acres	% of APZ
Less than 1	30	16	0.9%
1 – 5	42	97	5.3%
5 – 10	24	114	6.3%
Greater than 10	86	1,591	87.5%
<b>Total</b>	<b>182</b>	<b>1,818</b>	<b>100.0%</b>

## C. Zoning

In the APZs, agricultural zoning has been applied to over 90% of the overall area, and encompasses the entirety of the APZs at the southwestern end of the runway. Agricultural districts have also been applied to the entirety of the APZ 2 area at the northeastern end of the runway, as well as the preponderance of APZ 1. The remainder of the northeastern APZ 1 area, along US 31, is zoned for commercial use, while the off-base portion of the northeastern Clear Zone is split between industrial and commercial districts. Of note, the Cass County portion of the southwestern APZ area is also subject to the compatible use overlay district, which applies additional use and development restrictions within the APZ areas. The zoning map for the APZs is shown in Figure 3-30.

As noted with respect to noise compatibility, the overlays being considered by Miami County and the Town of Bunker Hill, if adopted, would increase accident potential compatibility by limiting new land uses through zoning that would be inconsistent with Air Force Guidance related to accident potential.



Table 3-16. Accident Potential Zone Generalized Zoning Summary

<b>Zoning</b>	<b>Acres</b>	<b>% of APZ</b>
Agriculture	1,669	91.8%
Residential	0	0.0%
Commercial	128	7.0%
Industrial	21	1.2%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>

### D. Future Land Use

Adopted plans guiding growth in the APZ areas designate the vast majority (nearly 85%) of the land for continued agricultural use (see Figure 3-31). Only a small percentage of the land in the APZs is designated for residential growth, although much of this is within APZ 1, along with a small amount in the southwestern CZ – primarily associated with existing residences. While the CZ at the southwestern end of the runway is primarily designated for agricultural use, the proposed land use pattern in the northeastern CZ calls for a mixture of commercial and industrial development, spilling across US 31 to the east side of the highway and into APZ 1.

Table 3-17. Accident Potential Zone Future Land Use Summary

<b>Future Land Use</b>	<b>Acres</b>	<b>% of APZ</b>
Agriculture	1,538	84.6%
Residential	75	4.1%
Commercial	88	4.8%
Commercial / Industrial	112	6.2%
Industrial	5	0.3%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>



Figure 3-28. Accident Potential Zone Generalized Existing Land Use Pattern

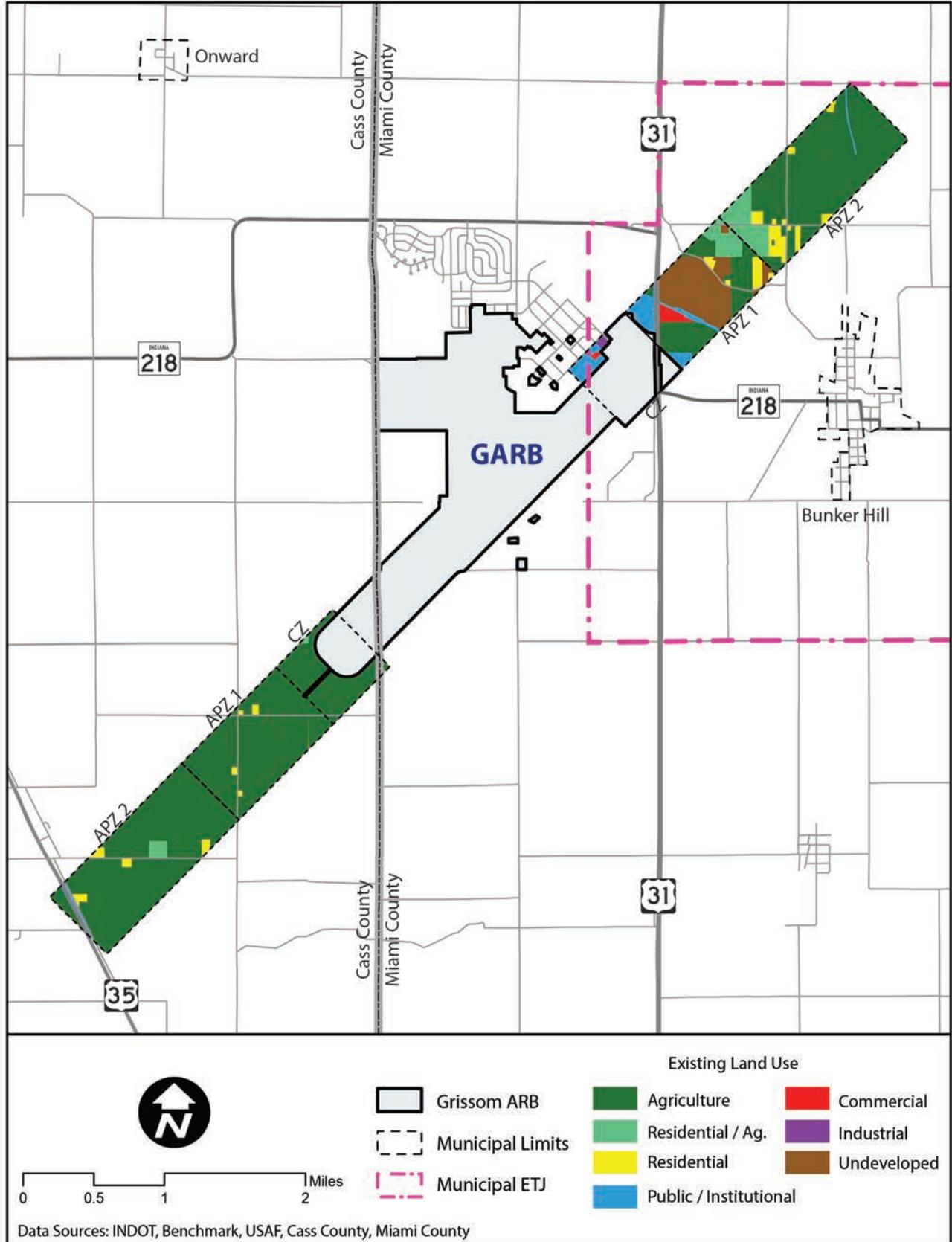


Figure 3-29. Accident Potential Zone Land Subdivision Pattern

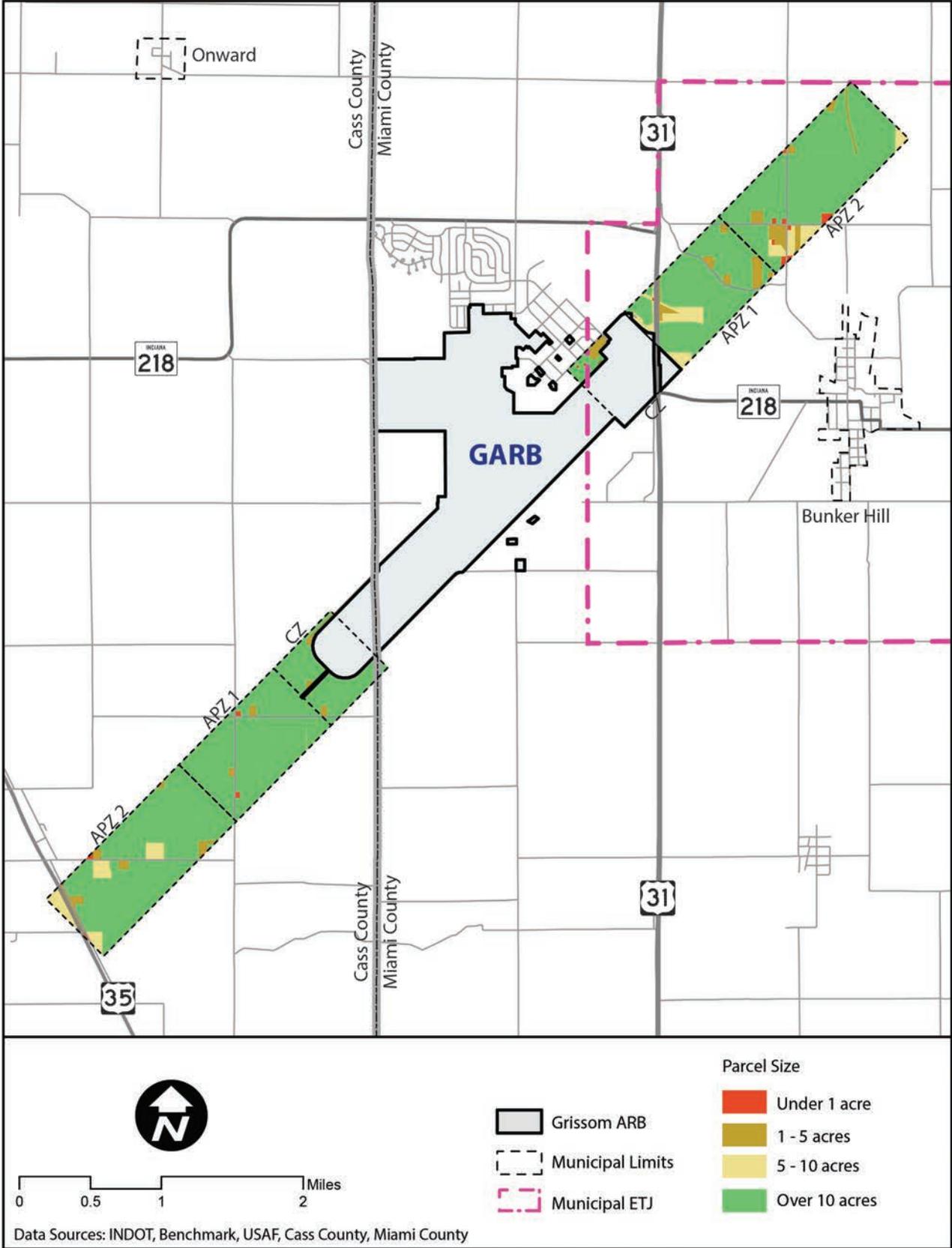


Figure 3-30. Accident Potential Zone Generalized Base Zoning Districts

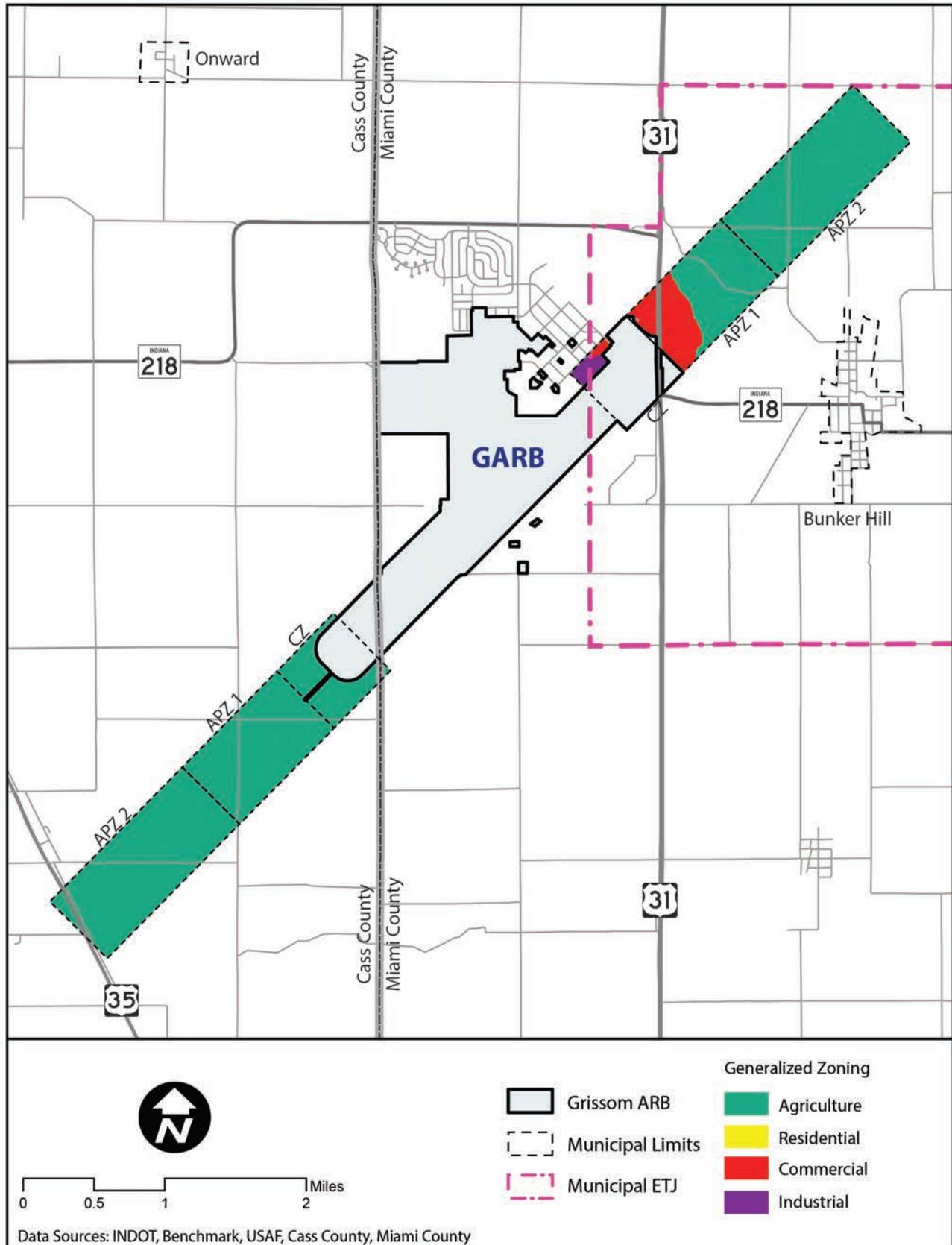
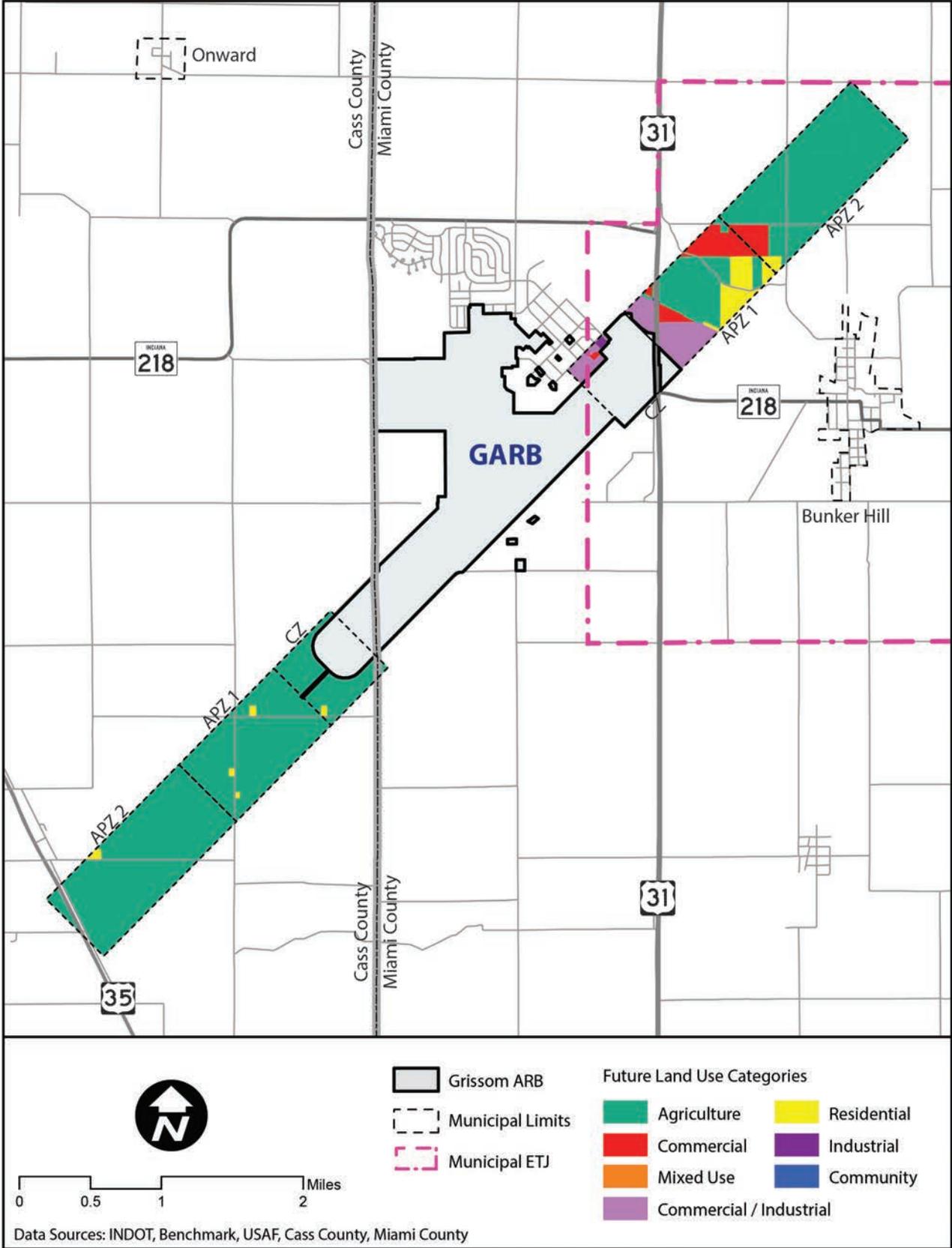


Figure 3-31. Accident Potential Zone Future Land Use Pattern



## E. Existing Land Use Compatibility

The map shown in Figure 3-32 identifies the compatibility of the existing land use pattern with the AICUZ compatible use guidance for APZs. As the table below indicates, the overwhelming majority of the land within the APZs is compatible with the AICUZ guidance. The majority of the parcels identified as being incompatible contain dwellings within the APZ 1 areas, along with the commercial area on Hoosier Boulevard that falls within the Clear Zone, the restaurant on the east side of US 31 that falls within APZ 1, and the Grissom Air Museum, which is in APZ 1 as well. Potentially compatible uses that were identified are primarily residential uses in APZ 2 which are situated on parcels that are smaller than the minimum size recommended to maintain a low density residential environment in that APZ.

Table 3-18. Grissom ARB Accident Potential Zone Existing Land Use Compatibility

Compatibility	Acres	% of APZ
Compatible	1,668	91.7%
Potentially Compatible	53	2.9%
Incompatible	97	5.3%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>

## F. Zoning Compatibility

The map in Figure 3-33 displays the analysis of current zoning compatibility with the AICUZ compatible use guidance. Due to the compatible use overly district that is in place in the Cass County portion of the APZ, the entire agriculturally zoned area at the southwestern end of the runway is identified as being compatible. At the northeastern end of the runway, the area within the Clear Zone that is zoned for commercial and industrial use is identified as incompatible, as is the portion of APZ 1 that is identified for agricultural use since residences are permitted in associated zoning districts, but recommended against in the AICUZ guidance. The commercial portion of APZ 1 is identified as *potentially* compatible due to the inclusion of a number of uses in commercial districts that may not be compatible based on the guidance. The APZ 2 areas at either end of the runway are actually compatible when zoned for agriculture given the large lot sizes required for residential development in these districts, when permitted.

As noted previously, during the course of the JLUS process, Miami County and Bunker Hill had under consideration draft overlay ordinances that would significantly address these incompatibilities related to accident potential within Miami County and Bunker Hill's extraterritorial jurisdiction.



Table 3-19. Grissom ARB Accident Potential Zone Generalized Zoning Compatibility

<b>Compatibility</b>	<b>Acres</b>	<b>% of APZ</b>
Compatible	1,433	78.8%
Potentially Compatible	122	6.7%
Incompatible	263	14.5%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>

### G. Future Land Use Compatibility

Like the zoning compatibility assessment for the APZ area at the southwestern end of the runway, the future land use compatibility assessment assumes the compatible use overlay Cass County has in place will remain in effect. Absent the compatible use overlay, both the APZ 1 and CZ in this area would be rated as incompatible or potentially compatible based on the permissive nature of the zoning districts associated with the agriculture future land use classification with regard to residential uses.

Overall, nearly 80% of the entire APZ area is assumed to be compatible with the future land use designations adopted in the related comprehensive plans. The majority of the remaining land is potentially compatible, based on the ultimate use of the property; while only around 5% has a future land use designation incompatible with the AICUZ guidance based on the typical associated zoning districts and permitted uses. Incompatible future land uses designations are found at the northeastern end of the runway in the CZ, and in areas designated for residential use in the northeastern APZ 1 area. A map detailing the APZ future land use compatibility assessment is shown in Figure 3-34.

Table 3-20. Grissom ARB Accident Potential Zone Future Land Use Compatibility

<b>Compatibility</b>	<b>Acres</b>	<b>% of APZ</b>
Compatible	1,434	78.9%
Potentially Compatible	288	15.8%
Incompatible	96	5.3%
<b>Total</b>	<b>1,818</b>	<b>100.0%</b>



Figure 3-32. Accident Potential Zone Existing Land Use Compatibility

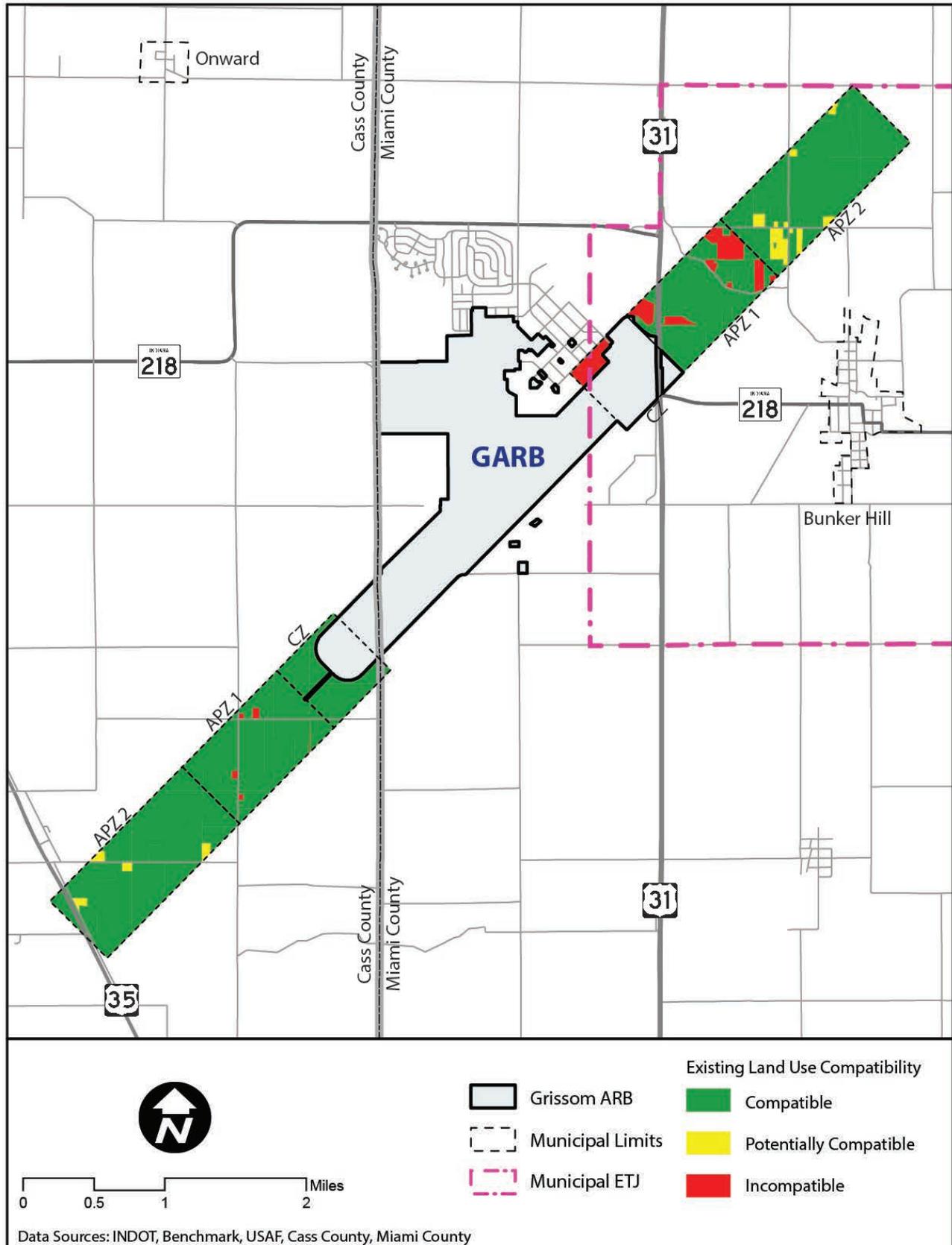


Figure 3-33. Accident Potential Zone Current Zoning Compatibility

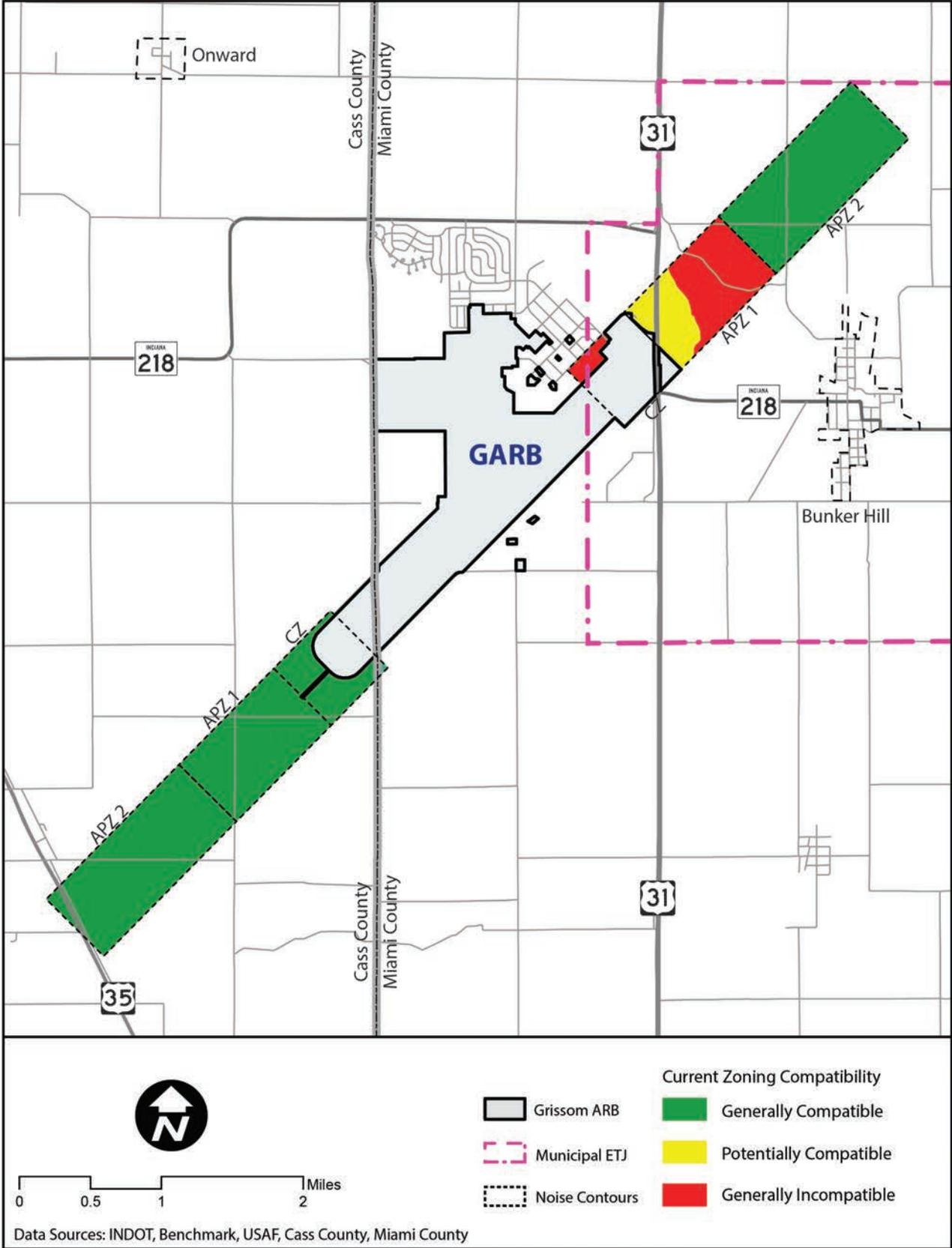
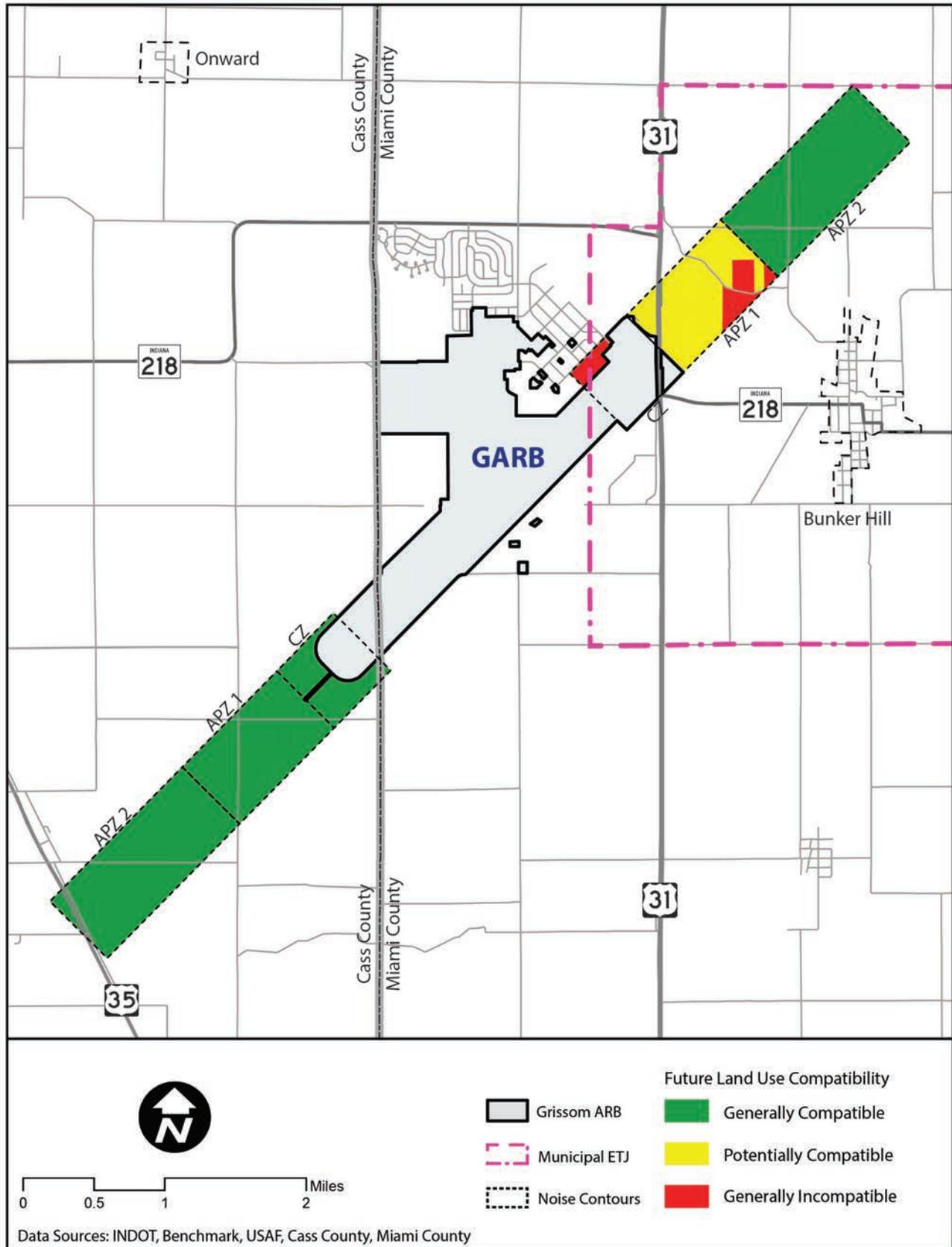


Figure 3-34. Accident Potential Zone Future Land Use Compatibility



## VIII. Airspace Management and Protection

The primary concerns from a land use perspective with regard to protection of airspace are tall structures that might penetrate the imaginary surfaces (see Figure 3-35) associated with the airfield at Grissom ARB or which might otherwise obstruct or interfere with flight operations in the imaginary surfaces or in the military operations areas (see Figure 3-36) near the installation.

While any tall structure that penetrates an imaginary surface can obstruct safe aerial navigation, wind turbines have become a particular concern for military operations in central Indiana given their proliferation nearby to Grissom, as evidenced by the map shown in Figure 3-37, and the planned expansion of these energy generating facilities, as shown in the map in Figure 3-38.

The concern is not only with regard to the potential physical obstruction of low-level airspace, but also with regard to the interference wind turbines cause with airport surveillance radars, which can make safe navigation more difficult. While this has not emerged as a major threat to Grissom yet, ongoing vigilance is required.

At the time the JLUS was conducted, a large wind energy project was under development in northern Cass and Miami Counties (see Figure 3-39). The Harvest Wind Project does not appear to present a conflict to Grissom ARB in terms of physical obstructions, given the distance of the project from Grissom's imaginary surfaces. However, the potential impact of radar interference cannot be assessed at this time because specific turbine locations are not yet known; further analysis is needed once the latitude and longitude of specific locations are identified. This evaluation can occur via discussions with Grissom ARB, though the preferred method for coordination is through the DoD Siting Clearinghouse process since it provides an applicant with comments and concerns related to all DoD assets, from all installations and branches. For further discussion of the Military Aviation and Installation Assurance Siting Clearinghouse, please refer to Chapter 5, Section IV.

As detailed in Chapter 4, Miami County and Cass County have adopted regulations specifically addressing the location and approval processes required for a proposed "wind energy conversion system" (WECS) and, in 2016, Cass County adopted significant height restrictions in areas nearest to Grissom ARB, though not within the entirety of the lands under all imaginary surfaces. At the time the JLUS was conducted, Miami County and Bunker Hill had under consideration the adoption of overlay ordinances that would require Grissom ARB review of any wind facility within the entirety of the imaginary surfaces areas, illustrated in Figure 3-35.

In 2017, the Indiana General Assembly passed a law (Public Law 261) exempting from local zoning regulations small cell facilities that are below a certain height (the greater of either 50 feet; or the height of any existing utility pole located within 500 feet, plus 10 feet) and that are proposed to be located in a public right-of-way. As shown in Figure 3-40, there are a number of public rights-of-way near Grissom ARB that could, under this law, end up with an exempt small cell facility that penetrates an imaginary surface. For further discussion of this law, as well as related bills filed in 2018, please refer to Chapter 5, Section III.

## IX. Night Lighting

Increased nighttime lighting from urban development, industry, and similar light generation sources can impair the ability of military pilots to train using night vision devices if light pollution reaches a level that negates the practical effectiveness and intended use of the equipment. In addition to the degraded nighttime operating environment posed by light pollution, urban development with unshielded outdoor lighting fixtures in the vicinity of an airport can impair a pilot's vision if



Figure 3-35. Grissom ARB Imaginary Surfaces

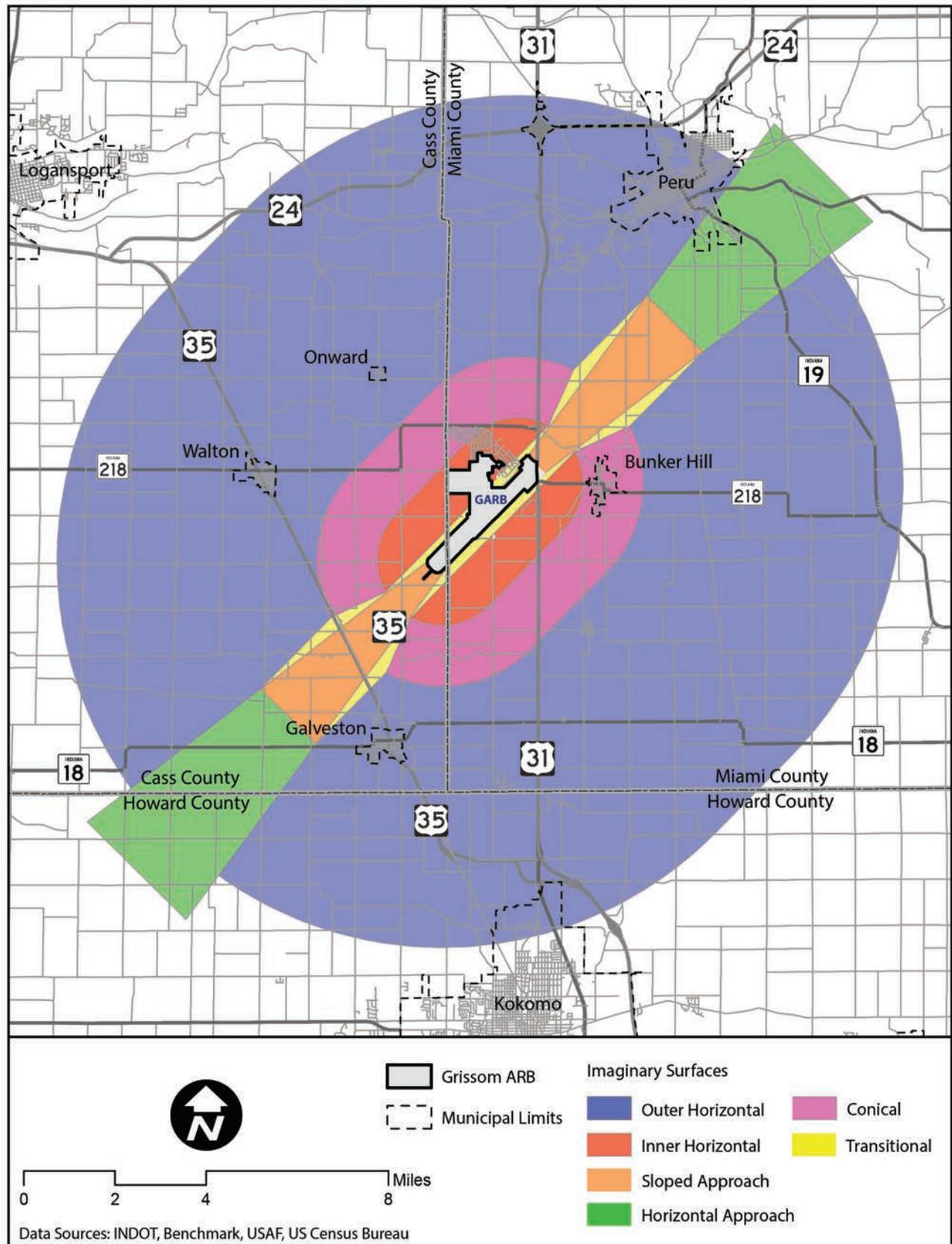


Figure 3-36. Special Use Airspace

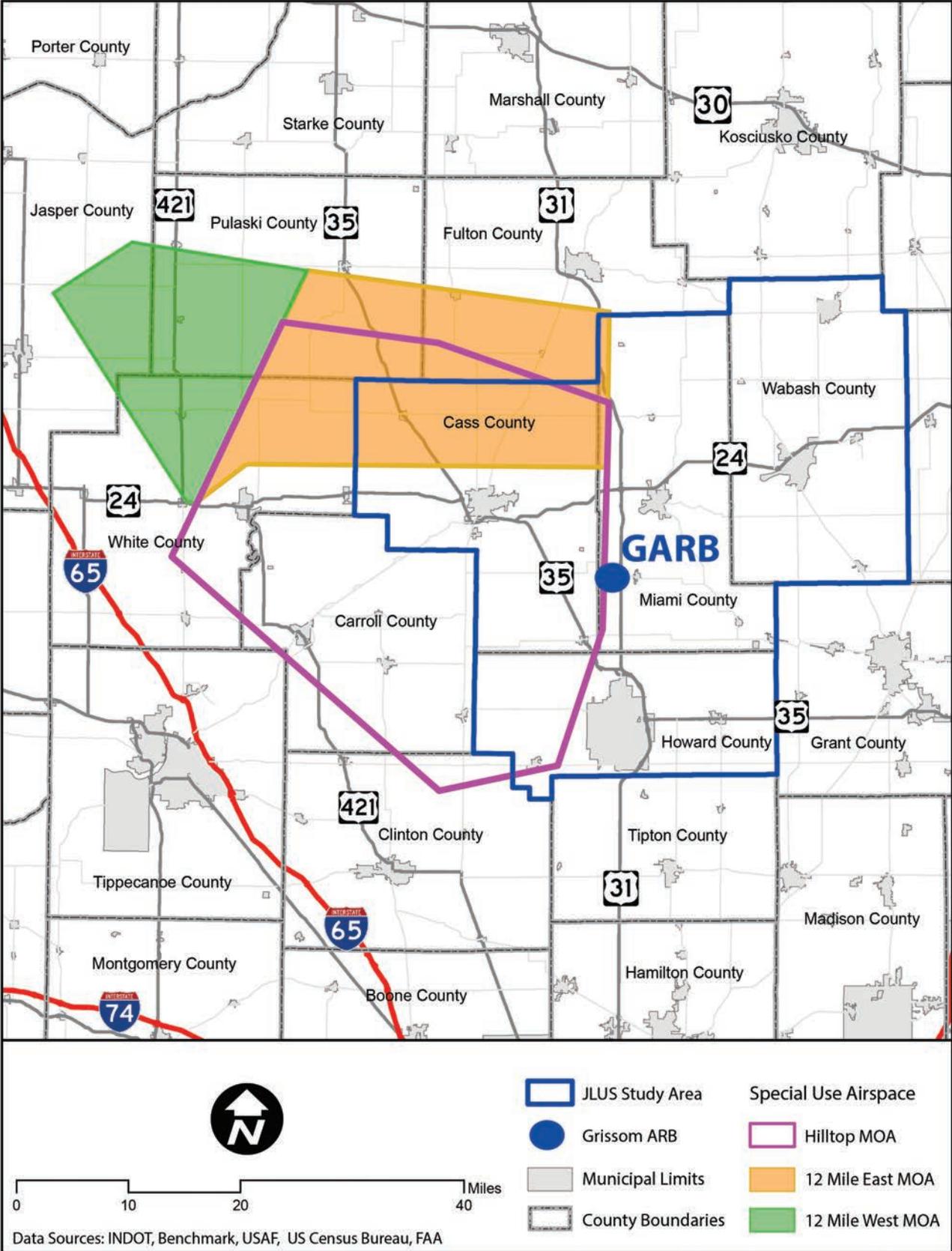


Figure 3-37. Constructed Wind Turbines

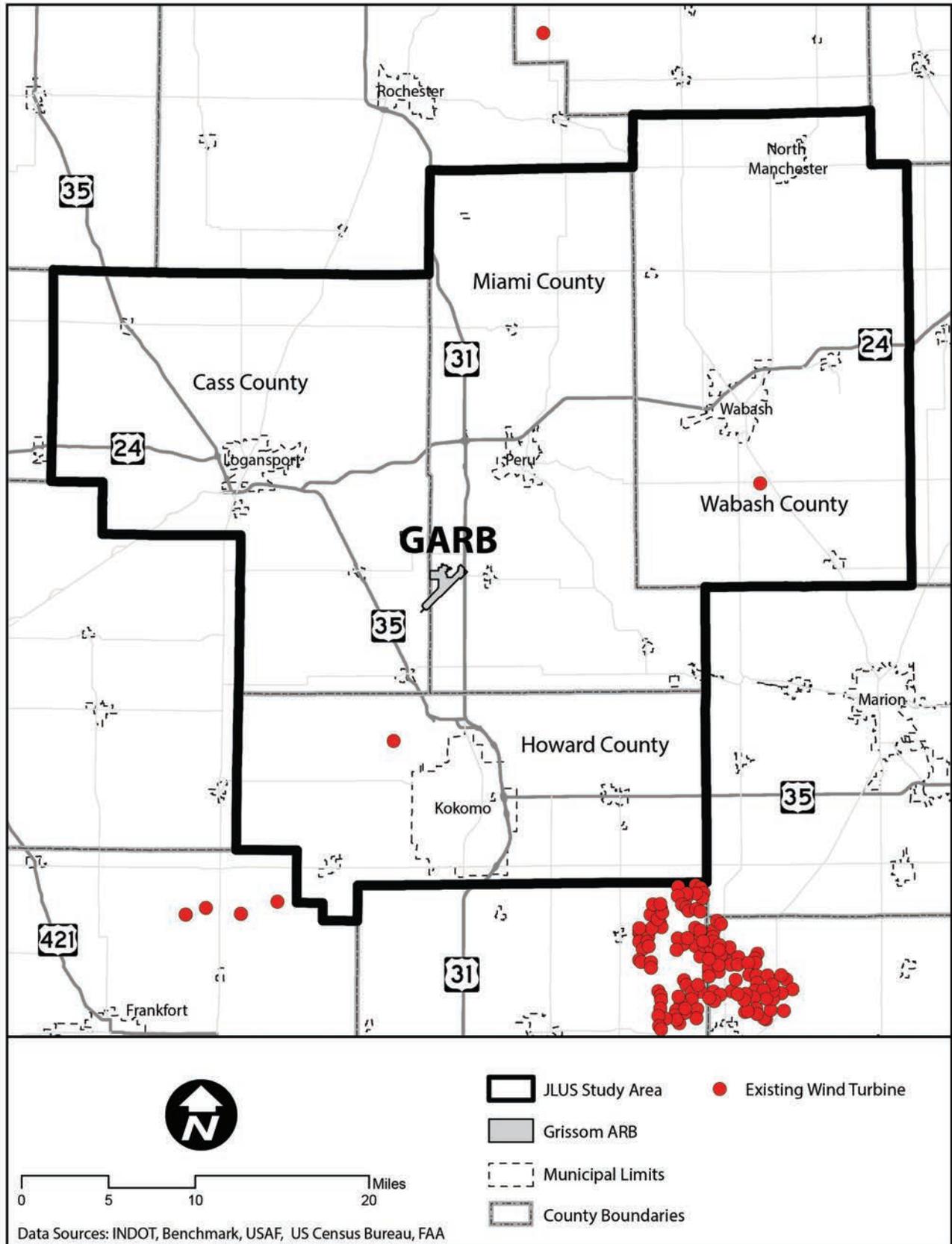


Figure 3-38. Planned Wind Turbines

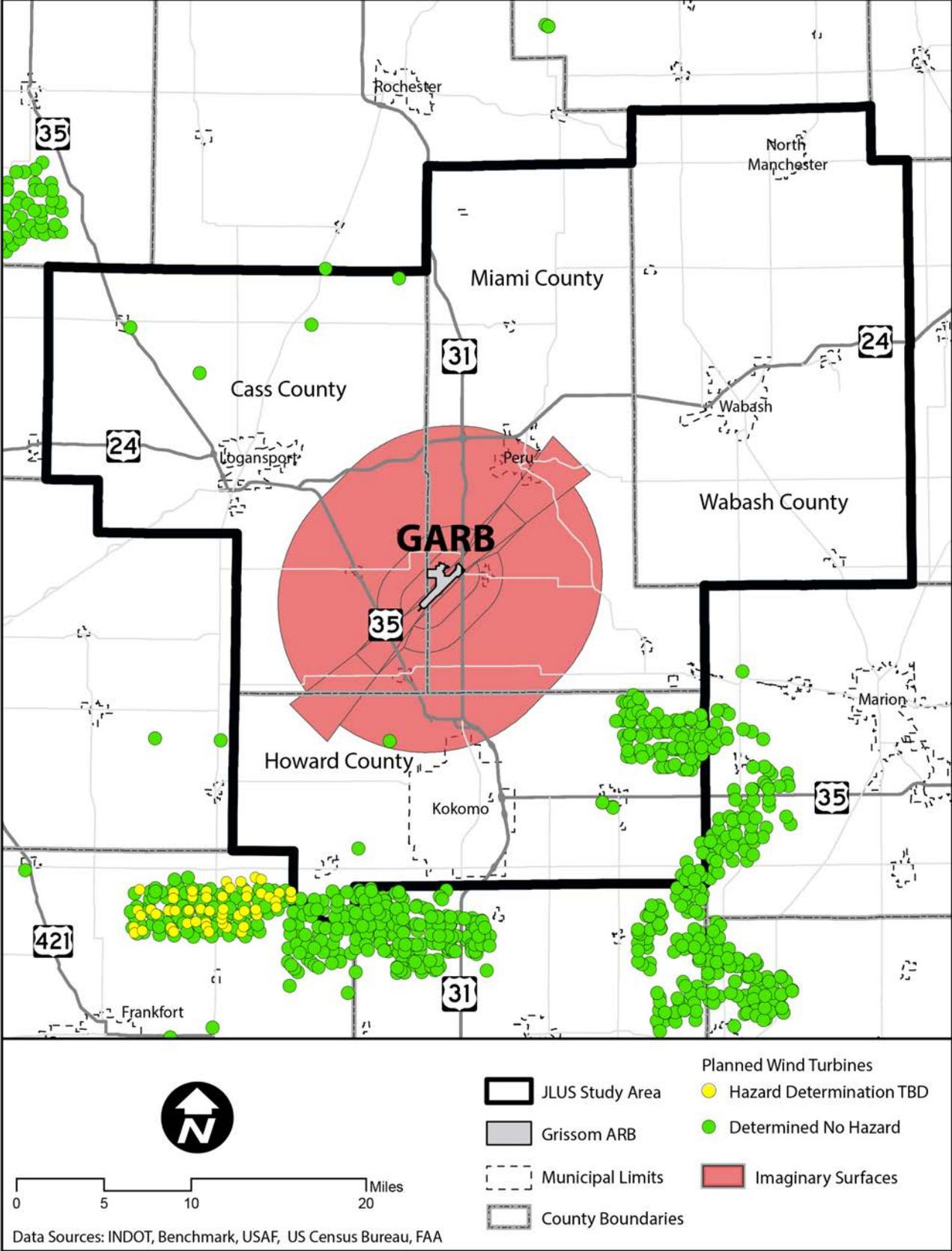


Figure 3-39. Harvest Wind Project Area

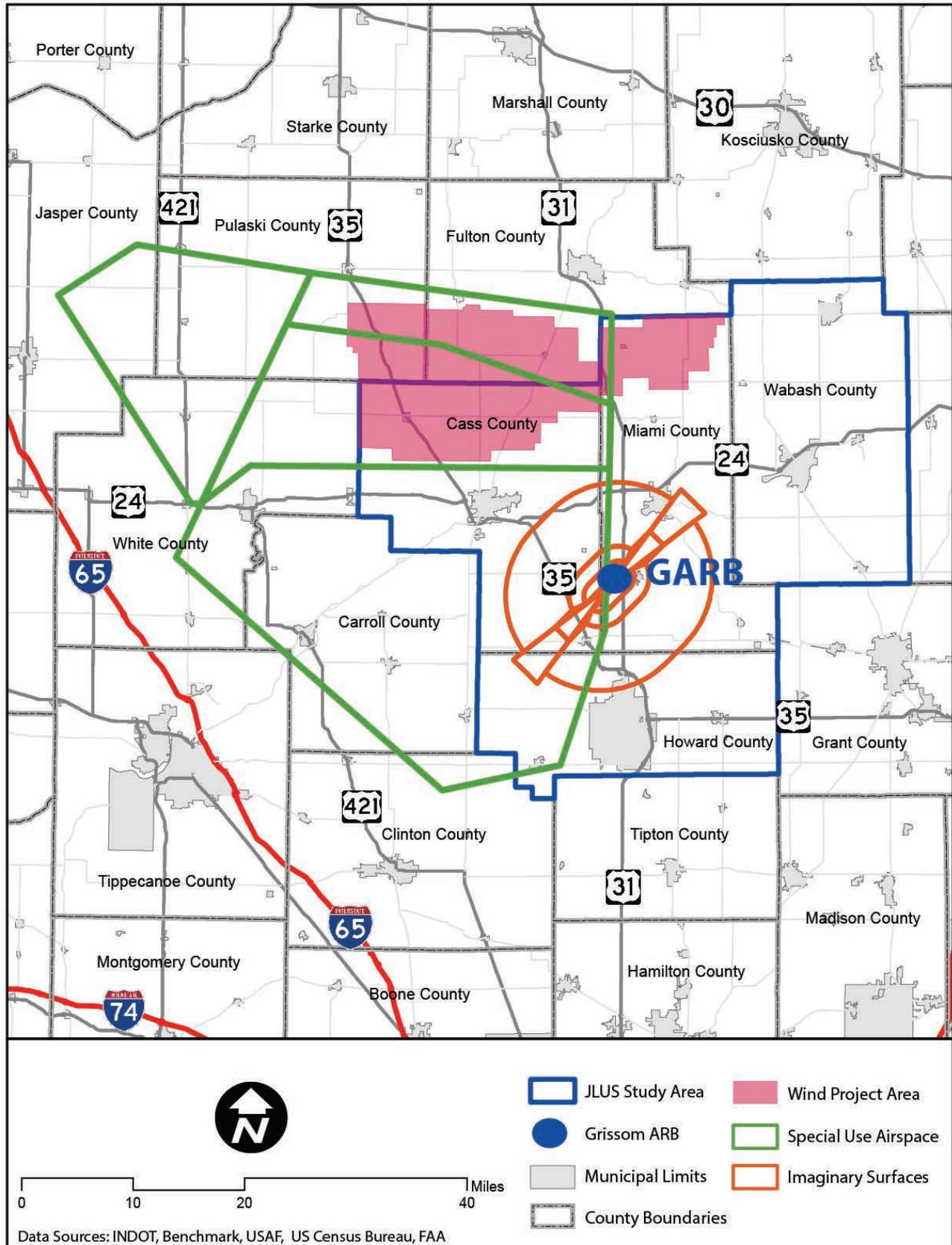
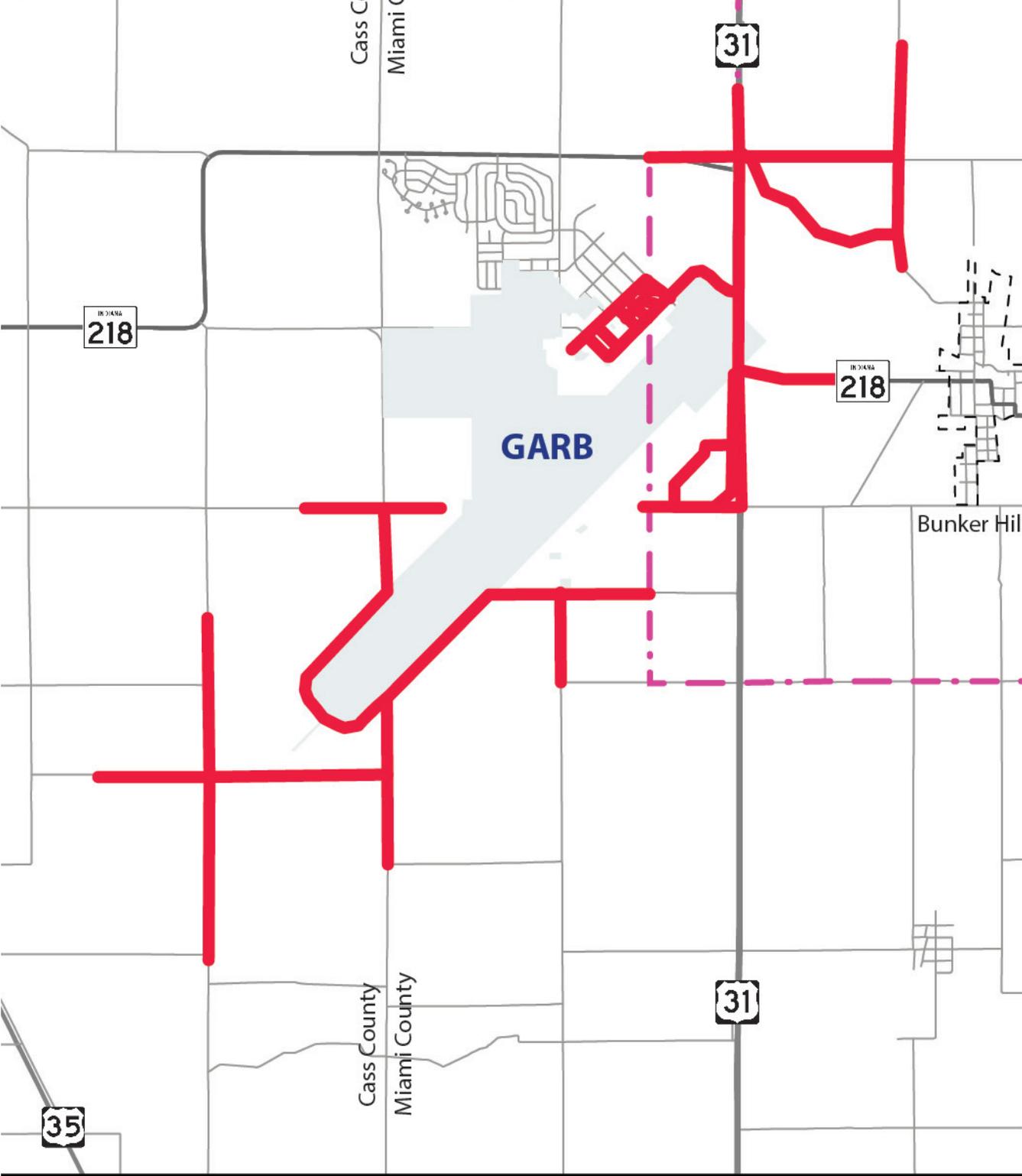


Figure 3-40. Public Rights-of-Way in the Grissom ARB Imaginary Surfaces



- Grissom ARB
- Municipal Limits



directed at the approach and departure paths to and from the runway.

Two maps, shown in Figures 3-41 and 3-42, demonstrate the increase in visible outdoor lighting at night between the years of 1994 and 2013. While there has always been light pollution from urban areas around Grissom, and even from Grissom itself, the decrease in the amount of “dark area” around the installation over this period of time is pronounced. With regard to potential sources of nuisance lighting for safe navigation into and out of Grissom, the state prison, with its high intensity nighttime security lights, as well as the ongoing development and potential for development of commercial uses along US 31 stand out as areas of concern going forward.

## X. Transportation Facilities & Planned Improvements

There are several existing transportation routes that pass through Grissom’s Clear Zones on lands outside the base. The first are Runway Road and County Road 950. Runway Road runs along the southern boundary of the installation and passes through the southwest Clear Zone. County Road 950 passes through the southern corner of the southwest Clear Zone, as well. Highway 31 passes through the northeastern Clear Zone.

AFI-7063 (2015) states that “Roads within the graded portion of the Clear Zone are prohibited. All roads within the Clear Zone are discouraged, but if required, they should not be wider than two lanes and the rights-of-way should be fenced (frangible) and not include sidewalks or bicycle trails. Nothing associated with these roads should violate obstacle clearance criteria.”

None of Highway 31 or County Road 950 are in the graded area of a Clear Zone, though a portion of Runway Road is (approximately 1,000 feet). To date, Grissom ARB has coordinated with local law enforcement to monitor travel along these roads and, given the relatively low volume of traffic, Grissom reports that it is not presently concerned with conflicts in these areas. Nonetheless, the Policy Committee discussed this situation during the JLUS and recommended additional signage be placed along the roadways in the southwestern Clear Zone, similar to that which has been placed in the northeastern CZ. And, it further recommended monitoring the situation and if conflicts develop, to evaluate the need for traffic or access control devices or signals in the future.

As discussed earlier in the analysis, the ongoing efforts to upgrade US 31 through the area around Grissom ARB bring both the potential for new opportunities and improved safety, but also the threat of impediments to maintaining good access to the installation, the Aeroplex, and surrounding communities. In discussion with Grissom ARB and the JLUS committees, the potential improvements to US 31, as detailed in Figure 3-43, is the concept preferred by the community at the present time.

These changes would both provide safer access to the installation and the Aeroplex and potentially improve access to land that has been set aside for development in the area while long-planned upgrades to the highway have been pending. Upgrading the highway with interchanges and managing access will improve both safety and increase the throughput of traffic through the area, both of which are local priorities. As discussed with the JLUS committees, interim upgrades that would impede access to the installation or the Aeroplex, or which would decrease safety along the thoroughfare are largely opposed by the community.

From a land use compatibility perspective, the improvements to the highway may bring increased growth pressure, making vigilance by the local governments even more important as the area continues to grow. Of particular concern would be increased pressure for residential development within the APZ areas or noise zones, and so maintaining or adopting compatible use regulations for these areas ahead of any increase in growth pressure could help to ensure long-term compatibility.



Figure 3-41. 1994 NOAA Visible Night Lighting Measurement

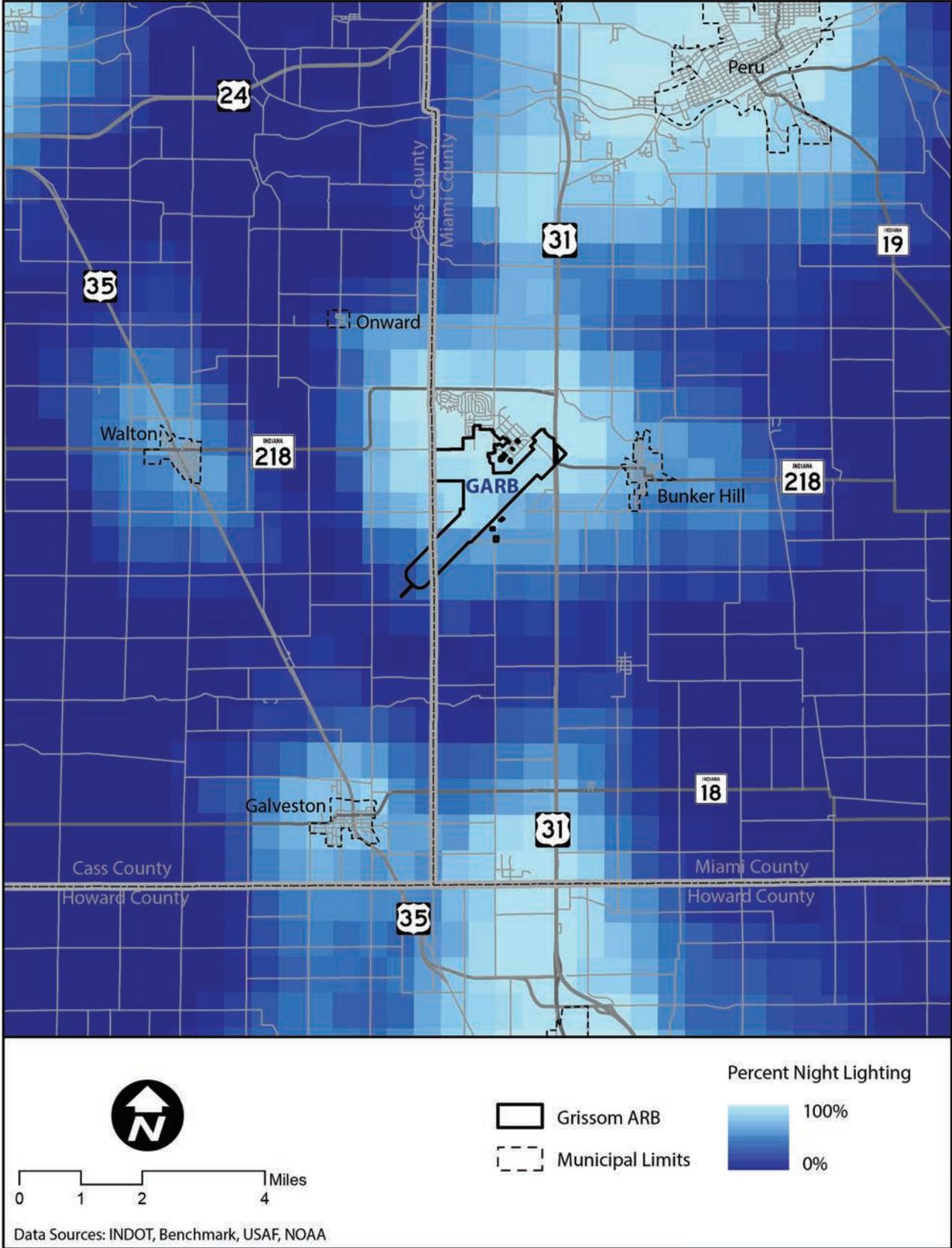


Figure 3-42. 2013 NOAA Visible Night Lighting Measurement

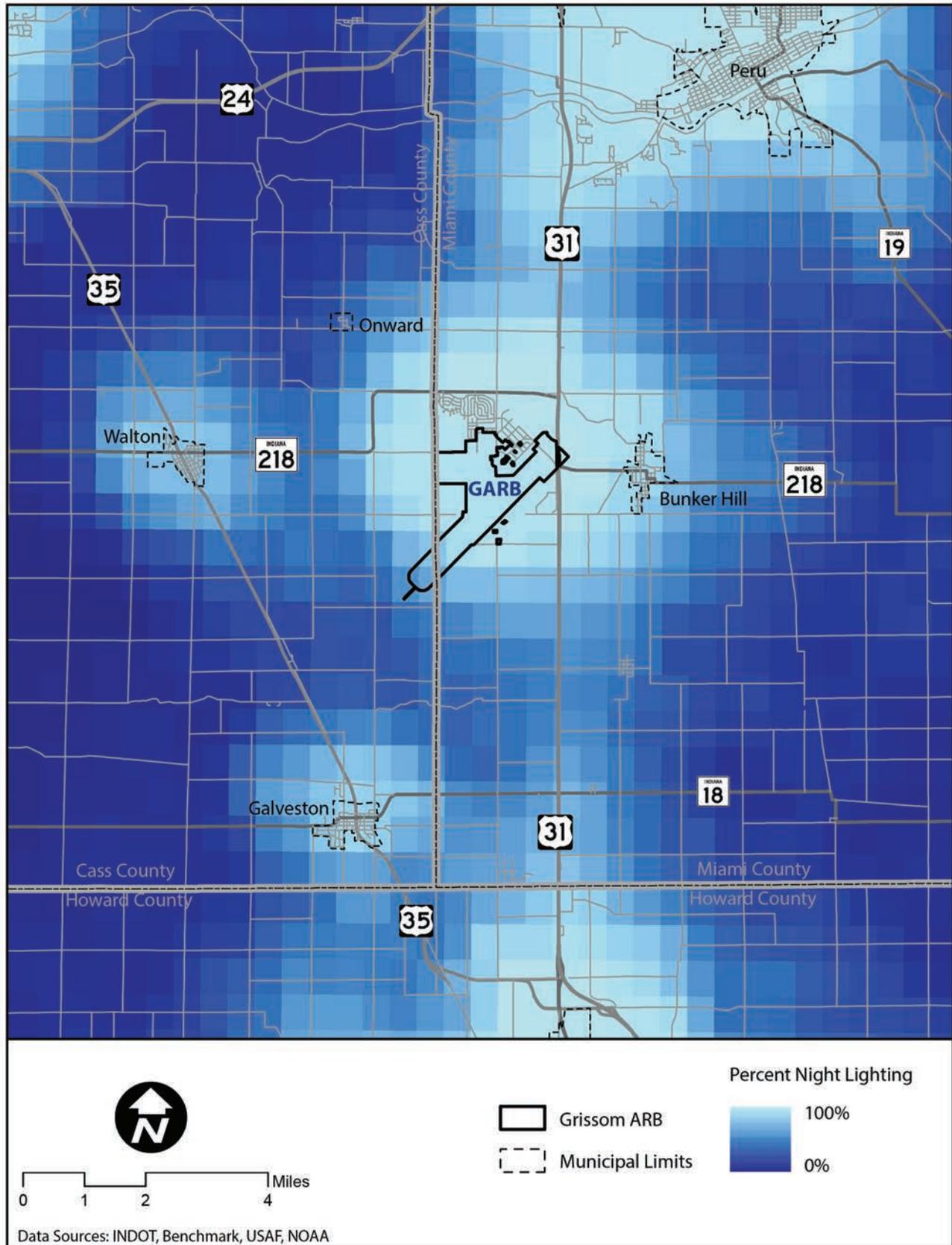
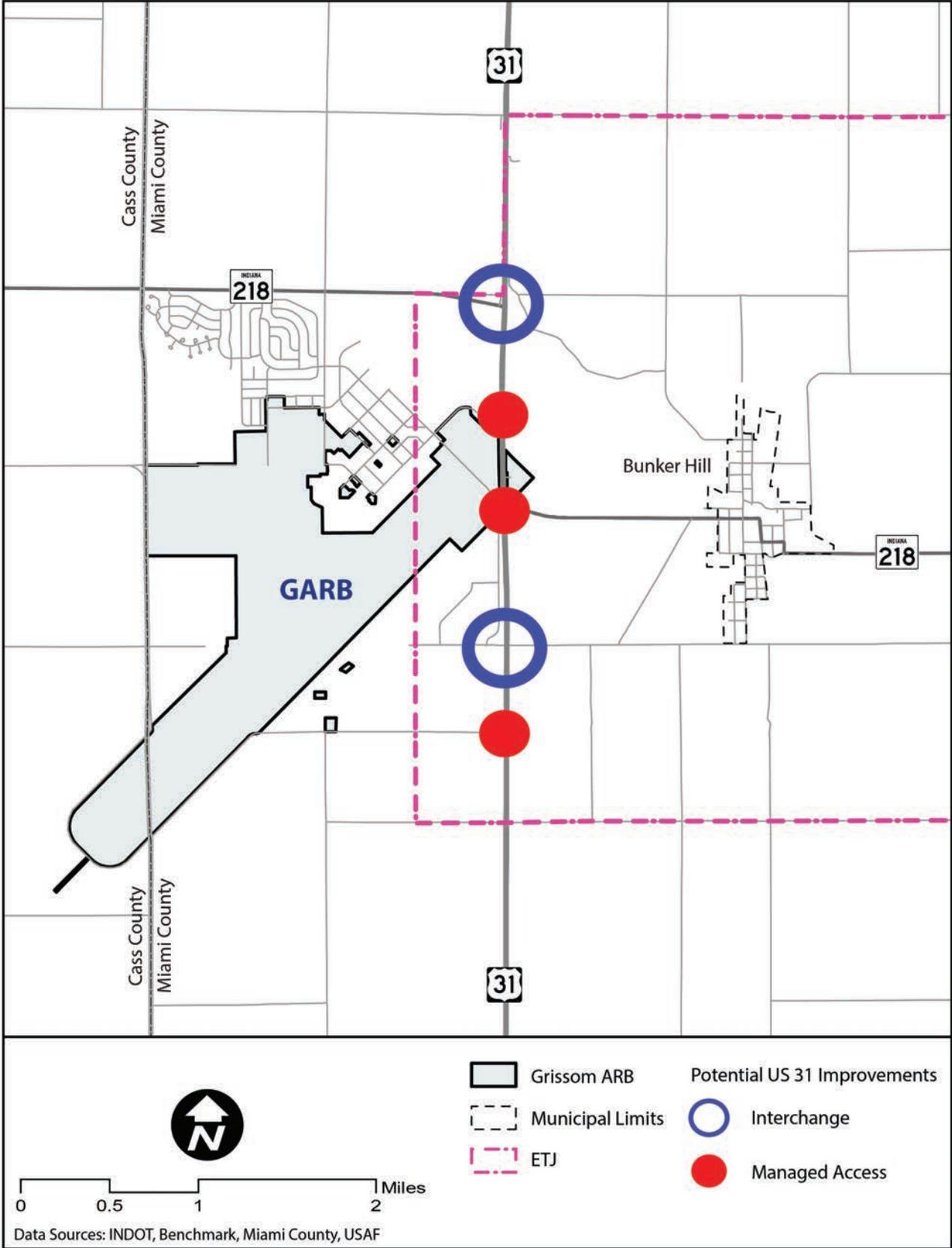


Figure 3-43. Potential US Highway 31 Improvement Concept





*Chapter 4:  
Local Government  
Plans & Ordinances*

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## I. Generally

The JLUS Team reviewed existing local government legislation and comprehensive plans in order to fully understand how land use compatibility between civilian land uses and operations at Grissom Air Reserve Base (Grissom ARB) are currently addressed by the local jurisdictions in the JLUS Study Area (the “JLUS Jurisdictions”). This effort included, for each participating municipality and county, a review of local codes, zoning regulations, subdivision ordinances, and comprehensive plans.

The Team also reviewed local plans as they relate to economic development and transportation infrastructure to better understand the regional economy and potential future growth areas.

[Appendix F](#), “Overview of Local Legislation and Comprehensive Plans,” summarizes the extent to which or whether each local government has addressed military compatibility in their comprehensive plans or regulatory codes. The following sections detail the information summarized in the overview.

All JLUS Jurisdictions, except the Town of Onward, regulate zoning and land use. Of those with zoning regulations, all but Converse also have subdivision regulations. None of the JLUS Jurisdictions have military-related subdivision regulations, and only Cass County (currently) has a military-related overlay zoning district and associated land use limitations. However, Miami County and the Town of Bunker Hill are, at the time of this writing, in the process of creating overlay zoning districts.

Cass County, Miami County, and the Town of Bunker Hill experience the most significant impacts from Grissom ARB. Portions of each jurisdiction are located in Grissom’s Accident Potential Zones, Noise Zone 65-69 dB DNL, Noise Zone 7-74 dB DNL, and imaginary surfaces.

Miami County’s Wind Energy Conversion Systems (WECS) Siting Ordinance is the most comprehensive of the seven JLUS Jurisdictions that regulate WECS (including the proposed Wabash County regulations).

Howard County and the City of Kokomo are the only two JLUS Jurisdictions addressing noise attenuation in new construction. Each has an Airport Hazard Overlay District, which encourages structures to be built with soundproofing techniques to minimize interior noise from aircraft. However, these standards are being enforced to mitigate sound associated with the Kokomo Municipal (civilian) Airport in Howard County.

Just under half of the JLUS Jurisdictions explicitly regulate outdoor lighting, to one extent or another, while several others have general lighting requirements associated with particular uses.

## II. Counties

In their comprehensive plans, Miami and Cass Counties include general land use policies related to Grissom ARB and the Grissom Aeroplex. Miami County’s plan includes a number of specific recommendations and action items related to Grissom ARB and the Aeroplex.

All four counties have adopted zoning and subdivision regulations. Only Cass County has a military-related zoning overlay district, though Miami County and the Town of Bunker Hill were in the process of developing an overlay district related to Grissom ARB during the JLUS process.

With the exception of Wabash County, all counties regulate wind energy facilities. Wabash County is in the process, however, of drafting a new zoning code that is proposed to include regulations for wind and solar facilities. If adopted, this will be the only JLUS Jurisdiction regulating solar energy facilities.



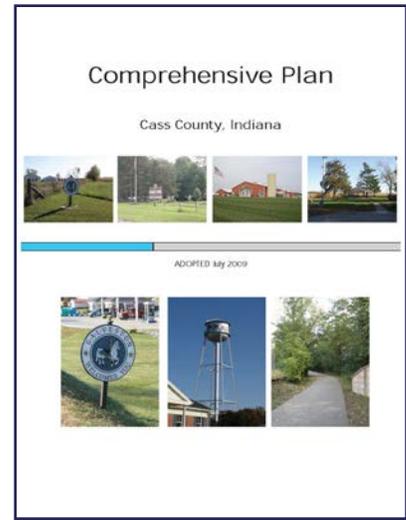
Howard County’s current zoning code and Wabash County’s proposed zoning code regulate outdoor lighting and require on subdivision plats a notice of agricultural activities occurring in proximity to the subject property.

While Howard County encourages their use in its airport overlay district, none of the four counties require noise attenuation construction techniques to mitigate potential impacts from aircraft or military operations.

**A. Cass County**

*Grissom ARB Impacts*

Cass County is one of the JLUS Jurisdictions most affected by Grissom ARB operations. Grissom’s southwestern Accident Potential Zones are primarily located within unincorporated Cass County (a very small portion of the southwestern Clear Zone is located within Miami County as well, see Figure 3-10 in Chapter 3). Although Grissom’s noise contours are largely contained within the installation boundaries, a portion of the least intensive Noise Zone (65-69 dB DNL) associated with the KC-135 aircraft extends off the installation into Cass County. At least a portion of all Grissom ARB’s imaginary surfaces encompass lands in Cass County.



*Comprehensive Plan*

The 2009 Cass County Comprehensive Plan includes an economic development objective to promote development of the Grissom Aeroplex, with associated action items including support of Grissom committees and boards (p. 11-3).

*Zoning Regulations*

When the JLUS project began, Cass County was the only JLUS Jurisdiction with a military-related zoning overlay district. The Grissom Air Reserve Base Overlay District (Cass County Zoning Ordinance Article 4, Section 406), established in 2016, regulates land use and structure and vegetation height in the vicinity of the installation. The Cass County overlay establishes three districts: Clear Zone, APZ I, APZ II, Inner Conical Surface, and Outer Conical Surface. As currently drafted, these districts reflect but are not completely consistent geographically with the areas described by the 2014 AICUZ Study or Federal Aviation Administration guidance.

In the Cass County Clear Zone, the only permitted use is cropland (excluding orchards). Construction of structures and planting of vegetation other than agricultural crops is allowed only when approved by the Board of Zoning Appeals as a Special Exception. In Cass County Accident Potential Zone (APZ) I, permitted uses are limited to cropland (excluding orchards), pasture and grazing livestock (excluding confined feeding operations), and agricultural buildings. Structure height is limited to thirty-five feet, and vegetation may be planted only if it will not exceed fifty feet in height at maturity. In Cass County APZ II, permitted uses are all those allowed in APZ I, as well as all residential uses permitted in the AG, Agricultural Zoning District. Maximum structure height is fifty feet, and vegetation may be planted only if it will not exceed one hundred feet fully grown.

The overlay district also regulates land use and height in the installation’s imaginary



surfaces. In the County's Inner Conical Surface, permitted uses are all those permitted in the AG District and structure height is limited to 150 feet. In the County's Outer Conical Surface, all uses permitted in the underlying zoning district are allowed. Structures cannot exceed 500 feet. In both imaginary surfaces, the ordinance prohibits any land use that would create dust, glare, bird strike hazards, or frequency interference.

All proposed development in the overlay district requires notice to Grissom ARB's Encroachment Committee. Within two days of the notice, the Committee must inform County staff whether the proposed development will impact operations at Grissom ARB. If there is a potential impact, the Committee has one week to provide a written response to staff describing the impact.

Cass County's Zoning Ordinance also establishes a non-military airport overlay zoning district, the Logansport/Cass County Airport Overlay District (Cass County Zoning Ordinance Article 4, Section 404). This overlay district was also adopted by the City of Logansport. Structures and vegetation of any kind are prohibited in the Inner Section of the Airport Approach Areas, and structure height is limited in the horizontal and conical surfaces. Uses causing glare, emissions, or communication interference are prohibited on properties in proximity to the airport. Proposed development of property located within the overlay district, as well as rezoning, variance, and special use permit requests, requires review by the Airport Authority Board.

Cass County amended its Zoning Ordinance in 2009 to establish regulations for Wind Energy Conversion Systems (WECS). The provisions of Chapter 5, Section 523, apply to Commercial, Non-commercial, and Micro WECS.

Micro WECS supply power to individual homes or other local sites for use by the owner (Cass County Zoning Ordinance, Sec. 201, Definitions). Due to their small size, Micro WECS are a permitted use in all zoning districts, except in the Cass County Gateway Overlay District where they are a special exception use, requiring approval by the Board of Zoning Appeals (BZA).

Non-commercial WECS are generally smaller in size than Commercial WECS and are intended to provide power for the owners of, for example, a business, school, or factory (Sec. 201). Where allowed, Non-commercial WECS require special exception approval.

Commercial WECS are large utilities intended to capture wind energy for use on the electrical grid (Sec. 201). These facilities are expressly permitted from County Road 200N to the northern Cass County line, regardless of the zoning district in which the facility is located. In other areas of the County, Commercial WECS are a special exception use in the Agricultural (AG) District and prohibited in all other districts. If located in the Grissom ARB Overlay District and the underlying zoning is AG, Commercial WECS are allowed with special exception approval – provided they are located in the Inner or Outer Conical Surface and meet the height limits (150 feet and 500 feet, respectively). If they are located in the CZ, APZI, or APZII, a use variance (but not a special exception) must be approved by the BZA.

Finally, the Cass County Zoning Ordinance also includes general regulations concerning outdoor lighting associated with off-street parking areas with twenty or more spaces, off-premises signs, and for development located within the Cass County Gateway Overlay District. The regulations primarily focus on protection of adjacent properties and streets from potential negative impacts of outdoor lighting.



## B. Howard County

### *Grissom ARB Impacts*

Howard County is not located within Grissom’s Accident Potential or Noise Zones, but does lie within its imaginary surfaces.

### *Comprehensive Plan*

The Howard County Comprehensive Plan does not discuss Grissom ARB, but extensively addresses the Kokomo Municipal Airport. This section of Howard County’s plan is reviewed here for background on how the County handles air operation impacts. At the time the JLUS was performed, noise and accident potential contours associated with Grissom ARB’s air operations did not include Howard County, although a portion of Grissom’s imaginary surfaces did.

The plan includes a Land Use Strategy to “protect the Kokomo Airport by discouraging residential development, other noise sensitive development, and incompatible land uses within one mile of the airport boundaries” (Howard County Comprehensive Plan, p.31).

The Future Land Use Map includes an Airport Hazard Zone land use category, described as a “region around the airport with limitation on development to protect the airspace and long-term operations of the airport. This area would discourage or disallow uses that would be adversely affected by the noise from aircraft” (Id. p. 36).

These land use recommendations are implemented through the Airport Hazard Area Overlay District, discussed below.

### *Zoning Regulations*

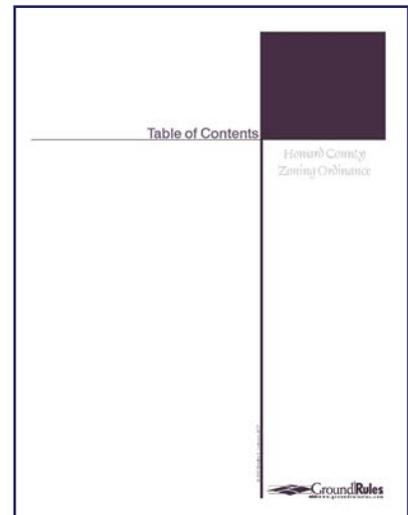
The Howard County Zoning Ordinance establishes the Airport Hazard Area Overlay (AH-OL) District, intended to minimize incompatibilities between the Kokomo Municipal Airport and adjacent land uses. Certain land uses, such as residential uses and hospitals, are prohibited within the AH-OL. The AH-OL establishes other development standards, including maximum structure height and standards related to lighting.

Howard County is one of only two JLUS Jurisdictions addressing noise attenuation in its code. In the AH-OL, the County encourages structures to be built with soundproofing techniques to minimize aircraft noise experienced within the building.

The Zoning Ordinance regulates outdoor lighting in all zoning districts. The standards are intended to eliminate glare and light trespass onto adjacent properties.

Howard County regulates Wind to Energy Facilities by size (small, medium, and large) and permits them as utility uses in most zoning districts. The most extensive requirements are associated with Large Wind to Energy Facilities.

In all zoning districts, an “Agricultural Activities Notice” is required on a subdivision plat. This notice indicates the proximity of agricultural activities and the potential for lot users to experience impacts.



## C. Miami County

### *Grissom ARB Impacts*

Portions of all Grissom ARB's impact areas are located in Miami County.

### *Comprehensive Plan*

The Miami County Comprehensive Plan provides background information on Grissom ARB, as well as general land use policies related to Grissom. Access to the installation is located within Miami County, so the Comprehensive Plan discussion of transportation infrastructure is particularly relevant to the review of both current and future land use compatibility.

The Community Profile section of Miami County's plan discusses the history of Grissom Air Reserve Base and the Grissom Aeroplex, as well as the relationship of population shifts in the county to changes at Grissom ARB (Miami County Comprehensive Plan, Part One: Introduction, Community Profile, pp. 20-21). This section also identifies the three facilities in Miami County for civilian aircraft: Grissom ARB, which opened its runway to civilian operations through a joint-use agreement in 2008; the Peru Municipal Airport; and the Converse airstrip. The Peru Municipal Airport, with a runway length of 4,000 feet, is located near the intersection of US 24 and US 31. The Converse airstrip, with a runway length of 1,800 feet, is on the side of SR 18 west of CR 950 S. The state's longest runway, at 12,500 feet, is located at Grissom. (Id., p. 59)

The plan provides a brief overview of other plans adopted by Miami County, local governments, Grissom ARB, and the North Central Indiana Regional Planning Council, recognizing the importance to the comprehensive planning process of understanding previous planning efforts (Id., pp. 26-31). The Comprehensive Plan considers the conclusions and recommendations of these past planning efforts, to include:

- » A determination that any advantages of a regional airport authority that could govern the Peru, Kokomo, and Marion airports and Grissom Aeroplex can be realized without one;
- » The initial set of assumptions (to create jobs/recover from BRAC) and analyses (development alternatives) that led to the vision of the South Industrial Park at the Grissom Aeroplex as a mix of aviation, industrial, and commercial development;
- » Updates to the 1993 Base Reuse Plan, and subsequent updates (I through IV) in 1996, 1997, and 1998 to the present-day strategy. These documents are a continuation identifying changes in strategy and events up to the present day;
- » Identifying changes in noise contours, flight operations, and guidelines designed to ensure that land uses next to the installation remain compatible with the mission;
- » Establishing the existing conditions, future needs, and associated costs pertaining to the infrastructure and parcels that were conveyed to MCEDA for redevelopment; and
- » The conditions that existed at the time in terms of the market, operational, financial and economic feasibility of creating a joint air reserve base capable of attracting and adequately serving civilian aircraft at the facility.



With respect to transportation infrastructure, “[c]onnectivity throughout the county can be cumbersome as many of the primary arterials were based on county roads, and still retain many right angle turns” (Miami County Comprehensive Plan, Part Three: Recommendations, Transportation & Circulation, p. 97). The plan highlights potential improvements and realignments as having the ability to “vastly improve the connectivity throughout the county” and “enhance public safety and emergency response times for law enforcement and EMS services” (Id., p. 97). As a result, the plan includes a specific set of recommendations for the US 31 Corridor. These recommended corridor improvements are provided via a map on page 102, which recognizes as a critical need transportation improvements in the area around Grissom ARB, including its access points.

The plan designates “Future Growth Areas” where existing infrastructure can support new development, which includes areas near Grissom ARB, along US 31, and along SR 218 towards Bunker Hill. This growth-related recommendation anticipates further development of the Aeroplex, describing it as an area in which to target business growth and expansion. “It is recommended that growth development near Grissom include Light Industrial / Commercial Mixed Use supported by the airfield,” and that “additional growth [occur] near major intersections with US 31 in support of the Grissom Air Reserve Base and users of the State Highway” (Miami County Comprehensive Plan, Part Three: Recommendations, Land Use and Development, p. 91). The plan promotes infill growth near Grissom and in Bunker Hill (Id., pp. 88-91).

Corresponding Action Plan items are to “[f]ocus growth in Grissom/Bunker Hill, supported by commuters and surrounding residential neighborhoods and existing infrastructure of Grissom Aeroplex and proximity to US 31, balanced with potential encroachment concerns identified in the AICUZ Study for Grissom Air Reserve Base” and “[f]ocus growth at Grissom Aeroplex with airport and planned commercial business expansion opportunities” (Miami County Comprehensive Plan, Part Four: Action Plan, Land Use and Development, p.132).

A high priority action item is to “[i]mplement the Planning Considerations recommendations from the AICUZ Study for Grissom Air Reserve Base including revisions to the zoning map and approved uses to address incompatible uses in restricted zones” (Id., p.132).

Another Action Plan item related to Grissom ARB is to create a US 31 Corridor Overlay Zoning District, with an additional reference to the installation’s AICUZ Study and the desire to limit encroachment and incompatible land uses in the vicinity of Grissom ARB (Id. p. 144).

Recognizing rapid growth in the wind energy sector, the plan recommends adoption of associated regulations. The plan also recommends (and includes a corresponding Action Plan item) exploration of solar installations near Grissom ARB as a potentially compatible land use. (Miami County Comprehensive Plan, Part Three: Recommendations, Community Facilities and Infrastructure, pp.114-116).

### *Zoning Regulations*

In 2011, Miami County adopted its Wind Energy Conversion Systems Siting Ordinance, which governs the approval of wind energy turbines in the unincorporated county. Since, at the time the JLUS was prepared, the demand for these facilities was on the rise, it was significant that Miami County had taken meaningful steps to designate where such facilities would be permitted. As noted above, the County also had an overlay district under consideration during the JLUS, which included additional height restrictions and



requirements for Grissom ARB input with respect to wind turbines and other structures in closer proximity to the airbase.

The WECS ordinance regulates wind facilities according to their size and use: Commercial, Non-commercial and 200 feet or less in height, Non-commercial and greater than 200 feet in height, Micro WECS, and Meteorological Towers. Miami County's WECS ordinance is the most comprehensive of all the JLUS Jurisdictions.

Section 2-16-15 defines the various types of WECS in the same manner as the Cass County Zoning Ordinance: micro WECS are intended for individual use; Non-commercial WECS supply power to larger sites, such as a business, school, or factory; and Commercial WECS collect wind energy to transfer to the electrical grid.

Section 2-16-4.1 of the Zoning Ordinance permits Micro WECS in all Agriculture and Industrial Districts, requires special exception approval by the BZA for Micro WECS in the B2 and B3 Commercial Districts, and prohibits them in all other districts.

Non-commercial WECS equal to or less than 200 feet in height are permitted in all Agriculture Districts, require special exception approval in the Commercial and Industrial Districts, and are prohibited in all other zoning districts. Non-commercial WECS greater than 200 feet in height require special exception approval in the Agriculture, Commercial, and Industrial Districts. They are prohibited in all other zoning districts.

Commercial WECS are a permitted use only in the Agriculture Districts. Special exception approval is required for Commercial WECS located in the Commercial Districts and the I-1 Industrial District. The Zoning Ordinance prohibits them in all other districts.

While Miami County does not explicitly regulate outdoor lighting, it includes requirements related to certain uses. For example, Section 2-14-4 limits the amount of light spillover from industrial and commercial uses into residential districts to 0.1 foot-candle. Lighting requirements related to off-street parking areas and special exception uses generally prohibit outdoor lighting from negatively impacting adjacent streets and residential areas.

## D. Wabash County

### *Grissom ARB Impacts*

Wabash County is not located within Grissom ARB's Accident Potential Zones, Noise Zones, or imaginary surfaces.

### *Comprehensive Plan*

The Wabash County Comprehensive Plan, adopted in 2012, recognizes land use patterns can have a positive or negative impact on a community and stresses the importance of adhering to the "right" pattern for the long-term benefit of the community (see e.g., Vision and Land Use Introduction, pp. 71-72).

The plan does not provide military-related planning policies; however, Wabash County is located outside of Grissom ARB's impact areas.

### *Zoning Regulations*

As of the Fall of 2017, Wabash County was in the process of developing an updated zoning and subdivision ordinance. The current ordinance was adopted in 1965. While neither the current or proposed zoning and subdivision ordinance includes airport- or military-related



regulations, the proposed ordinance regulates several topics relevant to the JLUS.

The current ordinance does not regulate renewable energy or outdoor lighting, nor does it require disclosures of any type. The proposed ordinance, however, regulates each of these.

The proposed ordinance regulates wind and solar facilities, including large-scale commercial facilities as well as small, non-commercial systems. If adopted, Wabash County will be the only JLUS Jurisdiction regulating solar facilities. The proposed ordinance also establishes specific outdoor lighting standards for telecommunication towers, wind energy conversion systems, solar photovoltaic installations, and general requirements for planned developments.

The proposed ordinance requires a disclosure on plats for residential uses proposed in agricultural districts. Wabash County is one of only two JLUS Jurisdictions requiring any sort of disclosure; Howard County also requires notice of agricultural activities in certain areas.





### **III. Municipalities**

The three municipalities that include discussion of Grissom ARB in their comprehensive plans all include general military-related land use and coordination policies.

Most jurisdictions exercise extraterritorial jurisdiction, pursuant to IC 36-7-4-205, as discussed in Chapter 5.

None of the municipalities currently have a military zoning overlay district, though Bunker Hill is in the process of creating one. Kokomo and Logansport have a non-military airport overlay zoning district.

Three of the nine municipal JLUS Jurisdictions regulate Wind Energy Conversion Systems.

While only two municipalities explicitly regulate outdoor lighting, most include general provisions related to certain uses, intended to minimize potential negative impacts of outdoor lighting on streets and residential areas.

The City of Kokomo encourages, but does not require, use of noise attenuation construction techniques for buildings located in its airport overlay district.

Six of the nine municipal JLUS Jurisdictions are located in Grissom ARB's imaginary surfaces, with Bunker Hill's municipal fringe also located in its Accident Potential and Noise Zones.

#### **A. Town of Bunker Hill**

##### *Grissom ARB Impacts*

Bunker Hill is the only municipal JLUS Jurisdiction located in each of Grissom ARB's impact areas, including its Accident Potential Zones (APZs), Noise Zones (NZs), and imaginary surfaces. Only the Town's municipal fringe area, however, is located within the APZs and NZs. The Town is located wholly within Grissom's conical surface; the municipal fringe area is located within other imaginary surfaces, including the inner and outer horizontal surfaces and the sloped approach surface.

##### *Comprehensive Plan*

The Town of Bunker Hill adopted a Growth Management Plan in 1997. The plan includes background information on Grissom ARB and the changes resulting from the 1991 Base Realignment and Closure process. The plan references Grissom's Air Installation Compatible Use Zone Study, and establishes a policy to take into account Clear Zones, Accident Potential Zones, and Noise Zones when the Town considers changes to land use and development patterns. The plan recognizes economic development opportunities available as a result of the base realignment and subsequent development of the Grissom Aeroplex.

The Town is also included in the Miami County Comprehensive Plan. A number of the plan's recommendations, particularly those related to future growth, focus on Bunker Hill.

##### *Zoning Regulations*

The Town of Bunker Hill regulates zoning and subdivision within Town limits and within the municipal fringe area. As of the Fall of 2017, the boundaries of the municipal fringe area were proposed to change.

Also during the JLUS, the Town began work on an overlay zoning district regulating height and land use in Grissom ARB impact areas for both the current KC-135 operations and





potential KC-46. These are described in detail in Chapter 3.

Outdoor lighting is regulated, in a general sense, for off-street parking areas and special exception uses in order to protect adjacent properties and streets.

## **B. Town of Converse**

### *Grissom ARB Impacts*

The Town of Converse is located outside of Grissom ARB's Accident Potential Zones, Noise Zones, and imaginary surfaces.

### *Comprehensive Plan*

The Town of Converse is included in the Miami County Comprehensive Plan. The Town is located near the eastern edge of the JLUS Study Area, therefore many of the Grissom-related recommendations and action items in the Comprehensive Plan are not as relevant in Converse as in other areas of Miami County.

### *Zoning Regulations*

The Town of Converse regulates zoning, but not subdivision of land, within its municipal boundaries and its two-mile extraterritorial jurisdiction.

When Grissom ARB was originally built, outlying airfields were constructed in areas near the base – including one in Converse that remains today. The Converse Airport is owned and managed by the Converse Board of Airport Commissioners. The Town does not have an airport zoning district; however, the airport is small and located in a rural area.

## **C. Town of Galveston**

### *Grissom ARB Impacts*

The Town of Galveston is located in Grissom ARB's imaginary surfaces, but outside its Accident Potential and Noise Zones.

### *Comprehensive Plan*

The Galveston Comprehensive Plan, adopted in 1992, provides historic and demographic background information, as well as general objectives related to orderly development of the town.

### *Zoning Regulations*

Unlike most municipal JLUS Jurisdictions, the Town of Galveston does not exercise extraterritorial jurisdiction; the Town exercises zoning and subdivision authority only within its municipal limits.

Though there are no zoning regulations directly related to Grissom ARB, the Town does regulate outdoor lighting associated with temporary uses, off-street parking areas, and signs. In all cases, outdoor lighting must be shielded or directed away from adjacent residential areas.



## D. City of Kokomo

### *Grissom ARB Impacts*

The City of Kokomo is located within Grissom ARB's imaginary surfaces, but outside its Accident Potential and Noise Zones.

### *Comprehensive Plan*

The City of Kokomo updated its Comprehensive Plan in 2017. *Keep Kokomo Current* provides a snapshot of existing conditions and a policy guide for future development. A marked difference between the City of Kokomo and other JLUS Jurisdictions is Kokomo's population today (2015) is greater than it was in the 1980s.

Kokomo's plan describes the current conditions of the city's main thoroughfares, including the advantages offered by the new US 31, a four-lane divided highway designed to bypass the city center and still offer access to South Bend (north) and Indianapolis (south). The thoroughfare that was once US 31 is now US 931. It continues to provide local access and connectivity, north and south. Roadway improvements prescribed by the plan are limited to enhancing connections throughout the city with an emphasis on multi-modal transportation. The future transportation and future alternative transportation plan recommendations are limited to a set of maps that do not extend beyond the corporate limits of the city.

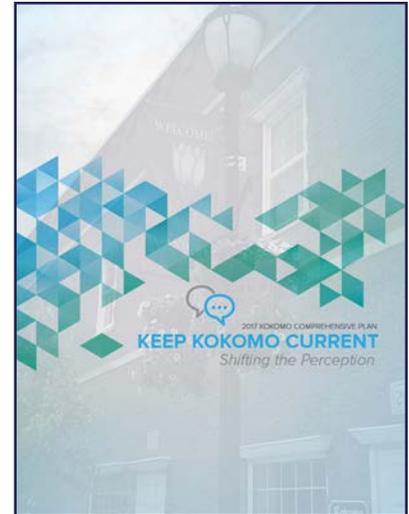
Land use policies adopted by the plan call for strict enforcement of the "development standards for non-conforming properties located within the SR 931 and US 31 overlay districts," wherein the US 31 overlay district standards are intended to provide "a gateway industrial development." The future land use map shows the US 31 Primary Gateway area as being relatively contained to the area between the two new highway interchanges at US 35/Markland Ave and Boulevard St/ CR 100S. Pockets of heavy/medium industrial land uses exist at intermittent points throughout the city; as do pockets for office/high tech/light industrial land uses. The largest area for office/high tech/light industrial land uses is situated at the US 31/ CR 400S interchange in the very southeast corner of the city.

Objectives pertaining to economic and workforce development are consistent with those identified by the North Central Indiana Regional Planning Council. They include efforts to focus on business retention and expansion, while simultaneously providing education and training opportunities that better match the needs of employers now and in the future.

### *Zoning Regulations*

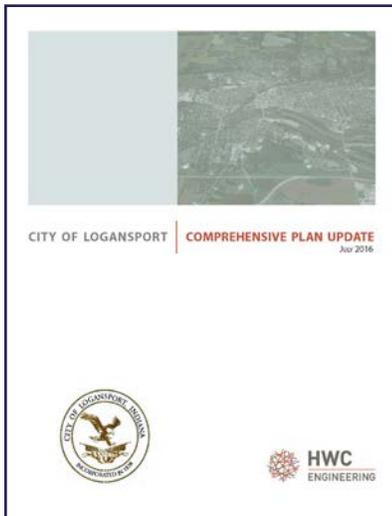
The City of Kokomo's Airport Hazard Overlay District mirrors Howard County's AH-OL District. It limits land uses and structure height in the vicinity of the airport, and establishes stricter lighting requirements than those in Howard County's AH-OL District. The City encourages soundproofing techniques to be utilized in the construction of structures in this district.

Like other JLUS Jurisdictions, Kokomo regulates Wind to Energy Systems based on size (very small, small, and large), with large systems having the most regulatory requirements.



The Zoning Ordinance regulates outdoor lighting in all districts. The lighting development standards minimize light trespass from one property to another. Also included are general design requirements to provide for consistent lighting fixtures and treatments throughout a development.

## E. City of Logansport



### *Grissom ARB Impacts*

The City of Logansport is not located within Grissom ARB’s impact areas.

### *Comprehensive Plan*

The City of Logansport updated its comprehensive plan in 2016. The plan recognizes the significant opportunities to create community consensus around a long-range vision for the City through the comprehensive planning process and subsequent implementation plan.

The plan lists major highways serving the city, including a table and regional transportation map illustrating connections to nearby communities. The Hoosier Heartland Corridor/US 24 is thought to offer convenient access to US 31 to the east; however, the regional transportation map extends just outside of the Cass County jurisdictional boundary.

The plan addresses a number of issues and opportunities pertaining to community and economic development, including workforce development. One primary area of focus is for the city to elevate its position within the North Central Indiana Economic Development Partnership, which includes the cities of Kokomo (Howard County) and Lafayette (Tippecanoe County). The plan stresses the need to attract higher wage jobs in order to stabilize Logansport/Cass County workforce. Driven by the desire to use the community’s limited time and resources to target businesses, the City of Logansport is intent on targeting the types of businesses and industry that support strong wages, have limited environmental impacts, and strengthen the city’s position within the region. It calls for being careful “not to place overwhelming design requirements on the area which are not supported by market driven factors” if it is to remain competitive in the region. The plan emphasizes the need to implement a handful of critical path strategies, which include:

- » Revitalizing area neighborhoods (i.e., housing renovations and infill development);
- » Consolidating economic development resources to create a single point of contact;
- » Promoting the K-12 school system;
- » Securing ‘shovel-ready’ designations for land within the industrial park; and
- » Initiating placemaking and quality of life initiatives along the lines of history, culture and tourism.

### *Zoning Regulations*

Like several of the municipal JLUS Jurisdictions, the City of Logansport exercises zoning powers in its extraterritorial jurisdiction.



The Logansport/Cass County Airport Overlay District was adopted by both the City of Logansport and Cass County. The regulations:

- » Prohibit structures and objects of natural growth in the inner section of the airport's approach area;
- » Limit height in the airport's horizontal and conical surfaces;
- » Prohibit uses that may cause glare, create smoke, interfere with radio communication, or otherwise hinder safe air navigation; and
- » Require Airport Authority Board review of certain land use-related applications and permits (Logansport Zoning Ordinance, Article 4 – Overlay District Regulations, Section 404).

In 2009, the City amended its Zoning Ordinance to regulate Wind Energy Conversion Systems. There are general design and installation requirements for all WECS, as well as additional requirements for Small and Micro WECS (Logansport Zoning Ordinance, Article 5 – Development Standards, Section 525).

The City regulates outdoor lighting for the purposes of safety and minimization of potential negative lighting impacts on adjacent properties (Logansport Zoning Ordinance, Article 5 – Development Standards, Section 526).

## **F. Town of Onward**

### *Grissom ARB Impacts*

The Town is located outside of Grissom ARB's Accident Potential and Noise Zones, but is within Grissom's imaginary and transitional surfaces.

### *Comprehensive Plan*

The Town of Onward does not have a comprehensive plan.

### *Zoning Regulations*

The Town of Onward does not regulate zoning or subdivision of property.

## **G. City of Peru**

### *Grissom ARB Impacts*

The City is located outside of Grissom ARB's Accident Potential and Noise Zones, but portions of the city are within Grissom's imaginary and transitional surfaces.

### *Comprehensive Plan*

Chapter 150 of the Municipal Code of Ordinances contains the City of Peru's Master Plan, which predates the current state statutes concerning comprehensive planning. The Master Plan is comprised of an Official Thoroughfare Plan and a Public Facilities Plan. Both incorporate, by reference, maps depicting the location of streets, fire stations, schools, parks, and other recreational facilities.

The City of Peru is also included in the Miami County Comprehensive Plan, with a number of recommendations related to planned Future Growth Areas in the City.



### *Zoning Regulations*

The City of Peru has zoning and subdivision regulations, but does not have special provisions pertaining to airport or military land use compatibility.

The City exercises zoning powers in its extraterritorial jurisdiction.

The City regulates outdoor lighting, primarily to limit light spillage onto adjacent properties.

The City's Board of Aviation operates the Peru Municipal Airport, located approximately ten miles due north of Grissom ARB.

## **H. City of Wabash**

### *Grissom ARB Impacts*

Like the rest of Wabash County, the City of Wabash is located outside the Grissom ARB Impact Areas.

### *Comprehensive Plan*

Chapter 10 of the Wabash City Code establishes zoning and subdivision regulations. The City's Comprehensive Plan and Official Thoroughfare Plan are included in this chapter as Articles 3 and 4, respectively.

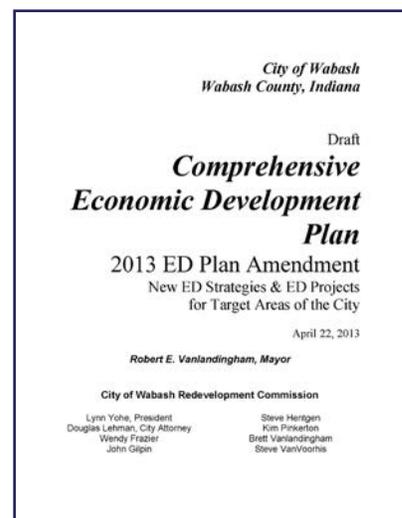
The Comprehensive Plan establishes policies related to growth and development, including an objective to prohibit or buffer incompatible business and industrial land uses adjacent to residential uses.

The City's Comprehensive Economic Development Plan (2013 CED Plan), adopted in 2013, is incorporated by reference into the Comprehensive Plan. The 2013 CED Plan identifies three major economic development geographic focus areas:

*Industrial/Commercial Area along US 24* – The designated area for future industrial expansion, including the transportation improvements/projects needed to support future development.

*Historic Downtown Wabash* – An area encompassing the historic central business district, legacy industrial properties, and some residential neighborhoods where economic development has meant the preservation of historic buildings (e.g., adaptive reuse and façade improvements), placemaking initiatives (e.g., signage and pedestrian connectivity) which are further complimented by efforts to provide more in terms of tourism and entertainment.

*South Wabash Area* – An area that has seen only a nominal amount of investment, and one in which area stakeholders are more concerned with connecting the residential neighborhoods with the Historic Downtown/River Corridor and enhancing the aesthetic offered by the natural landscape by making this area the primary gateway to the city than they are in attracting (more) non-residential development to the area.



The 2013 CED Plan discusses the need for neighborhood revitalization to “break the cycle of neighborhood blight” and address the number of tax delinquent properties where the city or county may become the owner of last resort (2013 Comprehensive Economic Development Plan, Neighborhood Revitalization Effort in Wabash, IN, pp. 18-19). In its efforts to return abandoned properties to the tax rolls, the City may be able to help meet regional housing needs.

City officials partnered with representatives of the Wabash Redevelopment Commission and Economic Development Group of Wabash County to identify a set of economic development strategies and list of projects. Building off of the 2013 CED Plan, the proposed strategies and projects focus primarily on the three target areas identified in previous planning efforts, and use the projects (including cost estimates), outcomes, and target areas described in the Vision 2020 Plan for Northeast Indiana. The “regional community” is defined as the cities of: Wabash, Fort Wayne, South Bend, Gary, Lafayette, and Indianapolis.

### *Zoning Regulations*

The City of Wabash exercises zoning and subdivision authority within its municipal limits and two-mile extraterritorial jurisdiction. It is one of three municipal JLUS Jurisdictions regulating Wind Energy Conversion Systems.

While the City does not provide specific standards for outdoor lighting fixtures, the Code requires lighting associated with commercial and industrial uses and off-street parking lots to be shielded and directed away from residential areas.

The City’s Board of Aviation Commissioners oversees the Wabash Municipal Airport.

## **I. Town of Walton**

### *Grissom ARB Impacts*

The Town is located outside Grissom ARB’s Accident Potential and Noise Zones, but is within its imaginary and transitional surfaces.

### *Comprehensive Plan*

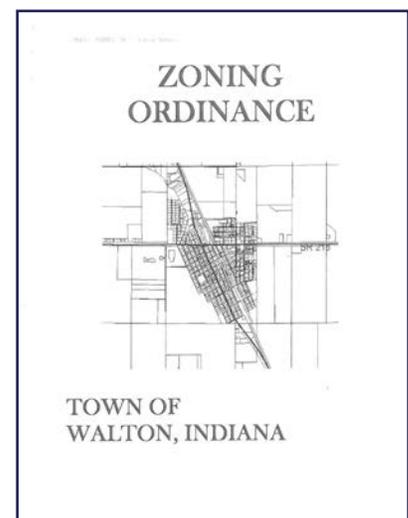
The Town of Walton is included in the Cass County Comprehensive Plan, which includes an objective to promote development of the Grissom Aeroplex, with an associated action item to support Grissom committees and boards (Cass County Comprehensive Plan, Chapter 11: Plan Implementation, Action Plan, p. 11-3).

### *Zoning Regulations*

The Town of Walton regulates zoning and subdivision within its municipal limits and extraterritorial jurisdiction.

While the Town does not provide specific outdoor lighting standards, the Zoning Ordinance includes provisions prohibiting glare and light spillage from off-street parking lots onto adjacent streets and residential areas.

The Town does not regulate Wind Energy Conversion Systems, though the Zoning Ordinance expressly exempts WECS from height limitations.



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*Chapter 5:  
Indiana Statutory  
Framework and  
Federal Compatibility  
Programs & Tools*

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## **I. Introduction**

The following is an overview of the general statutory authorities available to the JLUS Jurisdictions under the Indiana statutes. The overview covers those authorities most relevant to the powers cities and counties would likely exercise related to military planning and implementation of the JLUS recommendations. In addition, federal programs and tools related to maintaining or improving compatibility between military installations and civilian communities are reviewed. Some of these resources already have been used locally, likely contributing to the general compatibility between Grissom ARB operations and nearby land uses discussed in Chapter 3, and others may assist with future implementation efforts.

## **II. General Provisions Applicable to All Local Governments**

Indiana Code (IC), Title 36. Local Government, Article 1. General Provisions, establishes basic laws applicable to all units of local government in the state. Chapter 3 establishes Indiana as a home rule state, granting local governments “all the powers that they need for effective operation of government as to local affairs” (IC 36-1-3-2).

Chapter 4 establishes general corporate powers of local governments, including the ability to acquire real and personal property; to enter into contracts; adopt, codify, and enforce ordinances; and, in certain instances, expend money in direct support of a military installation (IC 36-1-4).

Chapter 7 expressly authorizes political subdivisions and other governmental entities to enter into cooperative agreements. The statute sets forth requirements for certain types of agreements, but generally does not limit the purpose of such agreements (IC 36-1-7).

### **A. Counties – In General**

Title 36, Article 2, of the Indiana Code sets forth general regulations pertaining to county governance, including governmental structure, legislative and budget procedures, and requirements associated with various elected positions.

### **B. Cities, Towns, & Townships – In General**

Title 36, Article 4, of the Indiana Code classifies municipalities based on population and sets forth regulations pertaining to each “class” of city. Municipalities not considered cities are classified as towns, and are regulated under IC 36-5. Additionally, Article 6 addresses the governance of townships.

### **C. Zoning**

#### *IC Title 36. Article 7. Planning and Development (IC 36-7)*

IC 36-7 authorizes, but does not require, local governments in Indiana to exercise planning and zoning powers. With the exception of Onward, all JLUS Jurisdictions exercise zoning powers.

While Chapter 2 (IC 36-7-2-2) expressly authorizes local governments, including counties, to regulate land use and subdivision of real property, as well as access to solar energy, requirements for local governments choosing to exercise these powers are set forth in Chapter 4, discussed below.





#### *Chapter 4. Local Planning and Zoning (IC 36-7-4)*

Chapter 4 addresses local planning and zoning procedures. It sets forth requirements for boards of zoning appeals and plan commissions, including membership, organization, powers, and duties.

State statute provides for four types of plan commissions, though the use of two of these types are limited to only four individual counties, none of which is included in the JLUS Study Area. As such, the remaining Indiana counties have either an advisory plan commission or an area plan commission. Advisory plan commissions typically serve a single jurisdiction, while area plan commissions are a joint effort between a county and at least one municipality. All JLUS Jurisdictions utilize an advisory plan commission, including Howard County and the City of Kokomo which established a county-municipal advisory plan commission pursuant to IC 36-7-4-410.

IC 36-7-4-205 authorizes municipal advisory plan commissions to plan and zone “any part of the contiguous unincorporated area within two (2) miles from the corporate boundaries of the municipality.” Six of the municipal JLUS Jurisdictions exercise this extraterritorial jurisdiction (commonly referred to as a “municipal fringe area”).

#### **IC 36-7-4-500, 500 Series—Comprehensive plan.**

For those governments choosing to exercise zoning powers, this statute requires plan commissions to prepare comprehensive plans for the “promotion of public health, safety, morals, convenience, order, or the general welfare and for the sake of efficiency and economy in the process of development.” As discussed in Chapter 4, all JLUS Jurisdictions except Onward exercise zoning and therefore have adopted comprehensive plans.

The statute sets forth the procedural requirements for adoption and amendment of comprehensive plans. It establishes specific requirements for the content (“elements”) of comprehensive plans, including future development objectives, land use policies, and policies related to public infrastructure (e.g., streets, land, and buildings); and suggests other “optional” content, such as information concerning redevelopment areas, conservation areas, public buildings and institutions, transportation, and capital improvements plans.

IC 36-7-4-504 explicitly validates comprehensive plans and thoroughfare plans adopted under prior laws and authorizes their continued effectiveness until new or amended plans are adopted.

#### **IC 36-7-4-600, 600 Series—Zoning ordinance.**

The State requires adoption of a comprehensive plan before a local government can adopt zoning regulations. The IC 600 Series establishes requirements for local governments choosing to exercise zoning powers. IC 36-7-4-601 gives broad legislative zoning authority to local governments, provided the regulations are necessary to implement the purpose of the zoning ordinance.

The statute specifies the procedure for adoption and amendment of zoning regulations, including the public hearing procedure and public notice requirements. A zoning ordinance must include zone maps, and the statute specifies the procedure for changing zoning maps.



In some instances, procedural requirements differ based on the type of plan commission. Advisory and area plan commissions can certify a proposed zoning ordinance amendment whether the recommendation is favorable, unfavorable, or the commission makes no recommendation; while metro plan commissions may only certify those proposed zoning ordinance amendments receiving a favorable recommendation (IC 36-7-4-605). As noted, each of the JLUS Jurisdictions is an advisory plan jurisdiction so zoning ordinance amendments may be made by their commission regardless of the recommendation.

IC 36-7-4-607 specifies the procedure for amending the zoning ordinance of jurisdictions with an advisory or area plan commission. IC 36-7-4-608 specifies the procedure for amending the zoning maps of jurisdictions with an advisory or area plan commission, and indicates separate requirements for metro plan commissions.

The IC 600 Series also sets forth certain protections for nonconforming agricultural uses.

#### IC 36-7-4-700, 700 Series—Subdivision control.

IC 36-7-4-701 requires a zoning ordinance to determine the zoning districts in which subdivision of land may occur, and specify certain provisions for subdivision control.

Pursuant to IC 36-7-4-702, the subdivision control ordinance must specify the standards for determining whether a plat qualifies for primary approval, including lot width, depth, and area; public street standards; coordination of proposed new subdivision streets with existing and planned public streets; and extension of municipal services, such as water and sewer. The only express prohibition is the regulation of condominiums (which are regulated elsewhere in the Indiana Code).

The statute grants plat approval authority to plan commissions, and specifies the procedure for subdivision plat approval, appeals (of approval or disapproval of a plat), and vacation of plats.

IC 36-7-4-709 establishes requirements related to proof of financial responsibility on the part of the developer.

#### IC 36-7-4-800, 800 Series—Improvement location permit.

This statute provides local governments with the authority to require and issue improvement location permits prior to the construction, alteration, or repair of any structure. This is an important tool with respect to coordination between military installations and local governments, as it can provide an early opportunity for local governments to seek input from the military on proposed developments. However, as discussed in Chapter 4, only Cass County has an ordinance requiring coordination with Grissom ARB on certain land use matters.

To ensure contractors adhere to zoning and subdivision ordinances, legislative bodies with area or metro plan commissions are authorized to require annual bonds in the amount of \$1,000; metro plan commissions have additional options for enforcement of zoning and subdivision ordinances.





#### IC 36-7-4-1100, 1100 Series—Miscellaneous provisions.

The 1100 Series authorizes local governments to regulate manufactured homes, but prevents governments from entirely precluding them from the jurisdiction provided the manufactured homes exceed a certain size.

This series also establishes vested rights for permit applicants. Types of development plans vested by the statute (after issuance or approval, as applicable, by the local government) include:

- » Improvement location permits;
- » Building permits;
- » Certificates of occupancy;
- » Site-specific development plans;
- » Primary or secondary plats;
- » Contingent uses, conditional uses, special exceptions, or special uses; and
- » Planned unit developments.

The statute provides that these permits or approvals and any related permits or approvals are governed for at least three years by the regulations in effect at the time of permit application.

#### IC 36-7-4-1300, 1300 Series—Impact Fees.

The 1300 Series authorizes local governments to impose impact fees on new development, provided the local government has adopted a comprehensive plan.

#### IC 36-7-4-1400, 1400 Series—Development Plans; application of certain amendments to chapter.

The 1400 Series authorizes local governments to require development plans in any or all zoning districts. The zoning ordinance must describe development plan requirements, including required components of a plan and the submittal and review procedures. While the statute does not define the term “development plan,” IC 36-7-4-1403 identifies elements of a development plan that a local government may require (e.g., building setbacks; outdoor lighting; height, scale, materials, and style of improvements; compatibility of development with surrounding uses; and other requirements considered appropriate by the legislative body).

The statute grants development plan approval authority to plan commissions, setting forth plan commission powers and duties related to development plans, including review procedures. A plan commission is required to issue in writing its decision for approval or disapproval of a development plan. The commission’s decision is final, and may be reviewed only as provided in IC 36-7-4-1016 (Judicial review of zoning decisions).

#### IC 36-7-4-1500, 1500 Series—Planned Unit Development.

This Series defines the required elements of a Planned Unit Development (PUD) district ordinance. It authorizes, but does not require, zoning ordinances to include provisions for PUDs. The adoption procedure is the same as for changes to zoning maps.

IC 36-7-4-1511 authorizes a legislative body to delegate the authority to modify permitted



uses or development requirements in a PUD district. Unless this authority is delegated to another body, property owners may only modify permitted uses or development requirements in a PUD district through the legislative process in accordance with the procedures for amending the zoning ordinance.

IC 36-7-4-1512 authorizes a legislative body to impose reasonable conditions on approval of a PUD.

#### IC 36-7-4-1600, 1600 Series—Judicial review.

The 1600 Series establishes the “exclusive means” for judicial review of zoning decisions, and establishes who has standing to obtain judicial review.

#### *Chapter 5.1. Joint District Planning and Zoning (IC 36-7-5.1)*

This Chapter authorizes municipalities and counties to cooperatively establish planning and zoning entities. A joint district planning and zoning commission has exclusive authority to “exercise all the planning, zoning, platting, and land use policy authority for real property in the joint district.” However, before it can become effective, any ordinance approved by the commission must also be approved by the joint district council established for the joint district. The council must hold a public hearing on an ordinance.

The Chapter specifies membership requirements of the joint district commission and council, and mandates the commission establish a board of zoning appeals. A joint district council is comprised of specified elected officials and a county executive representative from the participating local governments.

None of the JLUS Jurisdictions are part of a joint district.

#### *Chapter 7. Regional Planning Commissions (IC 36-7-7)*

Chapter 7 applies to any area consisting of two or more counties (termed a “region”) wishing to undertake planning activities together. Following adoption of a resolution by all participating counties, a region may establish a regional planning commission. The governor, or member of the governor’s office, acts as temporary chair of the commission until officers are elected.

Regional planning commissions are advisory bodies and must meet on at least a quarterly basis. An executive board, elected from the members of the regional commission, must meet at least once per month. The commission appoints an executive director who serves as the “chief administrative officer and regular technical advisor of the commission.” (IC 36-7-7-11)

The commission is authorized to provide administrative, management, or technical assistance to any unit (i.e., county) in the region.

None of the four county JLUS Jurisdictions are part of a regional commission.

#### *Chapter 8. County Building Department and Building Standards (IC 36-7-8)*

Chapter 8 authorizes the legislative body of a county to establish a building department, comprised of a building commissioner and inspectors. Once this department is established, the county may adopt minimum building standards. Of note, these building standards do not apply to private homes built by individuals and used for their own occupancy (the “Log Cabin Rule”). A County may also adopt minimum housing standards.



Municipalities and counties may designate a single agency (of the county or the municipality) to administer and enforce building and housing ordinances. Additionally, a county may contract with a municipality for the municipality to administer and enforce minimum housing standards throughout the county.

*Chapter 30.1. Planning and Zoning Affecting Military Bases (IC 36-7-30.1)*

This chapter defines "military base" as:

*"...a United States government military installation that:*

- (1) has an area of at least sixty thousand (60,000) acres; and*
- (2) is used for the design, construction, maintenance, and testing of electronic devices and ordnance.*

*The term includes a geographic area, other than the area described in subdivision (1), of at least four hundred (400) acres that a military base uses for the purposes described in subdivision (2)."*

Where the statute applies, local governments must notify the military base commander for certain land use, development, and subdivision actions occurring within three miles of the base. A written response from commander must be received within 15 days of notice; otherwise, the proposed action is assumed to have no adverse effect on the military base. This statute prohibits local governments from taking action on a proposed land-use related action if it will adversely affect the military base.

Grissom ARB has indicated this statutory chapter is not applicable, as the base is not used for the design, construction, maintenance, and testing of electronic devices and ordnance. Nonetheless, as described in Chapter 4, Miami County and Cass County already had a history of coordinating in a similar manner with Grissom ARB and Bunker Hill was considering similar procedures during the JLUS process.

### III. Other Related Statutes

This section includes a discussion of other Indiana statutes relevant to the JLUS and its subsequent implementation, including a 2017 law pertaining to unmanned aerial vehicles and 2017 and 2018 laws pertaining to small cell facilities.

#### **IC Title 4. State Offices and Administration, Article 3. Governor, Chapter 21. Military Base Planning Council (IC 4-3-21)**

Chapter 21 establishes the Military Base Planning Council, which is charged with identifying ways the community can support military bases; existing and potential impacts of encroachment, and ways to minimize these impacts; and opportunities for collaboration. The Council must submit an annual report to the governor and the legislative services agency related to the duties identified in IC 4-3-21-11.

IC 4-3-21-2 defines "military base" as:

*"...a United States or an Indiana government military installation that:*

- (1) has an area of at least sixty thousand (60,000) acres and is used for the design, construction, maintenance, and testing of electronic devices and ordnance;*
- (2) has an area of at least nine hundred (900) acres and serves as an urban training*



center for military units, civilian personnel, and first responders; or

(3) has an area of at least five thousand (5,000) acres and serves as a joint training center for active and reserve components of the armed forces of the United States.”

Grissom ARB has indicated the base does not serve as an urban training center for military units, civilian personnel, and first responders. As such, at the time of the JLUS, the Military Base Planning Council’s purview does not include Grissom ARB.

## IC Title 8. Utilities and Transportation, Article 21. Aeronautics

### Chapter 10. Regulation of Tall Structures (IC 8-21-10)

For purposes of public safety and maintenance of electronic communication within the state, this chapter regulates the location and height of structures and the use of land near public-use airports.

Chapter 10 applies to “public-use airports” as defined by IC 8-21-10-2:

“‘Public-use airport’ means any area, site, or location, either on land, water, or upon any building, which is specifically adapted and maintained for the landing and taking off of aircraft, and utilized or to be utilized in the interest of the public for such purposes. The term does not include: (1) any private use airport or landing field; or (2) any military airport solely occupied by any federal branch of government using that airport for military air purposes.”

Grissom ARB has indicated the base does not meet this statutory definition. Furthermore, the regulations contained in IC 8-21-10 are administered by the Indiana Department of Transportation, which does not list Grissom’s airport (GUS) as an Indiana Public Use Airport (see <http://www.in.gov/indot/2806.htm>).

Local legal counsel for the Miami County Economic Development Authority, GUS’s Fixed Base Operator, considers the airport to meet the federal statutory definition of “public use airport” and “public airport.” The federal definitions vary from IC 8-21-10-2:

Pursuant to 49 U.S. Code § 47102 (22), a “public use airport” means “(A) a public airport; or (B) a privately-owned airport used or intended to be used for public purposes that is (i) a reliever airport; or (ii) determined by the Secretary to have at least 2,500 passenger boardings each year and to receive scheduled passenger aircraft service.”

Pursuant to 49 U.S. Code § 47102 (21), a “public airport” means “an airport used or intended to be used for public purposes (A) that is under the control of a public agency; and (B) of which the area used or intended to be used for the landing, taking off, or surface maneuvering of aircraft is publicly owned.”

Where Chapter 10 applies, the following are requirements pertaining to construction or alteration of tall structures.

### IC 8-21-10-3—Permit requirements

A permit is required for construction or alteration of structures greater than 200 feet in height, or greater in height than the imaginary surfaces specified in (a)(2) of this section, or construction or alteration of “traverse ways” (roads, overpasses, etc.) in certain instances.

This section requires notice to a public-use airport for tall structure construction located



within five miles of the airport. This applies for new structures and when an existing structure is increased in height.

This section prohibits construction of buildings “used for a noise-sensitive purpose” within 1,500 feet of “either side of the centerline and the extended centerline of a runway for a distance of one (1) nautical mile from the boundaries of any public use airport.” However, the Indiana Department of Transportation (INDOT) is authorized to issue permits for construction in noise-sensitive areas. IC 8-21-10-2 defines “Noise-sensitive purpose” as the use of a structure as a residence, school, church, child care facility, medical facility, retirement home, or nursing home.

A person applying to INDOT for a permit to construct a structure in a noise-sensitive area must notify the airport if the construction will be located within one mile of the airport. If INDOT approves the proposed construction, the permit holder must file a copy of the construction permit with the County Recorder. The construction permit must contain a statement recognizing potential airport impacts on the new structure.

In addition to the other applicable permit requirements, any new structures, or those proposed to be increased in height, located within an airport’s imaginary surfaces require written authorization from the airport.

#### IC 8-21-10-7 Obstruction standards

This section sets forth standards for structures that, if exceeded, means the proposed structure is automatically assumed to have a substantial adverse effect on the safe and efficient use of airspace. This includes anything 500 feet or greater in height, though IC 8-21-10-9 allows a permit to be issued for structures greater than 500 feet if certain conditions are met.

#### IC 8-21-10-8 Airport and heliport imaginary surfaces

This section defines airport and heliport imaginary surfaces, which comport with the Civil Airport and Heliport Imaginary Surfaces defined in the Code of Federal Regulations (14 CFR 77.19 and 77.23).

If these imaginary surfaces would be penetrated by proposed construction, a permit cannot be issued for the construction; however, IC 8-21-10-9 authorizes INDOT to waive strict compliance in limited instances.

### IC Title 32. Property, Article 21. Conveyance Procedures for Real Property

#### *Chapter 5. Residential Real Estate Sales Disclosure*

This statute requires the Indiana Real Estate Commission to adopt a residential real estate sales disclosure form, which must contain the elements specified in the statute. One of the required elements is a disclosure of airports located in proximity to the subject property.



## IC Title 34. Civil Law and Procedure, Article 30. Immunity from Civil Liability

### *Chapter 21. Military Bases: Immunity for Noise Pollution and Telecommunications Interference (IC 34-30-21)*

This statute applies to Grissom ARB. It provides that military bases are not liable for civil damages related to noise or noise pollution resulting from normal base operations that can be heard within two miles of the base perimeter, and that military bases are not liable for civil damages related to interference with telecommunications resulting from normal base operations that occurs within five miles of the base.

## Indiana Administrative Code, Title 675 Fire Prevention and Building Safety Commission, Article 12. Administration, Rule 10. Building Regulations of State Agencies and Political Subdivisions (675 IAC 12-10)

This section of the Indiana Administrative Code provides that political subdivisions may adopt the same building rules as adopted by the State's Fire Prevention and Building Safety Commission (the "Commission"). It further provides that political subdivisions may adopt more detailed or stringent building rules, but those may only be established through amendment of specific provisions contained in the building rules of the Commission.

675 IAC 12-10-7 establishes that "standards contained in land use regulations, such as zoning or subdivision regulations, that are more restrictive with respect to building height, area, or distance from property lines than comparable standards for new construction, are not in conflict with the rules of the Commission."

### Public Law 107

Public Law 107, signed into law by the Indiana Governor in April 2017, amends existing laws pertaining to unmanned aerial vehicles (UAV), or "drones." It revises the definition of UAV to reference the federal statutory definition, and creates four new criminal offenses related to the use of drones – one of which is interference with law enforcement officers, firefighters, emergency medical technicians, or search and rescue operations.

### Public Law 261

In May 2017, the Indiana Governor signed into law a bill modifying the existing statute concerning the local permitting of wireless support structures. Among other, less substantive changes, Public Law 261 amends the definitions of "small cell facility," "utility pole," and "wireless support structure;" establishes three new definitions; and, in some instances, preempts local permitting authority for improvements or modifications to certain wireless facilities.

Perhaps most significantly, the law provides that the placement of a small cell facility and associated support structure in a public right-of-way is a permitted use exempt from local zoning review, provided the height of the support structure does not exceed the greater of:

- » 50 feet, measured from grade; or
- » The height of any utility pole in place on July 1, 2017, and located within 500 feet of the proposed small cell facility, plus 10 feet.

There are a number of public rights-of-way near Grissom ARB that could, under this law, end up having a small cell facility that penetrates an imaginary surface. A map showing these potential conflict areas is provided in Chapter 3, Section 8, Figure 3-40.



Prior to the passage of Public Law 261, Cass County adopted an ordinance requiring utilities to be placed underground in most County rights-of-way. This will limit the impact of Public Law 261 in proximity to the southwestern portion of Grissom’s runway. There are, however, a number of potential conflict areas in Miami County (on both ends of the runway) and in the Town of Bunker Hill.

Further, two bills ([House Bill 1050](#) and [Senate Bill 258](#)) were introduced during the 2018 legislative session that may preempt, or outright void, Cass County’s ordinance. HB 1050 provides that ordinances adopted by local governments in response to Public Law 261 can apply only to residentially-zoned areas where all existing utility infrastructure is already buried. HB 1050 became law in March 2018. SB 258 is more extensive, including a provision expressly voiding local government ordinances passed in response to Public Law 261. At the time the JLUS was finalized, SB 258 was still pending.

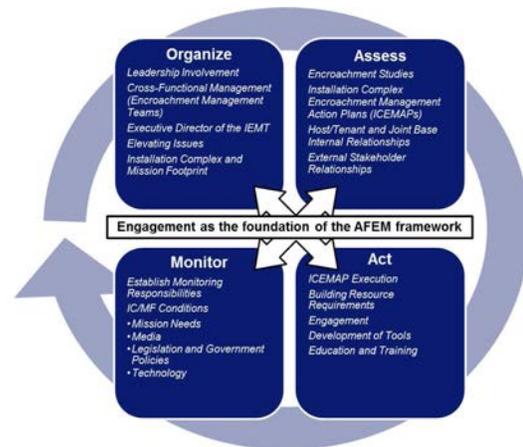
## IV. Federal Compatibility Programs & Tools

### A. Air Force Encroachment Management (AFEM) Program

The Air Force Encroachment Management (AFEM) Program is a cross-functional program that uses a variety of planning and management efforts to address potential encroachment and sustainment challenges facing military installations and their surrounding communities (AFI 90-2001, 3 September 2014). Joint Land Use Studies are a component of the AFEM Program, as are other planning efforts, including AICUZ Studies and Installation Development Plans; range management programs; environmental management plans; airspace management programs, and communications programs.

The AFEM Program framework includes the four elements described in Figure 5-1.

Figure 5-1. AEFM Program Framework



### B. Air Installation Compatible Use Zone (AICUZ) Studies

Air Installation Compatible Use Zone (AICUZ) studies are a component of the AFEM Program. AICUZ studies assess the noise and accident potential associated with an active air installation, as well as the compatibility of nearby civilian land uses on the installation. The objective of the AICUZ program is to protect public health, safety, and welfare while sustaining the military training and operational mission. An AICUZ study is a foundational document for future planning efforts, such as a JLUS. It identifies an airfield’s Clear Zones and Accident Potential Zones, which are the areas where accidents are more likely to occur. An AICUZ study also uses sound modeling to identify noise contours associated with the type of aircraft used. Using this information, the AICUZ study recommends the most appropriate land uses for maintaining compatibility between military operations and the adjacent community.



Grissom ARB completed its most recent AICUZ study in July 2014. This updated the previous study conducted in 1995. The 2014 AICUZ study evaluated the operations in existence at the time of the JLUS, largely characterized by the 434 ARW's KC-135 Stratotanker unit.

### **C. KC-46A Third Main Operating Base (MOB 3) Beddown Environmental Impact Statement (EIS)**

Grissom ARB was also evaluated by the Air Force for the potential addition of 12 KC-46A aircraft at the base. This type of aircraft is replacing older tanker planes used in aerial refueling missions. Establishment of MOB 3 is necessary to maintain a high level of military readiness (EIS, Volume I, Section 1.0). The Strategic Basing Process, conducted prior to the EIS, identified Seymour John Air Force Base (AFB) as the preferred location and Grissom ARB, Tinker AFB, and Westover ARB as "reasonable alternatives" (EIS, Executive Summary, Section ES 1.0). The EIS assesses the consequences of locating the KC-46A aircraft at each of the four bases on the following environmental factors

- » Acoustic Environment;
- » Air Quality;
- » Safety;
- » Soils and Water;
- » Biological Resources;
- » Cultural Resources;
- » Land Use;
- » Infrastructure;
- » Hazardous Materials and Waste;
- » Socioeconomics; and
- » Environmental Justice and Other Sensitive Receptors.

The Secretary of the Air Force uses the results of this analysis to assist in making a final decision regarding the proposed action. The Air Force ultimately selected Seymour Johnson AFB as MOB 3. Nonetheless, the community considers Grissom ARB an appropriate location capable of accommodating future KC-46A missions. Therefore, Chapter 3 sets out the potential impacts of such a mission, as described in the 2017 EIS, and Chapter 6 includes recommendations for the community to maintain the ability to receive these additional missions in the future.

### **D. Air Force Community Partnership (AFCP) Program**

The Air Force Community Partnership (AFCP) Program brings together civic and Air Force leaders to identify potential areas of mutual benefit and value, and develop initiatives to achieve such benefits. The AFCP Program promotes coordination at the local level through implementation of initiatives such as:

- » Cooperative medical/EMT training;
- » Shared firing ranges;
- » Coordination with local nonprofit organizations to donate excess/unsold commissary supplies;
- » Shared ballfields and other recreational resources.

The cooperative initiatives developed through the AFCP Program provide mutual financial



benefits and, perhaps more importantly, strengthen relationships between a military installation and the surrounding community.

## E. DoD Siting Clearinghouse

Development of energy infrastructure has the potential to create hazards to military aircraft and training and testing activities, including glint, glare, radar and electromagnetic interference. Tall structures also create potential hazards to aircraft flying at lower altitudes.

Recognizing the need for a coordinated evaluation process, Congress directed, in 2011, the establishment of the DoD Siting Clearinghouse to assess proposed energy projects, including wind turbines, solar power towers, and electrical transmission lines, and to analyze their potential impact on the military mission. This review process provides the DoD an opportunity to identify ways to prevent, minimize, or mitigate potential adverse impacts before the Secretary of Transportation takes final action on an energy developer's application.

Signed into law in December 2017, the National Defense Authorization Act for Fiscal Year 2018 included significant amendments to the Clearinghouse process, including a requirement to provide notice to the governor of the state in which a proposed energy project is located. The Clearinghouse is now known as the "Military Aviation and Installation Assurance Clearinghouse." At the time the JLUS was finalized, the changes to the Clearinghouse review process had not been fully implemented.

The FAA maintains an obstruction evaluation website, which includes a DoD Preliminary Screening Tool. This mapping system provides preliminary feedback on potential impacts to long-range radar and military operations. (<https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showLongRangeRadarToolForm>)

## F. Bird/Wildlife Aircraft Strike Hazard (BASH) Plans

The DoD created the Bird/Wildlife Aircraft Strike Hazard (BASH) prevention program in response to concerns with safety and property damage. An estimated 3,000 strikes involving military aircraft occur each year, resulting in over \$75 million in property damage (DoD, <http://www.dodpif.org/groups/bash.php>).

A BASH Plan specifies procedures to minimize hazards, including through education, operational changes, land management practices, and bird eradication using, for example, bioacoustic devices or pyrotechnics.

BASH Plans are a component of a military air installation's Integrated Natural Resources Management Plan (INRMP). Grissom ARB was declared a Category II Installation in 1997, thereby relieving the installation of the requirement to have an INRMP. Grissom does, however, have a BASH plan, which was last updated in September 2016, and is reviewed on an annual basis. During the JLUS development, the base reported few concerns related to bird or wildlife strikes.



## G. Readiness and Environmental Protection Integration (REPI) Program

Established in 2003, the DoD's Readiness and Environmental Protection Integration (REPI) Program helps maintain military readiness by addressing encroachment near military installations, primarily through buffer partnerships. Partnerships are established through voluntary agreements between the military, state and local governments, and environmental conservation organizations. The REPI Program offers funding to acquire easements from willing landowners in order to preserve existing compatible land uses and wildlife habitat on lands around military installations.

According to Air Force guidance, REPI projects should enhance Air Force operational requirements for current and future missions, however, REPI funds generally cannot be used with lands in the Clear Zone, but should be "part of a larger comprehensive compatible land use strategy." (AFI 32-7063, Section 5.3.2.2)

Although the REPI Program has "protected over 464,000 acres of land in 89 locations in 30 states," to date, there have been no REPI projects in the State of Indiana. ([http://www.repi.mil/Portals/44/Documents/Resources/REPI\\_FactSheet\\_EncroachmentPartnerships\\_032917.pdf?ver=2017-03-31-111658-547](http://www.repi.mil/Portals/44/Documents/Resources/REPI_FactSheet_EncroachmentPartnerships_032917.pdf?ver=2017-03-31-111658-547))

## H. United States Department of Agriculture (USDA) Partnerships

### *Agricultural Conservation Easement Program (ACEP)*

The Natural Resources Conservation Service (NRCS), a division of the United States Department of Agriculture (USDA), administers the Agricultural Conservation Easement Program (ACEP). Authorized by the 2014 Farm Bill, this program replaced the Farm and Ranch Lands Protection Program and the Grassland Reserve Program. The ACEP helps protect agricultural lands, wetlands, and forestlands by providing financial and technical assistance to landowners, state and local governments, American Indian tribes, and non-governmental organizations. In FY2018, NRCS plans to invest \$250 million in the ACEP. (<https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=nrcseprd1365223>)

The ACEP has three components:

- » Agricultural Land Easements;
- » Healthy Forests Reserve Program; and
- » Wetlands Reserve Enhancement Partnership.

### *Agricultural Land Easements (ALE)*

The NRCS provides up to 50% of the market value of Agricultural Land Easements (ALE) that protect working agricultural lands and other lands with conservation value. Where grasslands with special environmental significance are protected, up to 75% of the easement's market value may be provided.

### *Healthy Forests Reserve Program (HFRP)*

The Healthy Forests Reserve Program (HFRP) protects private forestlands through easements, 30-year contracts, and 10-year cost-share agreements. The three main objectives of the HFRP are to promote the recovery of endangered and threatened species, improve biodiversity, and enhance carbon sequestration. Twelve states, including Indiana, currently offer funding through the HFRP.





### Wetlands Reserve Enhancement Partnership (WREP)

The Wetlands Reserve Enhancement Partnership (WREP) assists in the protection, enhancement, and/or restoration of high priority wetlands. High priority wetlands are those offering critical habitat for migratory birds and other wildlife.

### *Sentinel Landscapes Partnership*

The Sentinel Landscapes Partnership, established in 2013, is a collaborative effort between the USDA, DoD, and United States Department of the Interior (DOI). The partnership is intended to leverage resources in locations where the priorities of these three agencies overlap. The Partnership defines Sentinel Landscapes as “working or natural lands important to the Nation’s defense mission – places where preserving the working and rural character of key landscapes strengthens the economies of farms, ranches, and forests; conserves habitat and natural resources; and protects vital test and training missions conducted on those military installations that anchor such landscapes.” (<http://sentinellandscapes.org/about/>)

While the Sentinel Landscapes Partnership is not a grant program per se, designation of a Sentinel Landscape may increase the likelihood of success in obtaining funding from a partner agency (i.e., USDA, DoD, DOI) or other program.

Of the six designated Sentinel Landscapes, all include well over a dozen local, state, and federal partners working to advance shared goals of resource conservation and maintenance of military readiness.

### *United States Forest Service Forest Legacy Program (FLP)*

The United States Forest Service (USFS) forest Legacy Program (FLP) encourages voluntary protection of privately owned forestlands. The FLP provides grants to State agencies, and this funding is utilized to acquire conservation easements on or provide for the fee simple purchase of environmentally important forests under threat of development or conversion to non-forest uses.





*Chapter 6:  
Conflict Resolution  
Strategies and  
Implementation Plan*

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## I. Introduction

Chapter 6 sets forth the Policy Committee’s recommended Conflict Resolution Strategies and an Implementation Plan to effectuate each strategy. These Strategies represent a “tool box” for addressing land use incompatibilities; or, more the case for Grissom ARB and its neighbors, for maintaining the current environment of general compatibility between military and civilian land uses around Grissom ARB, as was detailed in Chapter 3. The Policy Committee’s recommended Strategies, therefore, are intended to preserve compatible use for existing KC-135 operations and to facilitate potential operations – perhaps including a KC-46 mission.

Section 1 of this Chapter describes in detail the Conflict Resolution Strategies that the JLUS Policy Committee recommended, based on the background data it evaluated during the JLUS process and, in particular, the findings in Chapter 3’s Conflict and Compatibility Analysis. These Strategies are divided into the following seven categories:

- A. Comprehensive Planning
- B. Zoning and General Code Provisions
- C. Subdivision Regulations
- D. Notice to Property Owners & Occupants
- E. Interagency Cooperation
- F. Public Outreach and Communication
- G. Ongoing Planning and Coordination

These categories describe the nature of the planning process in which each Strategy would occur; or, as they are described in the Implementation Plan Overview in Section 2, the “Procedural Context” of each Strategy.

Section 2 of this Chapter sets forth the JLUS Implementation Plan for effectuating the Committee’s prioritized Conflict Resolution Strategies after the JLUS itself is complete. The “JLUS Implementation” phase is described in that section, as is the context in which that process is completed relative to the JLUS itself.

### “What’s Already Been Done”

Grissom ARB and the surrounding JLUS Jurisdictions have a long history of working together to avoid land use incompatibilities. As demonstrated in Chapter 3, this practice has paid off, as there are very few threats to land use compatibility at this time.

Nonetheless, the JLUS Policy Committee has recommended a complete “toolbox” of Conflict Resolution Strategies to protect the current operating environment over the long-run.



## II. Conflict Resolution Strategies

The JLUS Policy Committee recommended thirty-two individual Conflict Resolution Strategies to address any concerns identified in Chapter 3’s Conflict and Compatibility Analyses. Each of these Strategies is described in detail below and summarized in the Implementation Plan Overview in the next section. Of the total Strategies recommended, the Policy Committee has identified the following twenty-two, by category, to be High Priority.

- A. Comprehensive Planning
  - » Update Comprehensive Plans Relative to 2018 Joint Land Use Study
- B. Zoning and General Code Provisions
  - » Update Cass County Grissom Air Reserve Base Overlay District
  - » Consider Overlay Zoning in All Impact Areas
  - » Correct Miami County Zoning Maps
- C. Subdivision Regulations
  - » Subdivision Plat Acknowledgment Statements
- D. Notice to Property Owners & Occupants
  - » Real Estate Disclosures
  - » Permit Notices
- E. Interagency Cooperation
  - » Appoint JLUS Implementation Committee
  - » Develop an Action Plan for Clear Zone Compatibility
  - » Prepare an MOU for Wind Energy Development Processes
  - » Continue to Work with State and Federal Delegations
  - » Seek Opportunities Related to Locating KC-46A Aircraft at Grissom ARB
  - » Continue to Coordinate with Stakeholders on Potential Changes to US 31
  - » Continue to Pursue Inclusion of GUS in the NPIAS
- F. Public Outreach and Communication
  - » Standardized Process for Requesting Input from Grissom ARB
  - » Community Noise and Impact Inquiries
  - » Dedicated Military Planning and Coordination Website
  - » Additional Roadway Signage Related to Clear Zones
- G. Ongoing Planning and Coordination
  - » Establish a Standing Military Planning & Coordination Committee
  - » Prepare a Memorandum of Understanding for Continued Coordination
  - » Establish Internal Process for Grissom ARB Review of Proposed Wind Energy Developments
  - » Consider Potential Improvements to US 31 in Land Use Decisions

### KC-46A

The Policy Committee took several steps during the JLUS effort to ensure the community is capable of accommodating a KC-46A air refueling squadron at Grissom ARB, including:

1. Evaluating the off-base impacts of a KC-46A squadron;
2. Including KC-46A impact areas in recommendations related to Real Estate Disclosures
3. Recommending Overlay Zones in Miami County & Bunker Hill to include KC-46A impact areas
4. Including as a “high priority” Strategy continued coordination with state and federal officials on Grissom ARB’s ability to accommodate KC-46A missions





Each category of the thirty-two Conflict Resolution Strategies is described in the following sections.

### **A. Comprehensive Planning**

Chapter 4 describes existing provisions of the JLUS Jurisdictions' Comprehensive Plans related to Grissom ARB and land use coordination around the installation. It is recommended these changes are implemented prior to, or at least in conjunction with, the regulatory changes described in the following Section B, as the regulatory changes are based in part on these Comprehensive Plan recommendations.

The Policy Committee recommends that the JLUS Jurisdictions prepare comprehensive plan updates to reflect the efforts, processes, and recommendations of the JLUS in general terms and, also, to provide background policies and data as necessary to support applicable implementation tools for each jurisdiction.

### **B. Zoning and General Code Provisions**

Based on the findings of the JLUS, the Policy Committee recommends several changes to local zoning codes to maintain existing compatibility and to protect compatibility in the future, particularly as the demand for wind energy increases nationally and in the region. First, the Cass County Grissom Air Reserve Overlay District (Cass County Zoning Ordinance, Section 406) should be revised to increase consistency with current Air Force guidance and the overlay ordinances and process developed recently for Miami County and Bunker Hill. Not only will this decrease the potential for land use conflicts in Cass County, but also will increase local consistency and procedures for coordinating with Grissom ARB when developments are proposed in the vicinity of the air base.

In addition, a number of the remaining JLUS Jurisdictions have territory under the airspace of the base, but do not regulate land uses that could create interference or obstructions in that airspace. These jurisdictions are Peru, Kokomo, Howard County, Onward, Galveston, and Walton. Therefore, the Committee recommends these jurisdictions adopt review criteria under Grissom's imaginary surfaces to ensure future land uses do not obstruct or interfere with base operations.

Finally, during the development of the JLUS, the Team found some of Miami County's zoning maps do not yet reflect the most recent changes by the Miami County Board of Commissioners, in particular on lands in the Aeroplex.

### **C. Subdivision Regulations**

The Policy Committee recommends local governments responsible for approving and maintaining land plats adopt code provisions requiring plats within the imaginary surfaces, accident potential zones, and noise contours include a notification statement of these impacts. The statement would put future occupants on notice they could experience some level of impact related to Grissom ARB, that their activities could impact Grissom, and that additional regulations may apply to their property based on its proximity to the base. Plats may show contours in effect at the time of platting. The notice would indicate the local government that should be contacted for more information.

### **D. Notice to Property Owners & Occupants**

Several additional means of public notice also were recommended by the JLUS Policy Committee as appropriate within the Study Area. First, either voluntary or required real



estate disclosure statements should be prepared during implementation and presented for comment to the real estate community, in addition to other JLUS stakeholders. Based on public and professional feedback, the JLUS Implementation Committee would make a final recommendation as to the disclosures' content and most effective and fair means of implementing them.

Second, similar to the subdivision notice described in D above, the Policy Committee recommends permits issued by the local governments within the impact areas include a description of potential impacts that could be experienced at the property, the potential for the property to negatively impact Grissom, the potential that additional regulations (e.g., a local overlay zoning ordinance) apply, and the relevant agencies to be contacted for more information.

Finally, street signage may be placed within public rights of way to provide further notice that travelers (presumably including members of the local community) are entering military impact areas. Signage already has been placed along U.S. Highway 31 that advises drivers not to park or congregate within the areas of the highway that pass through the northeastern Clear Zone. Additional signage may include that similar to what Sumter County, SC has used to notify residents near Shaw Air Force Base of the potential noise experience. This is shown to the right.



## E. Interagency Cooperation

The Policy Committee recommends twelve Conflict Resolution Strategies to advance coordination between agencies with jurisdiction in the JLUS Study Area or with constituents and residents within the same area. Seven of these are considered high priority.

First, a JLUS Implementation Committee should be appointed soon after the JLUS Report is completed in order to proceed quickly with implementation of the Policy Committee's recommendations and strategies. As noted in the Implementation Plan below, this committee will likely include a steering committee of policy members and technical members, similar to the JLUS Policy Committee.

Second, there are a number of buildings and improvements located within the portion of the northeast Clear Zone that lie outside the Grissom ARB fence line (See Figure 3-32). Many of these are former Air Force buildings that were passed to community ownership when the Aeroplex was created and now are managed by the Miami County Economic Development Authority. The Community along with the 434th ARW should consider partnering in the development of an Action Plan to acquire, demolish, or relocate existing facilities currently within the clear zone to locations outside the clear zone over the long term. The Plan should address possible short, intermediate, and longer term solutions to acquire and ultimately transfer these properties to Air Force control/ownership as well as potential funding sources to achieve identified goals. All potential sources of state, federal, and local funding should be explored, including funding options available if Grissom Airport is included in the National Plan of Integrated Airport Systems (NPIAS).

Third, prepare a Memorandum of Understanding (MOU) specifically addressing the process for reviewing proposed wind energy facilities as early as possible in the development and



investment process. The Policy Committee recommends that the JLUS Implementation Committee coordinate with the Indiana Air National Guard and the Fort Wayne Air National Guard Station to see whether they would like to be parties to the MOU for wind energy. The MOU also should set out a clear and accessible means for wind energy developers to ascertain the extent to which a potential wind facility would interfere with Grissom ARB and, conversely, for Grissom to learn early in the process of any potential conflict before commitments and expectations develop. The agreed-to process should ensure the Air Force and Air National Guard have sufficient time to make a proper determination and recommendation. The process should be consistent with, but may augment the DoD Siting Clearinghouse procedures.

Next, responsible agencies should continue to coordinate at the state and federal levels on all activities that could impact, negatively or positively, Grissom ARB's operational capacity and environment. For example, the potential bedding down of a KC-46A tanker squadron at Grissom remains a high priority here. State and federal delegations should be kept informed of relevant actions needed to advance this priority and involved in channels of communications on these important topics. Other key issues that should remain in the scope of state and federal legislative efforts are improvements to U.S. Highway 31 and the inclusion of Grissom Airport in the National Plan of Integrated Airport Systems (NPIAS). Also, it is important that the Commanding Officers of the state's military installations coordinate. Other states, like Florida, for example, have a formalized means of coordination among high ranking military officials and state officials to ensure communication between these levels of government.

At the state level, the Policy Committee has recommended several key Strategies. For example, the state Military Base Planning Council currently does not include a member representing Grissom ARB, because the definition of "military base" does not capture Grissom. A simple statutory revision could clarify this. Similarly, the definition of "military bases" with respect to required coordination between local governments and military installations prior to potentially incompatible land use decisions, also does not include Grissom ARB. Even though this community coordinates very well informally and some have adopted mandatory coordination through zoning overlays, the Policy Committee nonetheless supports a directive from the state that this coordination occur.

Finally, at the local level, the Policy Committee recommends that steps be taken to ensure lines of communication between Grissom ARB and local government officials remain open. For example, Grissom ARB officials could provide updates to local governing bodies regarding changes and happenings at the installation, either on a regular cycle or upon request. Other JLUS communities have found this connection augments relationships between the community the military and reduces the chances of misinformation being disseminated. Similarly, at the local level, the Grissom Aeroplex should continue to coordinate with the Air Force as decisions regarding redevelopment within the Aeroplex are made. This will help ensure that, as new economic development projects and plans are implemented, compatibility near the base is maintained or improved. The Policy Committee anticipates this coordination to be among the subjects covered by the generalized Memorandum of Understanding discussed in section G below.





## F. Public Outreach and Communication

The Policy Committee recommends several additional steps in the areas of public outreach and communication, in order to avoid potential conflicts with complete and accurate information flows between the military and civilian communities. These recommendations also put into place formal processes for facilitating communication between the military and civilians and civilian agencies.

First, through the MOU described in G, below, there should be a formal means of local government receiving input from Grissom ARB when land development decisions near the base are being made. To an extent, this coordination may be addressed for the jurisdictions that have adopted zoning overlays, which included Cass County at the time of the JLUS, with Miami County and Bunker Hill with overlays under consideration. Nonetheless, the JLUS Implementation Committee should consider including clarifying or additional coordination steps when it develops the MOU described below.

Second, community inquiries related to noise or other off-base impacts from Grissom ARB should be easily directed to appropriate military personnel and handled in a consistent manner. The JLUS revealed, in fact, that there are very few inquiries from citizens related to off-base impacts. Regardless, if an inquiry is received procedures should be maintained to ensure they are responded to in a timely way and that the resolution of each inquiry is documented and retained in a consistent way.

Third, the JLUS Implementation Committee may consider whether a website should be maintained, perhaps as a page on an existing agency website, as a central location for information related to land use and military planning in the area. This would allow land developers, citizens, local planners, and the base to refer to the same place for all materials and procedures related to joint land use planning efforts.

Fourth, while the roads in the northeastern Clear Zone have been posted, warning motorists against stopping or parking in that area, similar signage has not been placed at the southwestern end of the runway. However, local law enforcement has been active in keeping the areas clear and coordinating with Grissom ARB officials on management of the off-base portions of the area. At this time, the Policy Committee believed adding signage along these roads would further address the presence of the roadway in the southwest Clear Zone. The Committee also recommends continued monitoring of this area and, should compatibility issues arise, consideration of access control improvements or other means of addressing the proximity of the roadway.

Finally, there were two additional areas the Committee recommended for public outreach. One, the JLUS Implementation Committee should publish noise level reduction (NLR) standards for voluntary use by property owners electing to incorporate construction standards that reduce interior noise levels. And, two, the Implementation Committee should develop outreach materials related to the use of drones in the vicinity of military installations. Drone activity is largely preempted to the authority of the federal government, although this area of the law is rapidly evolving. In any case, local governments can be instrumental in “getting the word out” to drone users as to current federal rules and guidelines. Though much has been published by the FAA, state agencies, and hobbyist groups, the information is not necessarily centrally-located and presented in a user-friendly manner. This information may be appropriate for inclusion on a centralized website, as discussed above, if the JLUS Implementation Committee elects to pursue that recommendation.



## G. Ongoing Planning and Coordination

There are six (6) strategies recommended for the purpose of maintaining a strong framework for ongoing planning and coordination in a rapidly changing military environment.

One, the JLUS Implementation Committee should set up an ongoing, or “standing,” Military Planning and Coordination Committee, which would oversee ongoing matters related to military-civilian land use after the JLUS Implementation process. This is the “phase” designated as Phase 3 in the Monitoring Plan discussed below. This committee likely would meet every three to six months to discuss changes on the Reserve Base and in the community and would facilitate community discussions or processes needed to address them.

Two, a generalized “Memorandum of Understanding” should be prepared and signed by stakeholder agencies (e.g., Grissom ARB, cities, towns, counties, MCEDA) in order to facilitate ongoing planning and coordination. This MOU (distinct from the Wind Energy MOU discussed in Section E, above) will guide ongoing coordination between the base, local governments, and other stakeholder agencies. This provides a consistent forum for military and civilian planners, business interests, transportation agencies (including INDOT), utility providers, and others to share ideas, concerns, and approaches to challenges.

Three, in conjunction with the development of the Wind Energy MOU discussed in Section E, Grissom ARB will confirm existing internal procedures provide a sufficient opportunity for the Air Force to adequately respond to proposed wind energy systems and turbines. To the extent improvements in process, technology, or information are needed, these should be identified and incorporated into the Wind Energy MOU or other internal base protocols.

Four, local governments, Grissom ARB, MCEDA, and other stakeholders should monitor proposed plans for improvements and upgrades to U.S. Highway 31 and the resulting growth or changes in land use in the area they could bring.

Five, there currently are a series of deed restrictions on the Aeroplex properties managed by the Miami County Economic Development Authority, which include terms related to repairs and expansions to buildings within the northeast Clear Zone. The legal relationship between these documents and local zoning laws should be examined to clarify which terms and ordinance provision prevail. This effort may be taken up with the Clear Zone Action Plan discussed in Section E.

Six, a stormwater study was prepared in 2004, which may be outdated at this point. Flooding was occurring adjacent to the base once every 3 to 5 years at the time of the JLUS. However, little flooding was occurring on base. Since the level of concern was not urgent at the time, the Policy Committee assigned the update of the 2004 stormwater study a “medium” priority level. Nonetheless, the Committee felt the issue was important enough to address over the mid-term; at least within ten years from the completion of the 2018 JLUS.

## III. JLUS Implementation Plan

The JLUS Implementation Plan summarizes, for each Conflict Resolution Strategy, the parties or agencies with primary implementation responsibility, an estimated timeframe for completion, a cost estimate, and a potential funding source. The party responsible for leading on each Strategy is a Federal, State, Local, or non-profit agency with jurisdiction over the matter, likely to have



available resources and an interest in seeing the Strategy through. Finally, the JLUS Implementation Plan includes a Monitoring Plan that describes the next steps to fully implement the Joint Land Use Study and its recommended Strategies.

### A. Implementation Plan Overview

The matrix set out below provides an overview of the Conflict Resolution Strategies described in detail above. For each Strategy listed, the parties primarily responsible for implementing the Strategy are indicated. Once JLUS Implementation begins (see Monitoring Plan, below), the JLUS Implementation Committee may engage stakeholders in addition to the “Responsible Parties” to assist with a particular Strategy. Finally, the estimated costs, timeframes for implementation, and potential funding sources for each Strategy also are provided.

The anticipated timeframes for implementation are shown:

S = Short-term, within the first 3 years following completion of the Joint Land Use Study

M = Medium-term, between 4 years and 10 years following completion of the Joint Land Use Study

L = Long-term, between 11 years and 20 years following completion of the Joint Land Use Study

The range of estimated costs for each Conflict Resolution Strategy is shown as follows:

\$ = less than \$5,000

\$\$ = between \$5,000 and \$25,000

\$\$\$ = greater than \$25,000

#### Cost Estimates

Where a Strategy includes multiple deliverables, estimated costs reflect amounts needed to prepare all deliverables associated with a Strategy.

Note that estimated costs reflect the amounts needed to prepare the deliverables for the full Strategy to be effectuated. For example, a high priority Strategy is that the comprehensive plans of each JLUS Jurisdiction (i.e., the local governments in the JLUS Study Area) be updated to reflect the JLUS process and recommended Strategies. The estimated costs to do so is indicated as “\$\$,” which equates to between \$5,000 and \$25,000. That assumes that the plans for all fourteen (14) local governments are updated as a single project costing between \$5,000 and \$25,000; and, not that each comprehensive plan would require that level of funding for an individual plan amendment.

Finally, the most likely potential funding source for each Conflict Resolution Strategy is identified. “Potential OEA funding” is identified is an available funding source for Strategies that have commonly qualified for DoD’s Office of Economic Adjustment funding during JLUS Implementation. However, please note, **OEA funding is contingent on availability and qualifications and must be applied for by a local planning agency.** If funding for a particular Strategy is not available from OEA, a local JLUS Jurisdiction, state agency, or other source of funding may be sought.

The priority given to a particular tool is relative to the urgency of the issue to be addressed, estimated costs, and, most important, whether immediate safety and quality of life concerns are at issue if the Strategy were not implemented. The Policy Committee prioritized each Conflict Resolution Strategy as either “medium” or “high” priority.





KEY							
Planning Term: S (Short) = first 3 years; M (Mid) = next 10 years; L (Long) = next 20 years							
Relative Priority: H = High (red); M = Medium (orange); L = Low (green)							
Estimated Costs: \$ = < \$5,000; \$\$ = \$5,000 to \$25,000; \$\$\$ = greater than \$25,000							
Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
A. Comprehensive Planning	High	Update Comprehensive Plans Relative to 2018 Joint Land Use Study	Update the JLUS Jurisdictions' Comprehensive Plans to reflect the efforts, processes, and recommendations from the 2018 Joint Land Use Study. Include policies to support regulatory recommendations in the 2018 JLUS.	JLUS Jurisdictions	S	\$	Existing Staffing or Potential OEA Funding
B. Zoning and General Code Provisions	High	Update Cass County Grissom Air Reserve Base Overlay District	Update the Cass Co. Grissom Overlay in accordance with current Air Force instructions and to reflect a potential KC-46A squadron. Expand the notice area to Grissom ARB to include all imaginary surfaces. Update the overlay maps to exclude incorporated areas where Cass County does not have zoning authority, to illustrate where overlay district regulations do not apply.	Cass County	S	\$\$	Potential OEA Funding
	High	Consider Overlay Zoning in all Impact Areas	While Cass County has an overlay and Miami County & Bunker Hill were preparing overlays during the JLUS, the following jurisdictions do not have zoning overlays precluding airspace obstructions or intrusions: Peru, Onward, Walton, Galveston, Howard County, and Kokomo.	JLUS Jurisdictions MCEDA	S	\$\$\$	Potential OEA Funding
	High	Correct Miami County Zoning Maps	Miami County to update its zoning maps to ensure the areas on and near the Grissom Aeroplex reflect the most recent zoning actions by the Miami County Commissioners.	Miami County	S	\$	Existing Staffing
C. Subdivision Regulations	High	Subdivision Plat Acknowledgement Statements	On subdivision plats, require notice of potential military impacts, the potential for additional regulations to apply to the lots, and the source of further information and details on nearby operations at Grissom Air Reserve Base.	JLUS Jurisdictions (except Converse)	S	\$	Potential OEA Funding

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Estimated Costs: \$ = < \$5,000; \$\$ = \$5,000 to \$25,000; \$\$\$ = greater than \$25,000							
Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
D. Notice to Property Owners & Occupants	High	Real Estate Disclosures	Make a real estate disclosure available to indicate potential military impacts and sources of further information and details, after consultation with the real estate communities. Noise Disclosures reflect both the KC-135 and the potential KC-46A. If required, disclosure requirements should be included in local codes; if voluntary, disclosures should be widely disseminated.	JLUS Jurisdictions REALTORS Association of Central Indiana	S	\$	Potential OEA Funding
	High	Permit Notices	On building permits and improvement location permits associated with properties located in the JLUS Study Area, require notice of potential military impacts, potential additional regulations, and sources of further information and details.	JLUS Jurisdictions	S	\$	Potential OEA Funding
	Medium	Street Signage	Consider posting signage on streets within the JLUS Study Area notifying the public of potential military impacts, including noise. The JLUS Implementation Committee should work with the community to develop standards, including number, size, location, and content.	JLUS Jurisdictions INDOT	M	\$\$	Local and State Sources
E. Interagency Cooperation	High	Appoint JLUS Implementation Committee	Appoint members to a "JLUS Implementation Committee" to facilitate implementation of the Conflict Resolution Strategies in Chapter 6 of the JLUS and, if appropriate, to apply for OEA funding, if available.	MCEDA	S	\$	Existing Staffing
	High	Action Plan for Clear Zone Compatibility	Develop an Action Plan to achieve land use compatibility in the northeast Clear Zone; consider acquisitions, relocation, amortization, land swaps, and other available tools for removing noncompatible structures and uses from the off-base portion of the Clear Zone on former Air Force properties.	MCEDA	S	\$\$\$	Potential OEA Funding
	High	Prepare an MOU for Wind Energy Development Processes	Develop a "specific-purpose" Memorandum of Understanding (MOU) between Grissom ARB and the JLUS Jurisdictions that will facilitate early and transparent cooperation between Grissom ARB and wind energy developers within the JLUS Study Area, prior to and in conjunction with the formal and informal DoD Siting Clearinghouse process.	Grissom ARB JLUS Jurisdictions	S	\$\$	Potential OEA Funding

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Estimated Costs: \$ = < \$5,000; \$\$ = \$5,000 to \$25,000; \$\$\$ = greater than \$25,000							
Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
E. Interagency Cooperation	High	Continue to Work with State and Federal Delegations	Maintain ongoing efforts to ensure state and regional awareness remains high as to the military value Grissom ARB adds to north central Indiana; work with elected federal delegates and remain available to address future concerns related to encroachment, military sustainability in Indiana, and potential expansion of military training and operations at the airbase.	MCEDA	S / Ongoing	\$	Existing Staffing
	High	Seek Opportunities Related to Locating KC-46A Aircraft at Grissom ARB	Continue to prepare for a KC-46A tanker squadron, including timely implementation of JLUS recommendations, identification of lessons learned from 2017 EIS process, coordination with State and Federal Delegations (see Strategy above), and identify and address any land use constraints on or near Grissom ARB that could create a challenge to a KC-46A squadron operating at the airbase.	MCEDA	S / Ongoing	\$	Existing Staffing
	High	Continue to Coordinate with Stakeholders on Potential Changes to US 31	Continue to coordinate with the Indiana Department of Transportation (INDOT) and other Stakeholders on potential changes to US 31 in the vicinity of Grissom ARB, particularly as they relate to access to the airbase.	Grissom ARB JLUS Jurisdictions INDOT MCEDA	S / Ongoing	\$	Existing Staffing
	High	Continue to Pursue Inclusion of GUS in the NPIAS	Continue to pursue the inclusion of Grissom Airport (GUS) in the National Plan of Integrated Airport Systems (NPIAS). As a joint-use airfield, this would allow Grissom ARB to access FAA funding to improve the airfield, conduct studies, and protect the land around the airfield.	Grissom ARB MCEDA Indiana Office of Defense Development	S	\$	Existing Staffing
	Medium	Coordinate with Other Indiana Military Installations and IODD	Coordinate with the Commanding Officers of Indiana military installations and with the Indiana Office of Defense Development to increase statewide coordination. Consider regular meetings of the Commanding Officers. Designate a local point of contact for coordination with the IODD. Consider statewide legislation or interagency agreements to facilitate statewide coordination.	Grissom ARB MCEDA Indiana Office of Defense Development	S	\$\$	Existing Staffing or Potential OEA Funding

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Estimated Costs: \$ = < \$5,000; \$\$ = \$5,000 to \$25,000; \$\$\$ = greater than \$25,000							
Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
E. Interagency Cooperation	Medium	Include Grissom ARB as a Member of the Military Base Planning Council	Indiana Code section 4-3-21, et seq. establishes the state Military Base Planning Council charged with protecting military sustainability and tracking the impacts of encroachment, among other things. The statute's definition of "military base" currently does not include Grissom. The local legislative delegation should be approached for the possibility of revising the statute to include Grissom ARB.	MCEDA	S	\$	Existing Staffing or Potential OEA Funding
	Medium	Require Coordination with Grissom Prior to Certain Local Land Use Decisions	Indiana Code section 36-7-30, et seq., requires certain "military bases," other than Grissom ARB, to coordinate with the base commander before certain land use decisions are made by nearby local governments. The local legislative delegation should be approached for the possibility of revising the statute to include Grissom ARB as a "military base" for these purposes.	MCEDA	S	\$	Existing Staffing or Potential OEA Funding
	Medium	Provide Periodic Updates to Local Governments	Grissom ARB representatives should offer periodic updates on base operations to local governing bodies and plan commissions at their regularly scheduled meetings. These updates may be formalized as part of the Memorandum of Understanding (MOU) described in the Strategy under "Ongoing Planning and Coordination," below.	Grissom ARB JLUS Jurisdictions	S / Ongoing	\$	Existing Staffing
	Medium	Continued Coordination between Grissom and MCEDA on Development Plans for the Aeroplex	Grissom ARB and the Miami County Economic Development Authority (MCEDA) should continue to coordinate on development and redevelopment of the Grissom Aeroplex to maintain current conditions of compatibility. Consider developing a master plan for future development that will advance economic programs in the community and also protect compatibility with the airbase.	Grissom ARB MCEDA	S / Ongoing	\$\$	Existing Staffing
F. Public Outreach & Communication	High	Standardized Process for Requesting Input from Grissom ARB	Revise JLUS Jurisdiction codes and develop a Memorandum of Understanding (see "Ongoing Planning and Coordination" Strategies, below) to maintain a consistent, transparent, and efficient process for notifying Grissom ARB of proposed development in the JLUS Study Area, and for receiving input and feedback from Grissom ARB.	Grissom ARB JLUS Jurisdictions	S	\$\$	Potential OEA Funding

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Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
F. Public Outreach & Communication	High	Community Noise and Impact Inquiries	Supplement existing protocols regarding public reporting of noise and other impacts from Grissom ARB. Include on Grissom ARB website the installation's point of contact, policies, and timeframes for responding to inquiries.	Grissom ARB	S	\$	Existing Staffing or Potential OEA Funding
	High	Dedicated Military Planning and Coordination Website	The Military Planning & Coordination Committee (Strategy below) should maintain a website dedicated to provide information such as: - the 2018 Joint Land Use Study and related materials; - anticipated changes in mission at Grissom ARB - GIS layers available to citizens in order to easily identify applicable regulations; - downloadable brochures identifying regulations, policies, impact areas, and points of contact; - how to avoid land uses and land use activities (like drone use or RFI) that would negatively impact Grissom; - links to the Clearinghouse website and DoD Preliminary Screening Tool; - contact & reporting information for Grissom ARB.	JLUS Implementation Committee Grissom ARB JLUS Jurisdictions	S	\$\$	Potential OEA Funding
	High	Additional Roadway Signage Related to Clear Zones	Add signs along the roads in the southwestern Clear Zone warning travelers against stopping or parking.	JLUS Jurisdictions INDOT	S	\$	Local and State Sources
	Medium	Noise Level Reduction Construction Standards	Make available to the community noise level reduction (i.e., attenuation) construction standards, which help to mitigate noise associated with military air operations and training; these would be available for use voluntarily for residential or non-residential developments, but would not be mandatory or required by code.	JLUS Jurisdictions MCEDA	S	\$	Potential OEA Funding

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Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
F. Public Outreach & Communication	Medium	Civilian Unmanned Aircraft Systems (UAS)	Publicize federal requirements and FAQs related to the use of "drones" in the vicinity of Grissom ARB, and links to FAA and other relevant federal agencies. Evaluate the need for signage near the Installation and increased public awareness of how to notify Grissom ARB of drone use within federally protected areas.	Grissom ARB JLUS Jurisdictions	S	\$	Potential OEA Funding
G. Ongoing Planning and Coordination	High	Establish a Standing Military Planning & Coordination Committee	Establish a Military Planning and Coordination Committee to facilitate ongoing planning and coordination after tools recommended in the 2018 JLUS have been approved. The MPCC will monitor the implementation of an MOU (see below). The framework for operating the MPPC may be incorporated into the MOU or into a separate set of bylaws.	Grissom ARB JLUS Jurisdictions MCEDA	S	\$\$	Existing Staffing or Potential OEA Funding
	High	Prepare a Memorandum of Understanding (MOU) for Continued Coordination	The JLUS Implementation Committee will develop an ongoing Memorandum of Understanding between the local governments, Grissom ARB, and other key stakeholders, to guide future coordination efforts with respect to land use between the Grissom ARB and the community. The MOU will facilitate, in part, other recommendations included in Chapter 6 of the JLUS.	Grissom ARB JLUS Jurisdictions MCEDA	S	\$\$	Potential OEA Funding
	High	Establish Internal Process for Grissom ARB Review of Proposed Wind Energy Developments	Establish an internal process at Grissom ARB to review and respond to proposals for wind energy development in the vicinity of the installation. Designate a single point of contact at the installation to receive and respond to inquiries.	Grissom ARB	S	\$	Existing Staffing
	High	Consider Potential Improvements to US 31 in Land Use Decisions	Consider the location and extent of potential INDOT improvements to US 31 in relationship to local development approvals and utility infrastructure locations. Avoid approval of structures that could increase or create incompatible land uses within the Grissom ARB impact areas.	JLUS Jurisdictions	S	\$	Existing Staffing or Potential OEA Funding



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Procedural Context	Relative Priority	Conflict Resolution Strategy	Strategy Description	Responsible Parties	Time-frame	Est. Costs	Funding Source
G. Ongoing Planning and Coordination	Medium	Clarify Clear Zone Deed Restrictions Pertaining to Existing Structures	Clarify existing deed restrictions with respect to properties owned by the Miami County Economic Development Authority (MCEDA) and located in the Clear Zone. The deed restrictions currently prohibit expansion of buildings located in the Clear Zone, but not the rebuilding of destroyed structures.	Grissom ARB MCEDA	S	\$	Existing Staffing
	Medium	Update 2004 Storm Water Capacity Analysis at Grissom ARB	While stormwater causes minimal mission impacts at Grissom ARB today, occasional (i.e., every 3-5 years) flooding occurs in adjacent off-base areas as a result of the installation's stormwater management system. An update to the 2004 Stormwater Study would identify any continued or new on-base constraints that could impact current for future missions and operations in the installation.	Grissom ARB Miami County	M	\$\$\$	Existing Staffing or Potential OEA Funding

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## B. Monitoring Plan

### *The JLUS in Three Phases*

Like other local government planning efforts, the Joint Land Use Study process involves three general phases:

- » Phase 1: The planning process, during which needs are assessed and recommendations to address those needs are identified;
- » Phase 2: Developing implementation tools; and
- » Phase 3: Adopting and implementing those tools.

Phase 1 is the Joint Land Use Study itself: the process that resulted in this report. Similar to the ongoing comprehensive planning efforts among the JLUS Jurisdictions, this is the “planning process.”

Phase 2, “JLUS Implementation” will include the development of the tools to implement the Conflict Resolution Strategies set out in this Chapter. A “JLUS Implementation Committee,” similar to the JLUS Policy Committee, would perform the implementation tasks described above, including preparation of MOUs, documents, ordinances, agreements, comprehensive plan policies, and the like. JLUS Implementation is commonly funded with a matching grant from the Office of Economic Adjustment (OEA). That funding, however, is contingent upon availability and, it should be noted, **is not a prerequisite to effective implementation.**

During Phase 3, “Tools Adoption,” the Strategy documents developed in Phase 2 would be presented to the appropriate agencies (e.g., local governments, signatories to the MOU, and Grissom ARB) for adoption and/or application; similar to a zoning ordinance or interlocal agreement being implemented after having been adopted or executed. A standing “Military Planning & Coordination” committee would oversee this ongoing effort, most likely according to the terms of a Memorandum of Understanding. The recommended Military Planning and Coordination Committee and Memorandum of Understanding are detailed above. Table 6-1 illustrates the three phases.

## C. JLUS Implementation Committee

The “JLUS Implementation Committee” will oversee Phase 2 and the tasks necessary to implement the Conflict Resolution Strategies set forth in Chapter 6. JLUS Implementation Committees typically are assembled and conducted in a manner similar to the JLUS Policy Committee during the JLUS itself. During Phase 2, the JLUS Implementation Committee would meet periodically and have staff and a committee available to provide technical support – similar to the JLUS Technical Working Group during Phase 1.

The length and cost of Phase 2 will depend, in part, on how many and which of the Conflict Resolution Strategies the community wishes to pursue in the near term. The prioritization scheme used in the JLUS Implementation Overview will assist in planning for and guiding Phase 2, including developing a scope of work and allocation of needed resources.

Therefore, as the community begins Phase 2, it will appoint a “JLUS Implementation Committee” to undertake the tasks needed to accomplish the high priority Strategies recommended by the JLUS Policy Committee. The JLUS Implementation Committee will consist of JLUS Jurisdiction representatives, officials from Grissom ARB, MCEDA, and other stakeholders involved in the JLUS or to be affected by the recommended Strategies.



Table 6-1. Three Phases of the Joint Land Use Study Process

	<b>Phase 1</b>	<b>Phase 2</b>	<b>Phase 3</b>
	<b>JLUS</b>	<b>JLUS IMPLEMENTATION</b>	<b>STRATEGY ADOPTION</b>
<b>Phase Objective</b>	Needs Assessment Tools Identification	Tools Development	Tools Adopted, Effective, Amended as Needed
<b>Oversight</b>	Policy Committee and Technical Working Group	JLUS Implementation Committee and Technical Working Group	Military Planning & Coordination Committee (MPCC)
<b>Funding Eligibility</b>	OEA-eligible	OEA-eligible	Local Funding, as needed
<b>Memorandum of Understanding (MOU)</b>	MOU Recommended	MOU Drafted	MOU Adopted and Effective





# *Appendices*

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## APPENDIX A: PUBLIC SURVEY RESULTS

### BACKGROUND

As part of the public outreach efforts for the Grissom Air Reserve Base (ARB) Joint Land Use Study (JLUS), a 24-question survey was created and distributed to the local public. The goal of the survey was to provide the JLUS Policy Committee, JLUS Technical Working Group, and the JLUS Project Team with general demographic information about the local populace, a sense of the public's opinions about Grissom ARB, and a sense of the Air Force's relationship with the community.

There were two main options for the public to provide information via the survey: they could complete the survey online, or they could download a paper copy of the survey from the project website and complete it by hand. Surveys completed online were collected automatically. Paper copies of the survey could be delivered in person to the Miami County Economic Development Authority office, or mailed to the JLUS Project Team.

A total of 12 survey responses were completed and collected – 11 online surveys and one paper copy was delivered. The survey questions can be divided into five main categories:

- General Demographics;
- Connection and Familiarity with Grissom ARB;
- Communication Between Grissom ARB and the Community;
- Perception of Grissom ARB in the Community; and,
- Impacts of Grissom ARB in the Community.

Additionally, survey participants were given the opportunity to provide general comments, questions, or other statements regarding the Grissom ARB at the end of the survey.

Observations of responses to questions in each category, as well as a general summary of the comments provided at the end of the survey, are shown below in "Key Observations." Charts and graphs are also included for select questions. The raw data for each question, including responses and comments provided, can be found in "Survey Results."



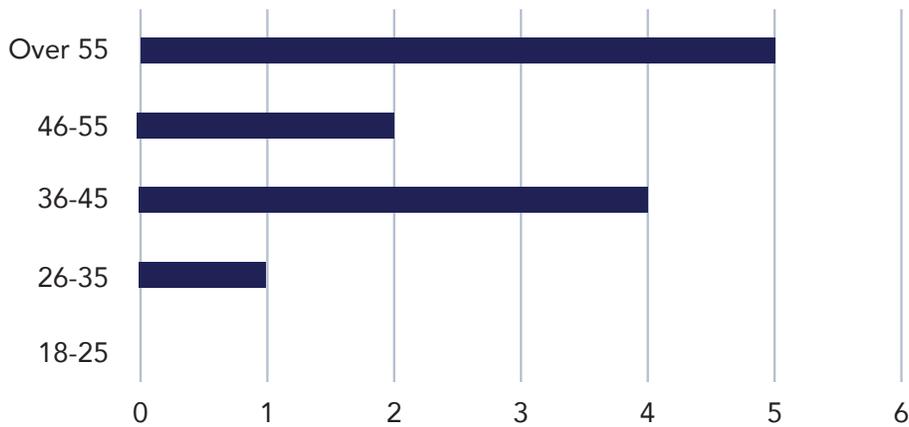


## KEY OBSERVATIONS

### General Demographics

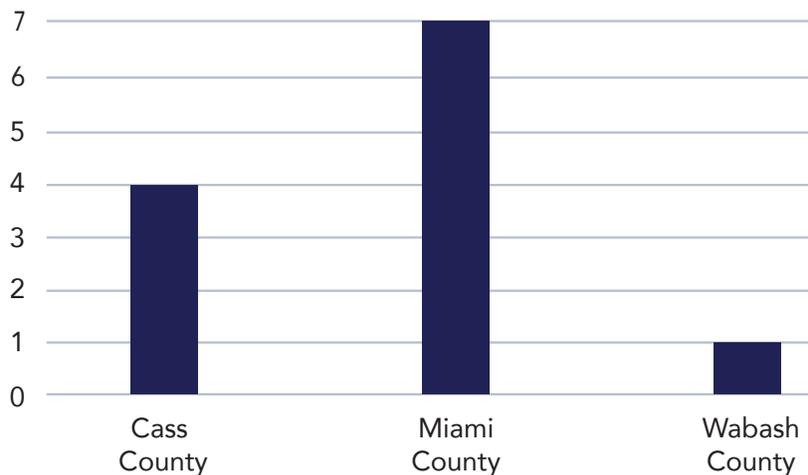
Most respondents are over the age of 40 (91%), including 58% of respondents over the age of 55. All respondents live within the four county JLUS Study Area, with most residing in Miami County (58%). Most respondents (66%) live in Logansport (Cass County) or Peru (Miami County). The "Other" employment category represented a large number of respondents (36%) along with employment in the federal, state, or local agencies (27%).

### In What Age Range Do You Fall?

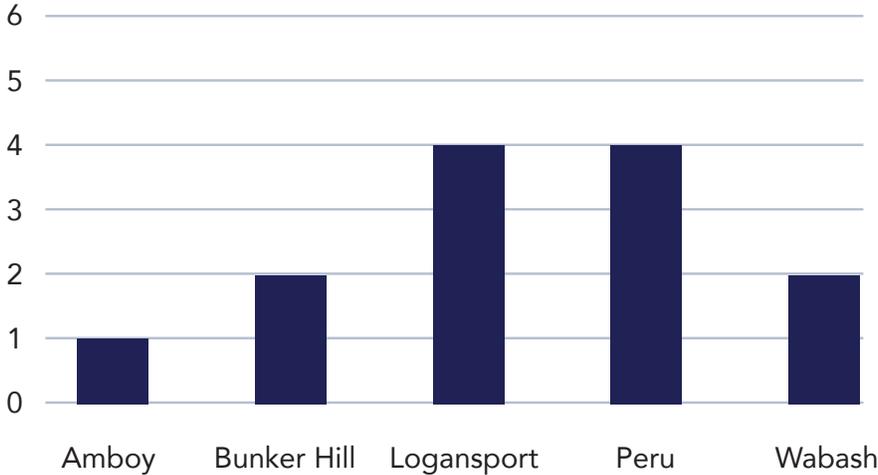


\*There were 0 responses for "Under 18."

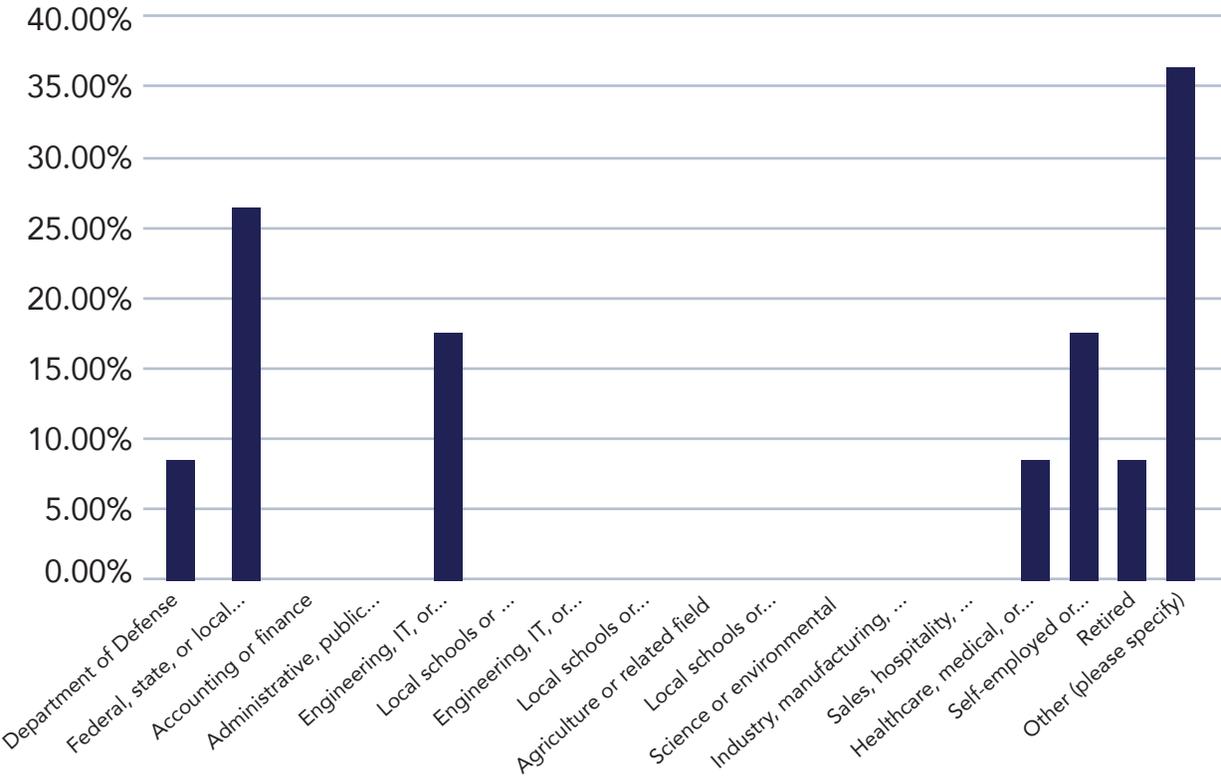
### Number of Respondents in Each County



### Number of Respondents in Each City/Town



### In What Industry Are You Employed? (You may choose more than one)





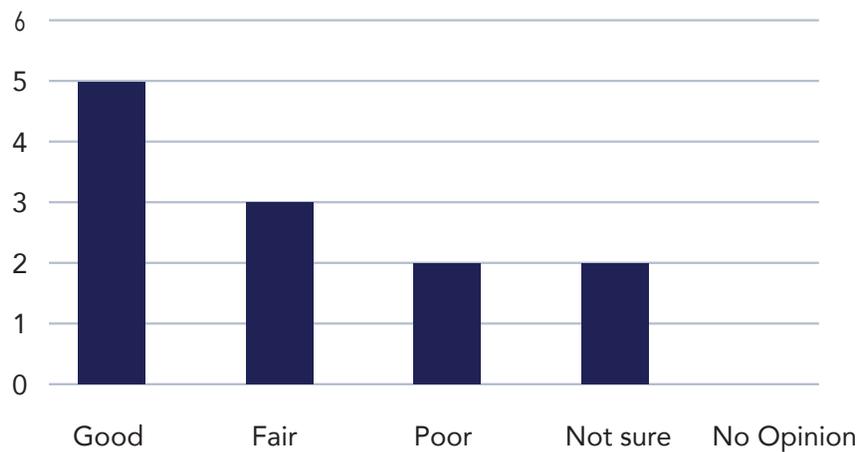
### Connection and Familiarity with Grissom ARB

While no respondents are currently on active duty (0%) and over half do not have a direct personal connection to the armed forces (63%), most respondents know someone who works or trains at Grissom ARB (45%). Most respondents live in close proximity to Grissom ARB, within 5 miles (55%), while 91% have visited for various reasons.

### Communication between Grissom ARB and the Community

The ties between Grissom ARB and the community are apparent, as most respondents get their information about Grissom ARB from people they know or from general community discussion (63.6%). Only 9% of respondents get most of their information about the installations from social media. The vast majority (66%) of respondents characterize communication between the Air Force and the community as good (45.5%) or fair (27.2%). However, two respondents feel the communication between the Air Force and community is poor.

**How Would You Characterize Communication Between the Air Force and the Community?**

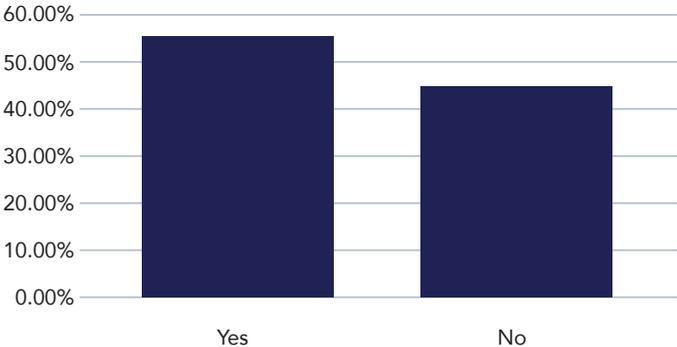


A little over half of respondents (55%) know who to contact at Grissom ARB if they have a question or a concern. While a little under half of all respondents (45.4%) do not know who to contact at Grissom ARB, most respondents indicated that they have not needed to contact anyone at Grissom ARB regarding a question or concern (72.7%).

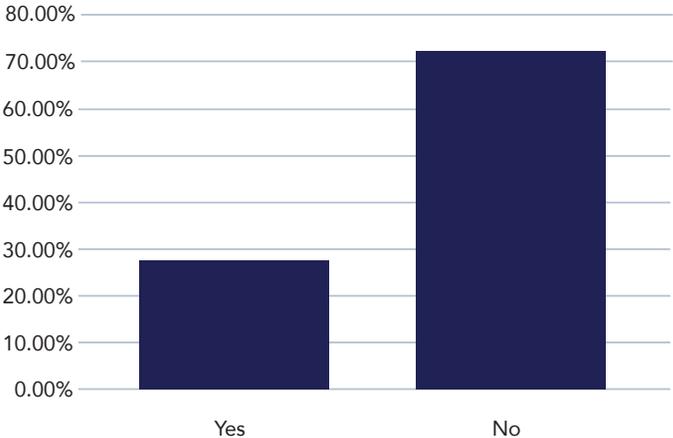




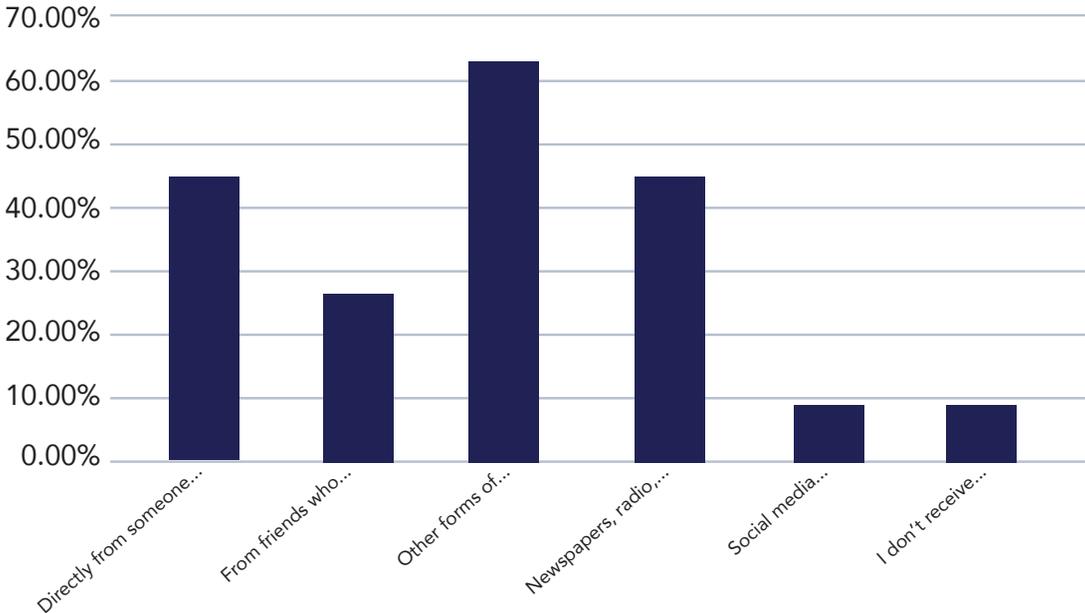
**If You Needed to Contact Grissom ARB to Ask For Information or Express Concerns With Base Activities, Would You Know What Office or Person to Reach Out to?**



**Have You Ever Contacted Grissom ARB About Information or a Concern?**



**Where Do You Get Your Information About Grissom ARB?  
(You may choose more than one)**

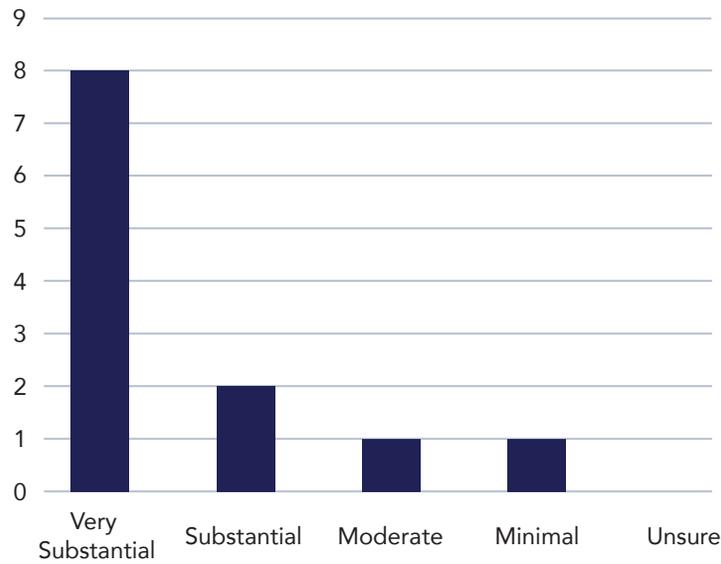




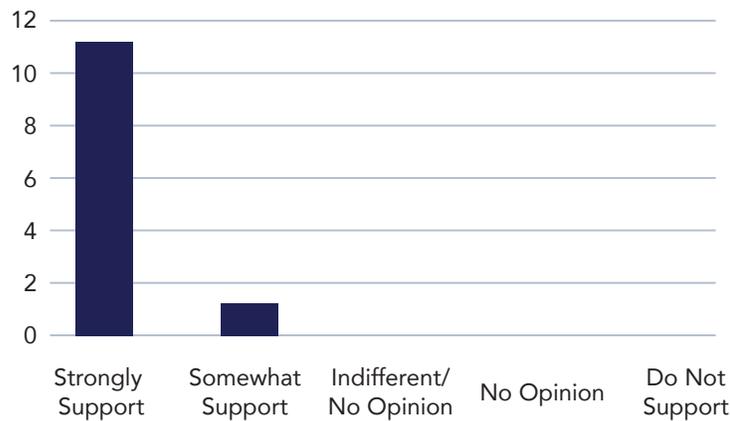
### Perception of Grissom ARB in the Community

Eight respondents think the military presence and economic impact in the community is very substantial to the region (63.6%) or substantial (18%); while 9.09% of respondents believe the Air Force’s contribution to the regional economy is moderate or minimal respectively. However, many respondents strongly believe (90.9%) that the local community must continue to take necessary steps to ensure the Air Force’s contributions to its economy are sustained and enhanced.

**How Substantial Do You Think the Air Force’s Contribution to the Regional Economy is?**



**How Strongly Do You Support This Statement: “The Local Community Must Continue to Take Necessary Steps to Ensure the Air Force’s Contribution to Our Economy are Sustained and Enhanced.”**

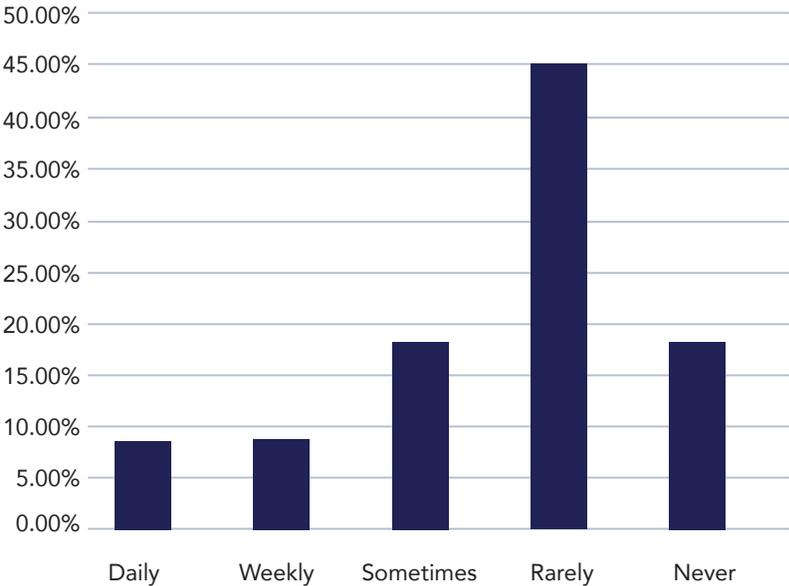




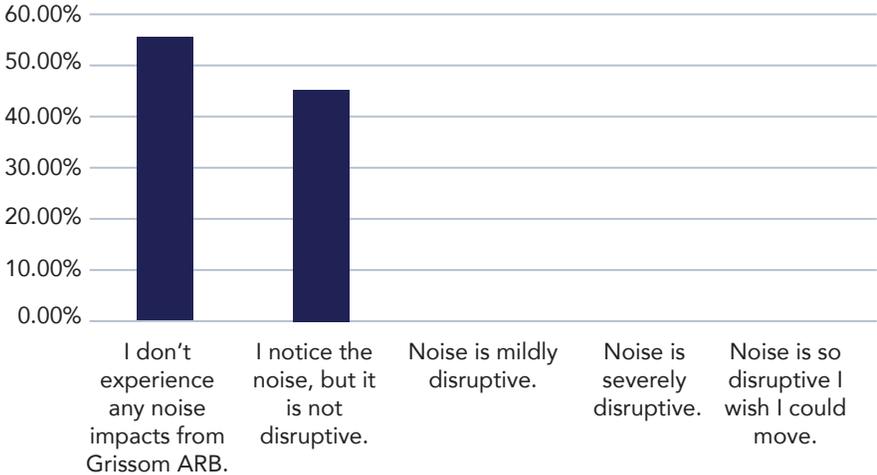
**Impacts of Grissom ARB in the Community**

Survey respondents indicated that noise has an insignificant impact within the region. Aircraft noise from Grissom ARB can rarely be heard by 45.4% of respondents and 18% of respondents sometimes hear aircraft or never. Other types of noise are also present, as 9% of respondents hear non-aircraft noise at least weekly. Other types of noise noted by respondents include Small Arms Fire from Practice Range. Although noise from Grissom ARB is present in the community, most respondents either don't experience any noise impacts from Grissom ARB (54.5%) or do not find the noise disruptive (45.45%).

**How Often Do You Hear Aircraft Noise Associated With Grissom ARB From Your Residence or Workplace?**



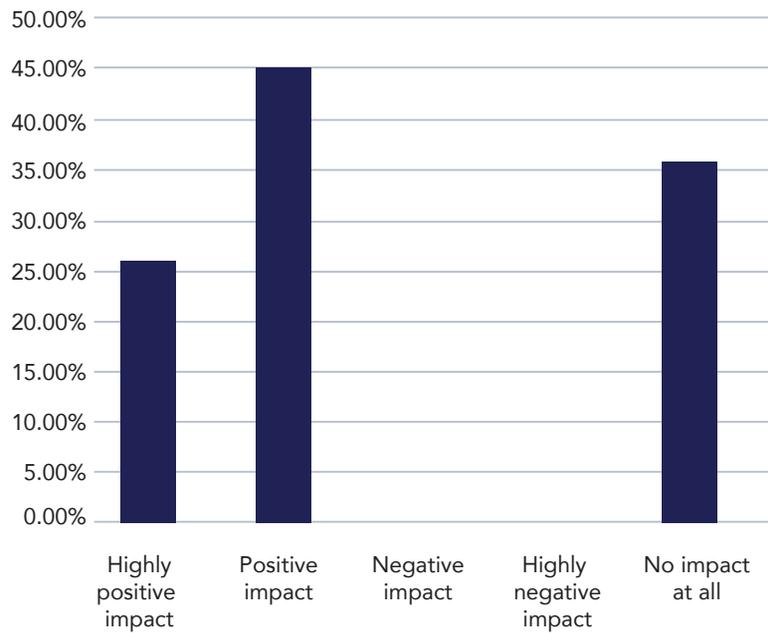
**How Would You Characterize the Current Noise Impacts Associated With Grissom ARB?**





Most respondents (72.72%) indicate Grissom ARB has either a highly positive impact (27.27%) or positive impact (45.45%) on their quality of life. While no respondents indicated that Grissom ARB has a negative impact (0%) or highly negative impact (0%), 36.36% indicated the installation has no associated impact to their quality of life. Some of the positive quality of life impacts felt by the installation include the impacts to the local economy, property values, and local school funding. A little over half of respondents (54.5%) are aware of the land use regulations and understand that these regulations are intended to encourage compatible development near Grissom ARB.

**Does Grissom ARB Have an Impact on Your Quality of Life?**  
 (You may choose more than one)

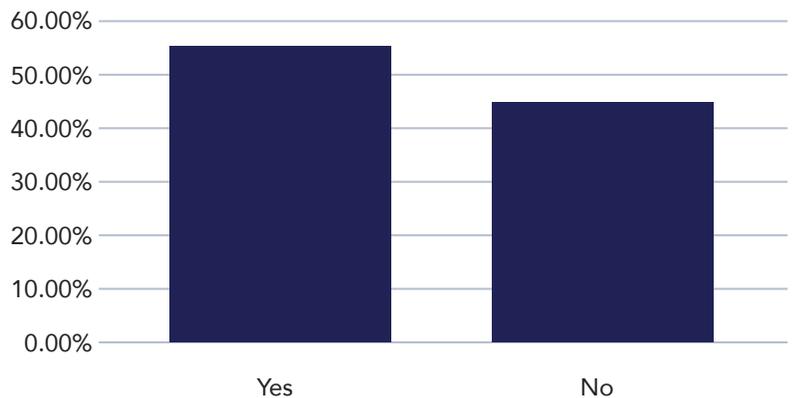


**General Comments**

At the end of the survey, respondents were given the opportunity to provide general comments, questions, or other statements regarding the Base. The comments, provided in full, are shown in the "Survey Results" section, below.

Of the 12 survey participants, two provided general comments. Both respondents feel that while Grissom ARB is a tremendous asset to the region, it is underutilized. Respondents believe that further collaboration between Community and Base officials is needed to further create an economic environment that supports additional jobs. Respondents are hopeful that with the transportation improvements coming, the region will become more attractive to economic drivers.

**Are You Aware of the Land Use Regulations (e.g., Zoning Overlay District), Which are Intended to Encourage Compatible Development Near Grissom ARB?**



## SURVEY RESULTS

The raw results and responses to each of the twenty-four questions in the survey, as well as all comments provided, are detailed in this section. Please note that the comments have not been edited or altered by the JLUS Project Team in any way.

### 1. Location and Age?

Answer Options	Response Percent	Response Count
City/Town	100%	12
County	100%	12
Zip Code	100%	12
Age	100%	12
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

Other (Please Specify)		
City:	Town:	County:
Greentown - 0	Amboy - 1	Cass - 3
Logansport - 4	Bunker Hill - 2	Howard - 0
Kokomo - 0	Converse - 0	Indiana - 3
Peru - 4	Denver - 0	Miami - 5
Wabash - 1	Galveston - 0	Wabash - 1
	Walton - 0	

### 2. Have you ever visited Grissom ARB?

Answer Options	Response Percent	Response Count
Yes	91.6%	11
No	8.4%	1
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



**3. Where do you get your information about Grissom ARB?**

Answer Options	Response Percent	Response Count
Directly from someone who works or trains there	41.66%	5
From friends who know people who work or train there	33.33%	4
Other forms of community discussion and conversations	58.33%	7
Newspapers, radio, television	50.0%	6
Social media (Facebook, email, etc.)	8.3%	1
I don't receive updates/information about Grissom ARB	8.3%	1
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**4. How would you characterize communication between the Air Force and the community?  
 Where do you get your information about Grissom ARB?**

Answer Options	Response Percent	Response Count
Good	45.45%	5
Fair	27.27%	3
Poor	18.18%	2
Not Sure	18.18%	2
No Opinion	0.0%	0
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



**5. Have you ever contacted Grissom ARB about information or a concern?**

Answer Options	Response Percent	Response Count
Yes	25.0%	3
No	75.0%	9
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**6. If you needed to contact Grissom ARB to ask for information or express concerns with base activities, would you know what office or person to reach out to?**

Answer Options	Response Percent	Response Count
Yes	58.33%	7
No	41.66%	5
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

<b>Other (Please Specify)</b>
Public Affairs Office - 3
MCEDA - 1
Wing Commanders Office - 2



**7. How substantial do you think the Air Force’s contribution to the regional economy is?**

Answer Options	Response Percent	Response Count
Very Substantial	66.66%	8
Substantial	16.66%	2
Moderate	8.34%	1
Minimal	8.34%	1
Unsure	0.0%	0
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**8. How strongly do you support this statement: “The local community must continue to take necessary steps to ensure the Air Force’s contributions to our economy are sustained and enhanced.”**

Answer Options	Response Percent	Response Count
Strongly Support	91.66%	11
Somewhat Support	8.34%	1
Indifferent/No Opinion	0.0%	0
Do Not Support	0.0%	0
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**9. Are you aware of any issues or negative impacts to the community caused by Grissom ARB?**

Answer Options	Response Percent	Response Count
Yes	25.0%	3
No	75.0%	9
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



<b>Other (Please Specify)</b>
Too low a profile for many to understand and appreciate the significance of Grissom as an Air Reserve Base. Many do not even realize that Grissom is still an active component of our national military structure.
Peak-period traffic and left-turn movements on US Route 31 Accident potential created by arriving/departing aircraft Future BRAC could potentially cause adverse economic impact
When they shut full active base down economy around here went downhill

**10. Are you aware of any issues or negative impacts to Grissom ARB caused by the community?**

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	36.36%	4
No	63.63%	7
<b>answered question</b>		<b>11</b>
<b>skipped question</b>		<b>1</b>

<b>Other (Please Specify)</b>
Potential for adjacent land development and/or land uses which interfere with military air operations Proliferation of wind turbine farms (interfere with NAVAIDS and RADAR) Clear Zone still in private ownership (Cass County) Clear Zone with major US Highway running through it (Miami County)
Impacted economy
Crime in housing located near ARB
Demographics and perception of community could be a deterrent to development
The redevelopment outside the base perimeter has been very poorly managed. Nothing was done to improve housing area before it was sold off, and the land outside the base perimeter has not been redeveloped to the satisfaction of many people. Buildings are rotting, land is ugly and not maintained, and a business district was not properly developed and created. I could on and on, but I believe you get the picture. The Grissom Aeroplex is not attractive to anyone and will not be until drastic measures are taken to revamp it.



**11. How often do you hear aircraft noise associated with Grissom ARB from your residence or workplace?**

Answer Options	Response Percent	Response Count
Daily	8.34%	1
Weekly	8.34%	1
Sometimes	16.66%	2
Rarely	50.00%	6
Never	16.66%	2
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**12. How often do you hear other kinds of noise related to Air Force training areas from your residence or workplace?**

Answer Options	Response Percent	Response Count
Daily	0.0%	0
Weekly	8.33%	1
Sometimes	8.33%	1
Rarely	8.33%	1
Never	75.0%	9
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

<b>Other (Please Specify)</b>
Because both my office and apartment are sound-insulated, I only occasionally notice loud aircraft noise when I am outside or (rarely) late at night.
Sound attenuation should be made a requirement for new construction of occupied buildings located near the runway or under flight paths.
Small Arms Fire from Practice Range



**13. How would you characterize the current noise impacts associated with Grissom ARB?**

Answer Options	Response Percent	Response Count
I don't experience any noise impacts from Grissom ARB.	58.33%	7
I notice the noise, but it is not disruptive.	41.66%	5
Noise is mildly disruptive.	0.0%	0
Noise is severely disruptive.	0.0%	0
Noise is so disruptive I wish I could move.	0.0%	0
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**14. Do you ever feel unsafe due to your proximity to Grissom ARB?**

Answer Options	Response Percent	Response Count
Often	0.0%	0
Sometimes	0.0%	0
Never	100.0%	12
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



**15. Does Grissom ARB have an impact on your quality of life? [You may choose more than one.]**

Answer Options	Response Percent	Response Count
Highly positive impact	25.0%	3
Positive impact	41.66%	5
Negative impact	0.0%	0
Highly negative impact	0.0%	0
No impact at all	33.33%	4
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

<b>Please describe how Grissom ARB has impacted your quality of life:</b>
I have met and worked with several career military personnel, and occasionally with their families. I have grown to value their friendship and outstanding qualities as fellow citizens of the first order. Honesty, dependability, and sterling character are in their DNA, and I am proud to know and work with them.
Some of the best career and employment opportunities located within the Region are generated by Grissom ARB.  It is both a major employer (2,240 Active Duty, Reserve and Civilian, \$72.8 Million Payroll) with a tremendous operating budget; contributing each year an estimated \$122 Million to the regional economy.
There are job opportunities that enhance the regional economy; having the connection is a source of community pride for Peru, which helps the regional economy.
I'm honestly not sure.
Positive impact is made by allowing my property taxes to remain very low. There is a positive impact to local school funding. The ripple effect of having good local jobs for our communities. There is a great opportunity for future investment at Grissom ARB.
See airmen supporting local businesses (restaurants)
If it wasn't for Grissom ARB still being here, this whole area would be a barren wasteland, probably overrun with crime.
Visits to Grissom ARB informs activity which directly has an impact on local and national security. Provides many military and civilian employment opportunities.



**16. Are you aware of the land use regulations (e.g., zoning overlay district) in Cass County, which are intended to encourage compatible development near Grissom ARB?**

Answer Options	Response Percent	Response Count
Yes	58.33%	7
No	41.66%	5
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**17. How long have you lived in North-Central Indiana?**

Answer Options	Response Percent	Response Count
More than 20 years	75.0%	9
Between 15 and 20 years	0.0	0
Between 10 and 14 years	0.0	0
Between 5 and 9 years	0.0	0
Less than 5 years	16.66%	2
I do not live in North-Central Indiana	8.33%	1
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



**18. In what industry are you employed? [You may choose more than one.]**

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Department of Defense	8.33%	1
Federal, state, or local government	25.0%	3
Accounting or finance	0.0%	0
Administrative, public relations, or human resources	0.0%	0
Engineering, IT, or programming	16.66%	2
Local schools or educational fields	0.0%	0
Agriculture or related field	0.0%	0
Science or environmental	0.0%	0
Industry, manufacturing, construction, or related trades	0.0%	0
Sales, hospitality, customer service, food and beverage, or retail	0.0%	0
Healthcare, medical, or related field	8.33%	1
Self-employed or independent consultant	16.66%	2
Retired	16.66%	2
Other (please specify)	33.33%	4
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

<b>Other (Please Specify)</b>
37 years in retail tire sales/service and retread manufacture
Not-for-Profit
Media
Economic & Business Development



**19. Do you own a business in North-Central Indiana? [If No, Skip to question 22]**

Answer Options	Response Percent	Response Count
Yes,	8.33%	1
No,	91.66%	11
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**20. How long have you owned a business in North-Central Indiana?**

Answer Options	Response Percent	Response Count
More than 20 years	0.0%	0
Between 15 and 20 years	0.0%	0
Between 10 and 14 years	0.0%	0
Between 5 and 9 years	0.0%	0
Less than 5 years	33.33%	1
Not Applicable	66.67%	2
<b>answered question</b>		<b>3</b>
<b>skipped question</b>		<b>9</b>

**21. Does Grissom ARB have an impact on your business?**

Answer Options	Response Percent	Response Count
Very positive impact	25%	1
Positive impact	25%	1
Negative impact	0%	0
Very negative impact	0%	0
No impact at all	50%	2
<b>answered question</b>		<b>4</b>
<b>skipped question</b>		<b>8</b>



**22. Are you uniformed military, a Veteran of the U.S. armed forces, or a military dependent? [You may choose more than one.]**

Answer Options	Response Percent	Response Count
Currently on active duty	0.0%	0
Current member of a National Guard or Reserves	0.0%	0
Military veteran	25.0%	3
Retired military	8.33%	1
Spouse (including widow/widower) of active duty, Reserve, National Guard, or retired military	8.33%	1
None of the above	58.34%	7
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>

**23. How far away do you live from Grissom ARB? [See map below]**

Answer Options	Response Percent	Response Count
Within 1 mile	25.0%	3
Between 1 mile and 3 miles	0.0%	0
Between 3 miles and 5 miles	16.66%	2
More than 5 miles	58.34%	7
<b>answered question</b>		<b>12</b>
<b>skipped question</b>		<b>0</b>



**24. If you would like, please enter any additional questions or comments for our review in the space below.**

<b>Other (Please Specify)</b>
<p>Grissom ARB is a tremendous asset, but very underutilized. Community and Base officials need to collaborate where possible to create an economic environment for the facility to generate jobs and investment. Transportation improvements are coming, so we need to lay the groundwork to become more attractive. I am willing to serve in this effort if I can be helpful.</p>
<p>The Grissom Aeroplex and Eagle's Pointe are poorly managed and poorly maintained. I remember someone who used to work for the old GRA say that everything should be leveled and rebuilt from the bottom up. At the time I thought he was crazy but now I see the logic in his statement. Only by adopting a new mindset and approach to the Aeroplex and its surrounding area will this area become a viable and decent place to live.</p>





## APPENDIX B: STRENGTHS, WEAKNESSES, OPPORTUNITIES, & CONSTRAINTS (SWOC) ANALYSIS

A Strengths, Weaknesses, Opportunities, and Constraints (SWOC) analysis is a common strategic planning tool used to evaluate how internal and external factors can affect an organization's objectives (in this case, compatible land use). The "strengths" and "weaknesses" of the SWOC analysis are the internal factors intrinsic to Grissom Air Reserve Base (Grissom ARB) that either assist or limit the facility's ability to successfully manage encroachment and compatible land use issues. The "constraints" and "opportunities" are external factors generated by external stakeholders, and incentivize action.

The SWOC analysis serves as the foundation for the recommendations that will be made in the Grissom Air Reserve Base Joint Land Use Study (JLUS). It is intended to assist Grissom ARB and surrounding communities to build upon the region's strengths, minimize weaknesses, capitalize on opportunities, and limit potential constraints. The SWOC analysis addresses social, physical, regulatory, and economic considerations. Table 1 below provides an overview of how these factors apply to Grissom ARB, followed by a more detailed description of each SWOC item.



Table 1: SWOC Analysis Overview

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>» The rural character of surrounding lands is generally compatible with military operations.</li> <li>» Grissom ARB provides significant economic benefits to its surrounding communities.</li> <li>» Recent upgrades to Grissom ARB facilities and infrastructure demonstrate investment in the installation's future utility.</li> <li>» There are no significant environmental impacts on training operations.</li> <li>» Grissom ARB's mission is not significantly impacted by encroachment threats currently.</li> <li>» Cass County and Miami County have or are in the process of developing zoning overlays for land compatibility and wind energy development.</li> <li>» Grissom ARB has excellent community support and positive reputation.</li> </ul>	<ul style="list-style-type: none"> <li>» No <i>formalized</i> protocol for coordinating on new off-base land uses and infrastructure with all jurisdictions and utility providers.</li> <li>» No <i>formal</i> means of receiving and responding quickly to civilian inquiries about noise and other impacts.</li> </ul>
OPPORTUNITIES	CONSTRAINTS
<ul style="list-style-type: none"> <li>» Formalize interaction/communication between Grissom ARB and its neighbors.</li> <li>» Work with the Indiana Department of Transportation (INDOT), US 31 Coalition, Inc., and local governments on the location of interchanges related to short-term and long-term US 31 improvement projects.</li> <li>» Maintain the support of the Indiana Office of Defense Development (IODD), GRDA, elected leaders, and other decision-makers to locate KC-46A Pegasus tanker aircraft at Grissom ARB.</li> <li>» Continued economic development at Grissom Aeroplex that is compatible with and supportive of Grissom ARB's missions, as well as civilian air operations.</li> </ul>	<ul style="list-style-type: none"> <li>» No <i>regulatory</i> barriers to incompatible development present, except in portions of Cass County and the towns over which it has zoning jurisdiction.</li> <li>» Existing Cass County overlay does not reflect potential impacts of KC-46A were it based at Grissom ARB.</li> <li>» Demand for large-scale, commercial wind energy development in the region.</li> <li>» Security concerns related to vacant former steam plant building located near Grissom ARB's main gate.</li> <li>» Unknown potential impacts of climate change on operations.</li> <li>» Public may not be fully aware of impacts of potential military realignment on Grissom ARB and need for ongoing engagement.</li> </ul>



## STRENGTHS

### ***The rural character of surrounding lands is generally compatible with military operations.***

Grissom Air Reserve Base is generally surrounded by land uses compatible with military training and operations. The majority of land around Grissom ARB is agricultural or otherwise undeveloped, and is characterized by sparsely settled rural residential development. Grissom Aeroplex, located on land formerly part of the military installation, houses industrial, office, institutional, civic, and recreational uses. Other nearby land uses include a new correctional institution, small businesses along US 31, and a subdivision originally built as military housing. Some of the small businesses located near the intersection



of US 31 and SR 218, along with Grissom Air Museum, are located in Grissom's Clear Zone or Accident Potential Zone I, and present the most significant encroachment concern. The lack of high density residential and other noise-sensitive land uses (e.g., churches, schools) indicate a high degree of current compatibility between military operations at the installation and surrounding land uses.

Current conditions also suggest the surrounding land will remain compatible with military operations. This is due in large part to the absence of the water and wastewater infrastructure that would be required to support anything other than the agricultural land that surrounds much of Grissom ARB.

There appears to be little current demand for large subdivisions in the Study Area. Conversely, demand for more commercial development has the potential to increase as a result of one or more roadway projects designed to improve safety in the short-term, and until the Indiana Department of Transportation (INDOT) is able to achieve its long-term goal of upgrading the northern segment of US 31 to full freeway status between Hamilton County, Indiana, and the City of South Bend.

### ***Grissom ARB provides significant economic benefits to its surrounding communities.***

On a daily basis, approximately 600-650 Reservists work at Grissom ARB. Reservists live in the communities surrounding the base, and so provide significant support to the local economy through the purchase of goods and services. An analysis conducted by the Air Force revealed Grissom ARB created \$122 million in local economic impact in FY2016. This local economic impact figure has remained generally steady since at least 2010. Communicating these local impacts, where they can be quantified, is important for building supportive relationships with the surrounding community and further enhancing Grissom ARB's value to the region.

### ***Recent upgrades to Grissom ARB facilities and infrastructure demonstrate investment in the installation's future utility.***

Originally constructed in 1957, Grissom ARB's vehicle maintenance facility was upgraded to comply with all applicable building and fire codes in 2012. The Base Exchange store was also renovated in 2012. Building 671, which currently houses Grissom's maintenance operations and command post, was renovated in 2013, and now includes the installation's first geothermal heating and cooling system. An





upgrade to the fueling system is currently underway, which, through a system of underground pipes, will increase efficiency, safety, and security on-base.

In addition, the Air Force issued a solicitation in June 2017 to renovate Building 667 in order to upgrade communication, alarm, and notification systems; internal plumbing, HVAC, and electrical components; and parking, sidewalks, and curbs, as well as other site-related improvements.

These significant updates to the infrastructure on Grissom ARB demonstrate the Air Force's commitment to maintaining Grissom's important role as one of five Air Reserve Bases in the United States.

***There are no significant environmental impacts on training operations.***

At this time, there are no federally recognized threatened or endangered species or other environmental concerns that prohibit mission operations or training activities on Grissom ARB. Grissom's value as an Air Reserve Base is enhanced because its operations and training space is largely unimpeded by environmental constraints.

***Grissom ARB's mission is not significantly impacted by encroachment threats currently.***

Largely because of these strengths, Grissom ARB is currently conducting a majority of its missions without significant encroachment threats. However, as seen in the "weaknesses" and "constraints" section of this SWOC Analysis, current success will not guarantee future success without additional engagement, management, and mitigation.

***Cass County and Miami County have or are in the process of developing zoning overlays for land compatibility and wind energy development.***

In 2016, Cass County adopted the "Grissom Air Reserve Overlay District," as Section 406 of the Cass County Zoning Ordinance. This overlay further regulates the use of land and maximum building heights of buildings and vegetation within the overlay. The overlay does not apply in the Towns of Galveston or Onward because Cass County zoning powers do not extend into these towns and neither has adopted additional protections for the areas nearest the Grissom ARB. Miami County and the Town of Bunker Hill (which has an extraterritorial zoning jurisdiction that overlaps with some of Grissom ARB impact areas) are in the process of adopting overlay districts and standards similar to Cass County's.

Additional protections exist in the form of two Wind Energy Conversion System (WECS) ordinances. Both Cass County and Miami County have adopted land use and development regulations that govern the siting of both large-scale commercial wind farms and smaller non-commercial wind turbines within their respective jurisdictions. Both WECS ordinances effectively discourage the construction of wind turbines in close proximity to Grissom ARB and its air training areas, given how tall the wind turbines need to be to function as intended.



**Grissom ARB has excellent community support and positive reputation.**

Grissom ARB has a positive relationship with the Cities of Bunker Hill and Peru, and Miami and Cass Counties, as well as its other neighbors such as the Aeroplex, Miami Correctional Facility, and the residents in the Estates at Eagle’s Point subdivision. Noise inquiries are few and far between, and the community is largely supportive of Grissom’s operational mission. However, as noted in the “weaknesses” section, community engagement should be enhanced to ensure Grissom ARB’s community support and positive reputation remain intact in the context of a rapidly-changing national military alignment.

## WEAKNESSES

**No formalized protocol for coordinating on new off-base land uses and infrastructure with all jurisdictions and utility providers.**

While the Cass County overlay district regulations require that a property owner coordinate with Grissom ARB’s “Encroachment Committee” on all planning and development matters, other jurisdictions have not yet incorporated these types of coordination requirements into their land use regulations. Nonetheless, stakeholders indicated that local governments, like Miami County and Bunker Hill, do coordinate with Grissom ARB when developments in the region have the potential to impact its operations. Also, there are no formalized “non-regulatory” protocols (like memoranda of understanding) to facilitate coordination by other governmental and quasi-governmental entities, such as water, wastewater, and transportation agencies, when they expand infrastructure in the vicinity of Grissom ARB.

**No formal means of receiving and responding quickly to civilian inquiries about noise and other impacts.**

As noted in the “Strengths” section, noise inquiries or other complaints are not the norm at Grissom ARB. Nonetheless, the installation’s website does not currently contain an easily accessible means of making an inquiry about noise or other installation impacts. Nor are there other readily-available means of doing so, at this time, for civilians with poor or insufficient internet access.

By ensuring Grissom personnel are immediately aware of any civilian concerns that do materialize, the base will be able to more quickly respond with accurate information and remedial actions if necessary.

## OPPORTUNITIES

**Formalize interaction/communication between Grissom ARB and its neighbors.**

While Grissom ARB enjoys a positive relationship with its neighbors, no formal channels of communication or recurring outreach opportunities currently exist. Establishing formal mechanisms for communication will allow Grissom ARB, the City of Peru, the City of Bunker Hill, Miami County, Cass County, and other partners (e.g., industry groups, Indiana Office



of Defense Development) to regularly communicate and coordinate on issues of mutual concern, including potential mission changes associated with Grissom ARB, regional development proposals, infrastructure plans, transportation improvements, stormwater conveyance, water quality issues, and potential planning and zoning changes.

“Formal” interaction may take the form of a Memorandum of Understanding (MOU), a recurring collaborative working group, the establishment of a military advisory committee within the Miami County Chamber of Commerce, or other mechanism requiring participation by multiple parties.

***Work with the Indiana Department of Transportation (INDOT), US 31 Coalition, Inc., and local governments on the location of interchanges related to short-term and long-term US 31 improvement projects.***

The state’s transportation department continues to recommend that the northern segment of US 31 be upgraded to full freeway status in the long-term. In the meantime, the department must continue to address areas with known safety concerns. Short-term safety improvements within the vicinity of Grissom ARB have been proposed by INDOT at signalized intersections, including the use of “J-turns”.

There has been significant community concern related to traffic safety and the potential use of “J-Turns,” due to the volume and average speeds of traffic on this stretch of US 31. Among those formally opposing this approach are the Miami County Economic Development Authority, Grissom Regional Defense Alliance, Miami County Chamber of Commerce, Miami County Board of Commissioners, North Central Indiana Regional Planning Council, and the US 31 Coalition.

Long-term improvements associated with upgrading US 31 to full freeway status may include measures to limit access, elimination of traffic signals, and construction of new freeway interchanges in the place of one or more existing intersections. The existing interchange at Hoosier Boulevard that serves as the primary access to Grissom ARB and the Aeroplex is located in the Clear Zone. For this and other reasons, it is unlikely this interchange would be improved or expanded.

Past studies, and present day conversations about future improvements and upgrades to the US 31 corridor that is immediately adjacent to the Grissom ARB, show a strong local preference for a freeway interchange at SR 218. INDOT has shared, and local advocates agree, that this location presents a number of engineering challenges in terms of the terrain, the presence of a multi-use trail, and ceiling height restrictions imposed by Grissom’s documented impact areas. The community-supported “Alternative 2” alignment maintains access onto and off of US 31 at Hoosier Boulevard. However, Alternative 2 would limit US 31 access *from* southbound US 31 (via a right turn onto Hoosier Boulevard and access *onto* US 31 southbound from Hoosier Boulevard only (via a right turn onto US 31). Grissom and the community should continue to engage with INDOT to ensure consideration of the impacts of any future US 31 upgrades on Grissom ARB.

The level of commitment of local leaders and their willingness to engage in effective problem



solving further strengthens the mission and reputation of Grissom ARB. Community members have demonstrated and continue to demonstrate their ability to work with INDOT on future roadway improvements. The opportunity exists for Grissom ARB to work with the US 31 Coalition, Inc., the INDOT, and local communities concerning the future upgrade of US 31.

***Maintain the support of the Indiana Office of Defense Development (IODD), GRDA, elected leaders, and other decision-makers to locate KC-46A Pegasus tanker aircraft at Grissom ARB.***

Although Grissom ARB was not chosen in 2017 as the Third Main Operating Base for KC-46A Pegasus tanker aircraft, another Main Operating Base could be selected in the next three to four years. The addition of KC-46s at Grissom ARB would create jobs and further reinforce Grissom's role in the local and state economies. The IODD, the Grissom Regional Defense Alliance (GRDA), and local, state, and federal elected leaders assisted with the previous effort and have indicated support for future efforts to locate KC-46s at Grissom.

The IODD, for example, is tasked with supporting Indiana military installations and growing the state's defense industry, and therefore will be an important state-level advocate for this sustainment effort. Opportunities also existing for engaging the GRDA and local, state, and federal elected officials in their support for designating Grissom ARB as a Main Operating Base for the K-46As.

***Continued economic development at Grissom Aeroplex that is compatible with and supportive of Grissom ARB's missions, as well as civilian air operations.***

The Grissom Aeroplex currently contains land uses and operations that support or are generally compatible with Grissom ARB operations. There are lands within the Aeroplex available for redevelopment, and which can accommodate economic opportunities at this time. The community's awareness and ongoing commitment to the relationship between Grissom ARB and the local economy will support additional opportunities at the Aeroplex.



In 2017, the Miami County Economic Development Authority (MCEDA) became the fixed-base operator (the "FBO") for civilian flight operations at the Grissom ARB runway; a role that fits well with MCEDA's ongoing economic redevelopment of the Aeroplex with land uses compatible with and supportive of Grissom ARB's mission and operations. MCEDA recently completed a feasibility study to qualify for inclusion in the National Plan of Integrated Airport Systems (NPIAS). If successful, it is anticipated that NPIAS inclusion would increase the sustainability of Grissom ARB air operations and support the long-term economic development objectives of the Aeroplex and community.





## CONSTRAINTS

### ***No regulatory barriers to incompatible development present, except in portions of Cass County and the towns over which it has zoning jurisdiction.***

As identified in the “strengths” section above, Grissom ARB is currently surrounded by land uses that are generally compatible with mission operations. Current conditions, such as low demand for high-density housing and infrastructure availability, also make it unlikely incompatible high-intensity growth around the installation will occur unchecked.

However, except in Cass County, there are no established regulatory barriers in place to prevent such development should the conditions change or be mitigated. While Cass County’s overlay areas and regulations include important protections against incompatible development near the installation, they vary from those recommended in the 2014 Air Installation Compatible Use Zone (AICUZ) Study and imaginary surfaces promulgated by the Air Force.

Surrounding communities have zoning regulations, though only Cass County has adopted regulations limiting development in Grissom’s documented impact areas. Although most surrounding communities do not limit development in the vicinity of Grissom ARB, local planning staff will often informally consult with the installation when a development proposal has the potential to affect military operations. In addition, Miami County and the Town of Bunker Hill – each of which already consult with Grissom informally – are in the process of developing a formal zoning overlay similar to Cass County’s.

The imaginary surfaces associated with Grissom ARB’s approach and departure paths extend into Miami, Cass, and Howard Counties. Cass County has adopted a zoning overlay that takes into consideration Grissom ARB’s imaginary surfaces and Miami County is in the process of doing so. Though impacts within the imaginary surfaces may be less likely in Howard County and Kokomo, these jurisdictions do not currently have zoning in place to protect intrusions into this airspace. The imaginary surfaces do not extend over lands in Wabash County.

### ***Existing Cass County overlay does not reflect potential impacts of KC-46A were it based at Grissom ARB.***

Cass County, and the towns subject to its zoning jurisdiction, do have an overlay zoning district that reflects the noise impacts of the existing KC-135R Stratotanker aircraft. The installation has been considered for KC-46A basing, which would expand the local Grissom mission and ongoing presence in the community. Until the noise contours for a KC-46A mission are reflected in local zoning, land uses that are incompatible with this potential mission could be permitted, creating potential incompatibilities with this potential future mission.

### ***Demand for large-scale, commercial wind energy development in the region.***

Large-scale commercial wind farms in the vicinity of Grissom ARB and its training and operational areas create the potential to interfere with Grissom air operations and communications. However, as noted in the “strengths” section, both Miami County and Cass County have adopted “wind energy conversion system” (WECS) provisions into their zoning codes to discourage incompatible wind energy development in the area. However, the impacts of large-scale commercial wind farms on base operations sometimes are difficult to determine before they are in operation, and the renewable energy industry is rapidly evolving in terms of technology and demand. For these and other reasons,



wind energy may continue to be an ongoing “constraint” on Grissom ARB operations, even though many of the surrounding communities have and continue to take reasonable steps to mitigate some of these issues.

***Security concerns related to vacant former steam plant building located near Grissom ARB’s main gate.***

Fewer than 1,000 feet from the main entrance to Grissom ARB sits the installation’s former steam plant facility, which has been vacant for some time. The facility was transferred to the community, and subsequently MCEDA, as a result of Base Realignment and Closure Commission action in 1991. Some portions of the facility rise to a height of approximately 35 feet. Most of the buildings near Grissom ARB’s main gate do not exceed one or two stories. The vacant steam plant offers an elevated perspective into the installation and of the main gate.



Due to its off-post location, but close proximity to the installation gate and visitor center, the former steam plant continues to present a security concern. Demolition of the structure and redevelopment of the site is the preferred course of action, but the presence of asbestos requires special procedures and puts the price tag for demolition at more than \$750,000.

***Unknown potential impacts of climate change on operations.***

Climate change has been identified as a potential concern for operational and installation sustainability at military installations. According to the April 2017 KC-46A Third Main Operating Base (MOB 3) Beddown Environmental Impact Statement (EIS), the most likely potential threats to Grissom ARB, specifically, would be increased temperatures and precipitation, largely in the form of heavier rain events. The frequency and intensity of heat waves in the region also could increase, which could increase humidity, and degrade air and water quality. To date, however, there have been no studies or analyses completed to forecast in greater detail the potential impacts of climate change on Grissom ARB operations or to identify potential climate adaptation or mitigation opportunities the installation could undertake with the surrounding region.

***Public may not be fully aware of impacts of potential military realignment on Grissom ARB and need for ongoing engagement.***

As is noted in the “strengths” section, there is widespread community support for Grissom ARB, and the base has perpetuated a positive reputation in the region for decades. However, Grissom, like all military installations around the country, will have to remain engaged in the ongoing dialogue regarding military readiness and serious budgetary constraints at the federal government level. While community comments during initial JLUS stakeholder sessions and public meetings was consistently positive, more widespread engagement in that dialogue will be important as it continues over time and decisions are made at the federal level regarding future missions.



## APPENDIX C: CASS COUNTY GRISSOM ARB OVERLAY DISTRICT

**406 THE GRISSOM AIR RESERVE OVERLAY DISTRICT:** The purpose of this provision is to regulate the height of man-made structures and objects of natural growth; and otherwise regulate the land use and development of property around the Grissom Air Reserve Base by providing boundaries with standards within this overlay. In addition to these standards all uses and structures shall comply with Federal Aviation Regulation (FAR) 14 CFR 77 and all other applicable State and Federal regulations.

### 406.01 Authority:

Staff is given the authority to approve or deny Improvement Location Permits based on items, such as height, density, dust, glare, bird hazards, or radio/electrometric interference that effect the operations of the Grissom Air Force Reserve. Staff will inform the Encroachment Committee of all developments or plantings that will be occurring within this overlay. The Committee will have two days to inform staff if there will be an effect on Base operations, if there is they will have one week to provide those effects in writing. All Board of Zoning Appeals cases within this overlay will go through the same process.

### 406.02 Definitions:

ACUZ: the Air Installation Compatible Use Zone assists local authorities in protecting public health, safety, and welfare by identifying types of development that would be compatible with the air installation as well as maintain the installation's operational capability and mission through compatible land use planning. *2014 Installation Compatible Use Zone Study for Grissom Air Reserve Base*

APZ I: the Accident Potential Zone I starts at the end of the Clear Zone and extends 5000 ft beyond the clear zone and follows the same width as the Clear Zone. Approximately 8% of accidents occur within this area. (Diagonal hatch on Map 1)

APZ II: the Accident Potential Zone II starts at the end of APZ I and extends out 7000 ft while continuing the width of APZ I. For the purpose of this overlay only the area that runs from the Eastern County line along 700 S to 1000 E to 800 s to 900 E to 950S then follows the most southwest end of APZ1 to 1000 E to 1100 S then along the Eastern County line this doesn't include any other the other districts.

Clear Zone: The Clear Zone starts along the runway centerline within 3000 ft of the end of the runway and 1500 ft from each side of the runway. This is where roughly 33% of





accidents occur. For the purpose of this overlay only the area 2500 ft on either side of the entire runway in Cass County will also be considered the clear zone.

**Conical Surface:** A surface extending outward and upward from the periphery of the inner horizontal surface at a slope ratio 20 to 1 (20H:1V) to a height of 500 feet above the established airport elevation.

**DNL Noise:** Day—Night Average Sound Level is an energy-averaged sound level calculated over a 24-hour period with a 10-decibel penalty assigned to noise events occurring between 10pm and 7pm.

**Encroachment Committee:** this committee will be created by the Grissom Air Force Reserve Base. This committee will provide information on how possible development and plantings may affect the Base. Members will include Grissom Air Force Reserve Base members with their consultants as well as regional officials and departments.

**Inner Conical Surface:** is provided for additional land use and height protection this district provides standards from the Eastern County line along 500 S to 950 E to 600 S to 900 E to SR 218 to 200 E to 200 S to 700 E to 1225 S to 1000 E to 1250 S and back along the Eastern County line, this doesn't include any of the other districts.

**Outer Conical Surface:** is provided in this overlay for additional land use and height protections this district provides standards within the area that runs from Inner Conical Surface at the intersection of 750 E and 800 S along 800 S to 500 E to 1400 S along the Eastern County line this doesn't include any of the other districts.

#### 406.03 Districts

##### A. Clear Zone

1. Permitted Uses: cropland not to include orchards
2. Height Limitations (manmade and natural): no structures shall be constructed and no vegetation other than agricultural crops may be planted unless they have been approved by the Board of Zoning Appeals as a Special Exception.

##### B. APZ I

1. Permitted Uses: cropland not to include orchards, pasture and grazing livestock not including confined feed, and agricultural buildings
2. Height Limitations (manmade and natural): structures shall not exceed 35 feet in height to the peak of the structure. Vegetation may be planted if full growth will not exceed 50 feet in height.

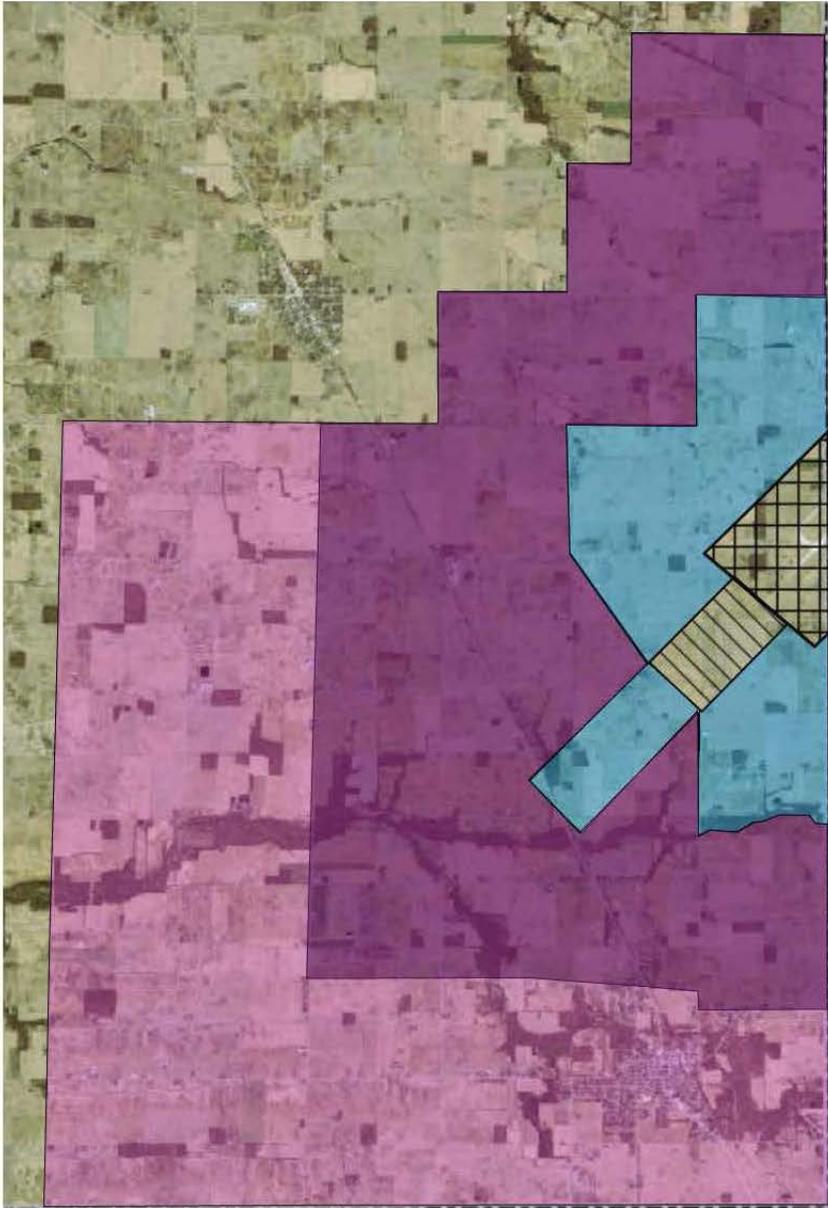
##### C. APZ II

1. Permitted Uses: cropland and orchards, pasture and grazing livestock not including confined feed, agricultural buildings, and all residential uses allowed within the AG, Agricultural Zoning District.
2. Height Limitations (manmade and natural): structures shall not exceed 50 feet in height. Vegetation may be planted if full growth will not exceed 100 feet in height.

##### D. Inner Conical Surface



- 1. Permitted Uses: All uses allowed in the AG zoning district are permitted. Any such use that would create dust, glare, bird hazards, or that would create radio or electrometric interference is prohibited within this district.
  - 2. Height Limitations: structures shall not exceed 150 feet in height.
- E. Outer Conical Surface
- 1. Permitted Uses: All uses of the underlining zoning district are allowed. Any such uses that would create dust, glare, bird hazards, or that would create radio or electrometric interference are prohibited within this district.
  - 2. Height Limitations: structures may not exceed 500 feet in height.



Cross Area: combination Clear Zone; Diagonal Area: APZI; Blue Area: combination APZII; Purple: Inner Conical Area; Pink: Outer Conical Area



## APPENDIX D: PUBLIC MEETING SUMMARIES

### Public Kick-Off Meeting Summary

June 7, 2017, 5:30 p.m.

The presentation slides are available online at:

<http://grissom-jlus.org/wp-content/uploads/2017/05/Grissom-ARB-JLUS-Public-Meeting-June-7-2017.pdf>

#### Consultant Team Members Present:

*Tyson Smith, White & Smith, LLC Planning and Law Group*

*Doug Allen, Marstel-Day*

*Vagn Hansen, Benchmark Planning*

*Brooke Thomas, American Structurepoint, Inc.*

*Kelly Cousino, White & Smith, LLC Planning and Law Group*

Mr. Smith welcomed everyone and reviewed the meeting agenda. He introduced the four consulting firms and their representatives comprising the Joint Land Use Study (JLUS) Project Team, and noted each firm's role in the project.

Mr. Smith provided an overview of the purpose of a JLUS as described by the Office of Economic Adjustment (OEA), which provided funding for the Grissom Air Reserve Base JLUS and many others across the country. He showed a map of the 130 Joint Land Use Studies conducted from 1985 through 2016.

Mr. Smith reviewed the initial compatibility areas to be studied, which include noise, accident potential, security associated with nearby development, renewable energy, potential for increased development, and height of off-base structures. He noted the stakeholder interviews conducted by the Project Team may reveal additional areas of study.

Mr. Smith noted two steering committees will oversee the JLUS process, the JLUS Policy Committee and the JLUS Technical Working Group. He reviewed the membership and role of the two committees. Mr. Smith provided a list of organizations with which the Project Team is conducting interviews to gain a better understanding of the local context and the relationship between the community and the military installation.

Mr. Smith reviewed maps of the JLUS Study Area, and noted the area will be refined as the Team gains a better understanding of the local context and potential compatibility issues. He provided a summary of the JLUS process, which includes an evaluation of existing conditions, a land use compatibility assessment, and provision of implementation options.

Ms. Thomas provided a brief overview of American Structurepoint and its role in the project. She noted the firm has completed over eighty projects in the four-county JLUS Study Area.

Mr. Hansen provided an overview of the land use compatibility analysis and showed examples from a previous JLUS at Marine Corps Air Station – Beaufort (South Carolina). The analysis will be performed for the unique impacts associated with Grissom Air Reserve Base and will assess both current and future operational impacts, along with current and future compatibility concerns.

Mr. Smith reviewed the final phase of the JLUS planning process, which is implementation. He noted the





JLUS could include recommendations for a range of implementation areas, from voluntary coordination to regulatory requirements.

Mr. Allen reviewed the components of the JLUS public awareness campaign, which includes an outreach and awareness component and a public input component. The outreach and awareness component includes a project website ([www.grissom-jlus.org](http://www.grissom-jlus.org)), Facebook page (@GrissomARBjLUS), informational brochures (which will be posted on the website), and an interactive “story map” accessible through the website. The public input component includes a survey, live polling at tonight’s meeting, and public questions and comments (accepted throughout the study process). Mr. Allen noted the survey may be filled out online or may be mailed to the Project Team, and responses will be accepted until August 18.

Mr. Allen began the live polling exercise, which asked general demographic questions (such as county of residence) and more specific questions about the impact of Grissom Air Reserve Base on the community (such as the frequency of noise experienced as a result of proximity to the installation).

Mr. Smith completed the presentation by noting the Team will return in the fourth quarter of 2017 to present the results of the public survey, stakeholder and public input received to date, and the initial land use compatibility assessment. He asked whether anyone in the audience had questions or comments.

Cass County Councilman Bishop inquired as to the potential impacts of agricultural dust on Grissom’s operations and noted the community’s important economic development objectives. Councilman Bishop also noted the NIPSCO [Northern Indiana Public Service Company] highline is being moved south of Galveston to avoid negative impacts on Grissom ARB.

Mr. Jim Tidd, Miami County Economic Development Authority (project sponsor), thanked everyone for his or her participation.

## **Public Meeting # 2 Summary** **October 10, 2017, 5:30 p.m.**

The presentation slides are available online at:

[http://grissom-jlus.org/wp-content/uploads/files/Grissom%20Public%20Mtg%20\(FINAL\).pdf](http://grissom-jlus.org/wp-content/uploads/files/Grissom%20Public%20Mtg%20(FINAL).pdf)

### *Consultant Team Members Present:*

*Tyson Smith, White & Smith, LLC Planning and Law Group*

*John Broughton, Marstel-Day*

*Vagn Hansen, Benchmark Planning*

Mr. Smith welcomed everyone and reviewed the meeting agenda. He introduced Mr. Broughton and Mr. Hansen, and asked the attendees to introduce themselves.

Mr. Smith stated the objective of tonight’s meeting is to update the community on the status of the Joint Land Use Study (JLUS). He reviewed the agenda for the meeting and began by providing an overview of the JLUS process, which generally is to plan for future land use compatibility.

Mr. Smith reviewed the three phases of the JLUS process:

- » Evaluation of existing conditions;
- » Compatibility assessment; and
- » Recommendations to maintain or improve land use compatibility between military installations and civilian land uses.

Mr. Smith noted Cass County has already adopted a zoning overlay district limiting height and land uses in the vicinity of Grissom Air Reserve Base (Grissom ARB), and the Consultant Team is working with the



Town of Bunker Hill and Miami County on overlay districts for those jurisdictions.

Mr. Broughton provided an overview of Grissom ARB operations and community demographics. He noted Grissom ARB is one of five Air Reserve Bases in the United States and its host unit is the 434th Air Reserve Wing, the largest air refueling wing in the Air Force Reserve Command.

Mr. Broughton noted Grissom is a joint use airfield, and reviewed the annual military and civilian airfield operations figures.

Mr. Broughton reviewed current population and future trends in the region, noting the City of Kokomo has experienced significant growth while other communities have seen a slight decline in population.

Mr. Broughton stated the Consultant Team is also reviewing the findings and conclusions of existing studies related to economic development initiatives, and exploring the relationship of these to Grissom ARB.

Mr. Broughton noted Grissom ARB's significant annual local economic impact of over \$122m.

Mr. Broughton reviewed encroachment challenges, beginning with potential sources of development demand. These include the US 31 corridor, Grissom Aeroplex, and the Miami County Correctional Facility. He noted the predominant land use around Grissom ARB is agriculture, which is generally compatible with the military mission and helps mitigate against high potential for suburban and urban development.

The next encroachment challenge Mr. Broughton reviewed is potential energy development, including wind and solar. He noted neither of these currently impact Grissom ARB's mission.

Finally, Mr. Broughton reviewed encroachment challenges related to security, specifically the vacant steam plant near Grissom's main gate.

Mr. Broughton discussed potential transportation improvements along US 31. He noted the community's support of designating US 31 as a freeway with proper interchanges at preferred locations. Mr. Broughton recognized the need to address immediate safety concerns without losing sight of long-term goals.

Mr. Smith reviewed a list of participants in the Consultant Team's stakeholder interviews, conducted in June, and highlighted some of the feedback and input received.

Mr. Broughton reviewed the results of the public survey conducted over the summer. Key observations include community support for Grissom ARB's mission, minimal noise impacts experienced by the community, and positive quality of life impacts.

Mr. Hansen reviewed the results of the initial conflict and compatibility analysis, beginning with maps showing the four-county JLUS Study Area and the smaller JLUS Focus Area. The Consultant Team developed a GIS database of land use characteristics, including existing land use, current zoning, future land use recommendations, and land subdivision patterns in the JLUS Focus Area. He presented maps showing these characteristics.

Mr. Hansen explained the land use compatibility assessment is based on Air Force Air Installation Compatible Use Zone (AICUZ) guidance for Noise Zones and Accident Potential Zones. Land uses are considered compatible, conditionally compatible, or incompatible. Mr. Hansen showed an excerpt from the land use compatibility table for reference. He noted the guidance has changed since last Grissom ARB AICUZ study, and the most recent guidance suggests residential land uses are generally incompatible in Noise Zones.

Mr. Hansen's initial observations from his analysis include a high degree of compatibility between existing land uses and military operational compatibility factors; 100% of off-base land impacted by the Noise Zones contains compatible land uses; and, of the entire off-base area that falls into an Accident Potential





Zone, more than 92% is currently compatible based on AICUZ guidance.

Mr. Hansen reviewed the land use compatibility maps, and reviewed three additional compatibility factors, including the imaginary surfaces associated with the airfield, special use airspace, and light pollution.

Mr. Smith reviewed the project's next steps. The Team will complete the draft JLUS report in December for review by the Steering Committees in early January 2018. Mr. Smith expects to present the final report to the public in March, then finalize the JLUS report in April. He stated there is good compatibility between Grissom ARB and the community, and the JLUS recommendations will attempt to keep things this way.

Mr. Smith provided the project website address ([www.grissom-jlus.org](http://www.grissom-jlus.org)) and referenced the [@GrissomARBjLUS](https://www.facebook.com/GrissomARBjLUS) Facebook page. He thanked everyone for attending the meeting.

### **Public Meeting #3 Summary** **April 9, 2018, 5:30 p.m.**

The presentation slides are available online at:

<http://grissom-jlus.org/wp-content/uploads/2018/04/Grissom-Public-Mtg-Apr-9-2018-FINAL.pdf>

*Consultant Team Members Present:*

*Tyson Smith, White & Smith, LLC Planning and Law Group*

*Vagn Hansen, Benchmark Planning*

*Brooke Thomas, American Structurepoint*

Mr. Smith welcomed everyone, introduced Mr. Hansen and Ms. Thomas, and reviewed the meeting agenda. The consultant team presented the final JLUS report, recommendations, and implementation strategies. The following summarizes the "Question & Answer" portion of the meeting.

Q: MOU - who would initiate that?

A: That would be part of a separate process. It is up to the larger community to prepare them and get them in place.

Q: The public survey in June? What was that used for?

A: To find out if our findings were somehow different than that of the general public, and to determine if we needed to make adjustments in what we were preparing and to tailor our public outreach process for the local community.

Q: Did it raise a red flag (the low response rate) that this wasn't advertised enough?

A: The response rate for the survey is typical for this type of project.

Q: Why did the survey include results that appear to include responses from Indiana County?

A: The Survey did not include "Indiana County" as an option; but allowed respondents to indicate a County outside the JLUS Study Area, which was not listed. It appears 3 respondents wrote in Indiana in response to that question, perhaps because they did not live in Cass, Miami, Wabash, or Howard Counties. We will follow up and confirm the responses are correctly set out.

Q: What is the overlay? What does it do?

A: An overlay imposes additional regulations on top of the minimum standards that would normally be allowed by the base zoning district.



Q: So Cass Co. is more restricted?

A: Yes, since 2016. The properties at the end of the runway have additional land use and development regulations associated with it.

Q: Have you brought Ft. Wayne in? They fly here a lot. How does that group react with Grissom?

A: The study looked at Grissom, but we are aware of Ft. Wayne's use of the airspace. That's why they are included as a party in the recommendation for a memorandum of understanding.

Col. Russell (Commander, 434th Mission Support Group, Grissom Air Reserve Base):

As far as the wind turbines themselves, we are neutral on it. We go by what FAA says, and they review wind farm proposals for their conformance with FAA regulations governing tall structures. We are most concerned about the affects on radar interference. The pentagon is doing a study now. If it is determined, by the pentagon, there could be an impact, Grissom will look at ways to mitigate those impacts and could ultimately request that all or part of the project be denied. If it is determined by the pentagon that there aren't likely to be any adverse impacts to radar, we would not take issue with the project(s).

Q: Was this project advertised?

A: Yes. We sent legal notices in the Tribune and Herald, on social media, on the project website and elsewhere.

Q: Is it possible to do something more intentional to make sure that every person gets the information?

A: We will continue to advertise opportunities to participate in planning processes and studies across advertising mediums.

Q: Why can't we just adopt a policy that limits the height of each turbine?

A: The height of the turbine is just one consideration. The distance from the airfield and the topography of the area where the tower is being located have to be factored in as well. A blanket height restriction wouldn't necessarily ensure that the airspace wouldn't be impacted.



## APPENDIX E: POLICY COMMITTEE & TECHNICAL WORKING GROUP MEETING SUMMARIES

### Joint Policy Committee and Technical Working Group Meeting Summary June 6, 2017, 9:30 a.m.

The presentation slides are available online at:

<http://grissom-jlus.org/wp-content/uploads/2017/05/Grissom-ARB-Comm-Kick-Off-June-6-2017.pdf>

#### *Policy Committee Members Present:*

*Colonel Larry Shaw, Commander, 434th Air Reserve Wing, Grissom Air Reserve Base*  
*Josh Francis, Commissioner, Miami County Commission*  
*Steven Ray, Executive Director, North Central Indiana Regional Planning Council*  
*Jim Sailors, Commissioner, Cass County Commission*  
*Doug Schwartz (attending on behalf of Dean Despinoy, Chairman), Grissom Regional Defense Alliance*  
*Jim Tidd, Executive Director, Miami County Economic Development Authority*  
*Jim Yates, Board Chairman, Miami County Economic Development Authority*

#### *Technical Working Group Members Present:*

*Tammy Gamble, Zoning Administrator/Building Commissioner, Miami County Planning Department*  
*Vern Keller, Building Commissioner, Town of Bunker Hill*  
*Arin Shaver, Executive Director/Subdivision Administrator, Cass County Planning Department*  
*Jim Tidd, Executive Director, Miami County Economic Development Authority*  
*Mark Waite, Chief Engineer, 434th Air Reserve Wing, Grissom Air Reserve Base*

#### *Additional Stakeholders Present:*

*Bill Gornto, Building Commissioner, Miami County Building Department*  
*David Hughes, Base Civil Engineer, Grissom Air Reserve Base*  
*Colonel Scott Russell, Commander, 434th Mission Support Group, Grissom Air Reserve Base*  
*Colonel Chris Witter, Commander, 434th Security Forces, Grissom Air Reserve Base*

#### *Consultant Team Members Present:*

*Tyson Smith, White & Smith, LLC Planning and Law Group*  
*Phil Huber, Marstel-Day*  
*Doug Allen, Marstel-Day*  
*Vagn Hansen, Benchmark Planning*  
*Brooke Thomas, American Structurepoint, Inc.*  
*Kelly Cousino, White & Smith, LLC Planning and Law Group*

Colonel Shaw called the meeting to order and welcomed everyone.

Mr. Smith reviewed the meeting agenda. He introduced the four consulting firms and their representatives comprising the Joint Land Use Study (JLUS) Project Team, and noted each firm's role in the project.

Mr. Smith reviewed the roles of the Policy Committee and Technical Working Group. Committee and Working Group members, along with other stakeholders in attendance, introduced themselves.





Mr. Smith noted the Project Team will conduct meetings with various stakeholders over three days this week. He stated there will be three public meetings, including one scheduled for tomorrow evening, and anticipates five meetings with the Policy Committee and Technical Working Group throughout the year-long study process. These meetings will likely be joint meetings like the one today.

Mr. Smith provided an overview of the purpose of a JLUS as described by the Office of Economic Adjustment (OEA), which provided funding for the Grissom Air Reserve Base JLUS and many others across the country. Mr. Smith showed a map of the 130 Joint Land Use Studies conducted from 1985 through 2016.

Mr. Smith reviewed the initial compatibility areas to be studied, which include noise, accident potential, security associated with nearby development, renewable energy, potential for increased development, and height of off-base structures. He noted the stakeholder interviews may reveal additional areas of study.

Mr. Smith provided a summary of the JLUS process, which includes an evaluation of existing conditions, a land use compatibility assessment, and provision of implementation options.

Ms. Thomas provided a brief overview of American Structurepoint and its role in the project. She noted the firm has completed over eighty projects in the four-county JLUS Study Area.

Mr. Smith reviewed the three phases of the planning process, including the JLUS, development of implementation tools, and adoption of those tools. He noted the JLUS recommendations will include timeframes for implementation (i.e., short-, mid-, and long-term), estimated cost, and responsible organization.

Mr. Hansen reviewed maps of the JLUS Study Area, and noted the area will be refined as the Team gains a better understanding of the local context and potential compatibility issues. He provided an overview of the land use compatibility analysis and showed examples from a previous JLUS at Marine Corps Air Station – Beaufort (South Carolina). The analysis will be performed for the unique impacts associated with Grissom Air Reserve Base and will assess both current and future operational impacts, along with current and future compatibility concerns. Mr. Hansen explained that land use compatibility is assessed based on Air Force Air Installation Compatible Use Zone (AICUZ) Guidance.

Mr. Smith reviewed a list of stakeholders with whom the Project Team will meet this week. He also noted the Team will hold a public kick-off meeting on Wednesday, June 9, and reviewed the meeting agenda.

Mr. Allen reviewed the components of the JLUS public awareness campaign, which includes an outreach and awareness component and a public input component. The outreach and awareness component includes a project website ([www.grissom-jlus.org](http://www.grissom-jlus.org)), Facebook page (@GrissomARBjLUS), informational brochures (which will be posted on the website), and an interactive “story map” accessible through the website. The public input component includes a survey, live polling at the public meeting, and public questions and comments (accepted throughout the study process). Mr. Allen noted the survey may be filled out online or may be mailed to the Project Team, and responses will be accepted until August 18.

Mr. Smith completed the presentation by noting the Team will return in the fourth quarter of 2017 to present the results of the public survey, stakeholder and public input received to date, and the initial land use compatibility assessment.

Colonel Shaw emphasized the importance of the public meeting scheduled for Wednesday, and noted the community’s interest in the JLUS.



Colonel Russell asked whether Grissom Air Reserve Base members should or will be at the public meeting. Mr. Smith said it could be beneficial in case questions come up, but is not necessary if there are more pressing matters since they had attended this meeting.

Mr. Smith noted the project schedule printed on the back of the agenda. He stated the Project Team plans to return towards the end of the year, likely in November, to provide its initial findings.

Mr. Tidd noted Mr. Ray's role in the JLUS project is to administer the OEA grant and to be the main point of contact for any grant-related aspects of the project.

Mr. Hughes asked about a potential wind farm project in the area. Mr. Smith noted it is something to be considered in the JLUS.

Mr. Tidd noted that he would contact representatives from Howard and Wabash Counties since they are not present today. He thanked everyone for their participation and looks forward to their input during the planning process.

Colonel Shaw thanked everyone for his or her attendance, and adjourned the meeting at 10:35 a.m.





## **Joint Policy Committee and Technical Working Group Meeting Summary October 10, 2017, 9:00 a.m.**

The presentation slides are available online at:

[http://grissom-jlus.org/wp-content/uploads/files/GARB%20Comm%20Mtg%20Oct%2010%202017%20\(FINAL\).pdf](http://grissom-jlus.org/wp-content/uploads/files/GARB%20Comm%20Mtg%20Oct%2010%202017%20(FINAL).pdf)

### *Policy Committee Members Present:*

*Colonel Larry Shaw, Commander, 434th Air Reserve Wing, Grissom Air Reserve Base  
Joshua Francis, Commissioner, Miami County Commission  
Steven Ray, Executive Director, North Central Indiana Regional Planning Council  
Jim Sailors, Commissioner, Cass County Commission  
Doug Schwartz, Grissom Regional Defense Alliance  
Jim Tidd, Executive Director, Miami County Economic Development Authority  
Jim Yates, Board Chairman, Miami County Economic Development Authority*

### *Technical Working Group Members Present:*

*Tammy Gamble, Zoning Administrator/Building Commissioner, Miami County Planning Department  
Christy Householder, Cass County Economic Development  
Greg Lipscomb, 434th MSG/CECP  
Arin Shaver, Executive Director/Subdivision Administrator, Cass County Planning Department  
Jim Tidd, Executive Director, Miami County Economic Development Authority  
Mark A. Waite, Chief Engineer, 434th Air Reserve Wing, Grissom Air Reserve Base*

### *Additional Stakeholders Present:*

*Grover Bishop, Commissioner, Grant County Commission, and Member, Grissom Regional Defense Alliance  
Bill Gornto, Building Commissioner, Miami County Building Department  
Brandi Hughes, Indiana Office of Defense Development  
Jim Holland, Office of Economic Adjustment, Office of the Secretary of Defense  
Colonel Scott Russell, Commander, 434th Mission Support Group, Grissom Air Reserve Base*

### *Consultant Team Members Present:*

*Tyson Smith, White & Smith, LLC Planning and Law Group  
John Broughton, Marstel-Day  
Vagn Hansen, Benchmark Planning*

Mr. Yates called the meeting to order and welcomed everyone. He turned the meeting over to Consultant Team Leader Tyson Smith, with White & Smith Planning and Law Group. Mr. Smith introduced Consultant Team Members Vagn Hansen, with Benchmark Planning, and John Broughton, with Marstel-Day.

Mr. Smith reviewed the meeting agenda, which includes an update on the Consultant Team's work since June, what the Team has learned so far, and where things are headed in terms of recommendations to bring back for the Committees' review in January.

Mr. Smith stated that, since June, the Consultant Team conducted stakeholder interviews, toured Grissom Air Reserve Base (Grissom ARB), held a public kick-off meeting, and completed data collection and analysis (both GIS data and review of past studies). Mr. Hansen conducted a conflict and compatibility analysis, which is a parcel-by-parcel analysis of current on-the-ground conditions and comparison to operations at Grissom. The Team inventoried the state statutory and authority framework to ensure local governments and other stakeholders are authorized to implement the eventual Joint Land Use Study



(JLUS) recommendations. The Team also maintains a project website and Facebook page.

Mr. Smith noted the Consultant Team started a side project to develop a zoning overlay district for Bunker Hill and Miami County, similar to Cass County's Grissom Air Reserve Base Overlay District adopted in 2016. The Consultant Team provided drafts of the Bunker Hill and Miami County ordinances to staff for review and feedback, and will return on November 8 to review the drafts in-person with staff. The proposed overlay district addresses height and land use in Grissom's Noise and Accident Potential Zones.

Mr. Smith stated the Team has received public input through a number of channels, including stakeholder interviews conducted in June and a public survey conducted over the summer. Mr. Smith stated the Team has summarized this public input, along with the results of the conflict and compatibility analysis, in a Strengths, Weaknesses, Opportunities, and Constraints (SWOC) Analysis. The SWOC Analysis summarizes the information reviewed and identifies what can be improved upon. The Team will compare this analysis to available tools and Indiana authorities, and develop recommendations to maintain or improve compatibility.

Mr. Broughton reviewed the public survey results, compiled at the end of August. The survey contained twenty-four questions falling into five main categories. The Team received a total of twelve responses. Mr. Broughton noted a few key observations:

Survey respondents are supportive of Grissom ARB and believe the installation plays a significant role in the local economy;

Respondents believe the community has a role to play in ensuring protection of the installation's mission;

A majority of respondents rarely hear noise and, when they do, it has an insignificant impact; and

Respondents rated the installation as having a positive or highly positive impact on the community.

A Committee member asked whether the noise impacts are just those in the vicinity of the installation or include surrounding areas where it might be from aircraft unaffiliated with Grissom ARB. Mr. Broughton stated it is combination of both, as survey responses came from areas near Grissom, such as Peru, as well as areas further away, such as Logansport and Wabash.

Mr. Hansen reviewed the results of the initial conflict and compatibility analysis. He showed a map of the four-county JLUS study area, within which is the JLUS Focus Area where the analysis was conducted. The Team developed a GIS database of land use characteristics, including existing land use, current zoning, future land use recommendations, and land subdivision patterns in the JLUS Focus Area. Mr. Hansen reviewed maps of these characteristics with the Committees.

Using this assessment, the Team conducted a compatibility assessment based on Air Force Air Installation Compatible Use Zone guidance, which addresses land use compatibility in Noise Zones and Accident Potential Zones. Land uses are categorized as compatible, conditionally compatible, or incompatible. Mr. Hansen noted Air Force guidance recently changed, and residential land uses are now considered generally incompatible in all Noise Zones.

Mr. Hansen stated the analysis revealed a high degree of compatibility between existing land uses and military operations; only ninety-six acres of off-base land is located within one of the noise contours, which is a very small amount of land compared to most installations, and one hundred percent of uses located in the Noise Zones are considered compatible. Based on the Air Force's Environmental Impact Statement, only minor changes in the noise contours are anticipated if KC-46 aircraft come to Grissom ARB. With respect to the Accident Potential Zones, less than five percent of uses in the off-base acreage are identified as incompatible.

A committee member asked whether the identified noise contours include only aircraft based at Grissom ARB and not transient aircraft. Mr. Hansen responded that the analysis takes both into account.





Mr. Hansen reviewed maps showing current zoning and land use in the Noise Zones and Accident Potential Zones.

Mr. Tidd asked to go back to the slide showing the Clear Zone, and clarified that when Miami County Economic Development Authority (MCEDA) received the deeds for the former Air Force Base property, there was a deed restriction limiting future expansion of the footprint of buildings located in the Clear Zone. He noted, however, it is not clear whether buildings located in the Clear Zone could be rebuilt if destroyed (by fire, for example). MCEDA has retained ownership of all but two buildings/parcels located in the Clear Zone and intends to maintain them as airport property.

Mr. Hansen noted the Grissom Air Museum is located in an accident potential zone, but is generally compatible with Air Force guidance since it does not accommodate very large groups of people.

Mr. Tidd noted a reversion clause in the deed stating that if the property ever ceases to be a museum, the property would revert back to community ownership.

A committee member noted that uses in the Clear Zone located in Cass County may be compatible but the land is privately owned, which tends to make the Air Force uneasy.

Mr. Hansen responded that the current zoning overlay district protects the Clear Zone, but concurred zoning is not necessarily a permanent protection.

A committee member asked whether a house could be built in an agricultural zoning district in Cass County.

Ms. Shaver responded that the base zoning district might allow the use, but the Grissom overlay district prohibits residential uses in the Clear Zone.

Mr. Hansen reviewed the zoning and future land use compatibility maps. He then began review of additional compatibility factors, including the imaginary surfaces associated with Grissom. These surfaces provide safe maneuvering areas for aircraft to take off and land.

Mr. Tidd stated Grissom's Encroachment Committee has discussed providing local planning/zoning staffs with a radius around the installation to help staff determine when they should seek input from Grissom ARB on proposed development. He noted he would like to see a process implemented.

Mr. Smith noted all development proposed in the Cass County overlay district requires review by the Encroachment Committee. Ms. Shaver concurred. Mr. Smith noted the current draft Bunker Hill and Miami County overlay districts requires the same.

Mr. Hansen reviewed maps showing special use airspace, wind energy potential, existing and planned wind turbines, light pollution, and potential transportation improvements to US 31. He also showed a map of the location of an existing abandoned structure near Grissom ARB's main gate, which presents a security concern.

Mr. Tidd stated the Indiana Department of Transportation (INDOT) proposed J-turns at two locations along US 31 in Miami County. He stated the community opposes the proposal due to safety concerns, and prefers interchanges. He noted INDOT may hold another public meeting in November.

Colonel Shaw described his recent meeting with the Lieutenant Governor to discuss the installation's concerns and longer-term solutions for US 31. He noted the Lieutenant Governor pledged her support in helping communication and coordination with INDOT.

Mr. Smith asked, from the installation's point of view, if US 31 ultimately becomes a freeway and the only access to the base is from SR 218, does this present a concern? Colonel Shaw responded in the negative, but noted the installation does have concerns with J-turns.

Committee members discussed potential changes to vehicular access to the installation.



Mr. Smith reviewed the draft SWOC Analysis, which provides a basis for the JLUS recommendations. He requested input from the Committees on issues with the installation's stormwater conveyance system, a potential weakness identified in the SWOC.

Committee members stated the flooding event that occurred over the summer was unusual, and there are only rare occasions where flooding presents a problem to Eagles Pointe residents.

Committee member Waite noted he is not aware of any stormwater studies. Committee members discussed the need for collaboration between the local governments and Grissom ARB to address stormwater issues. Both Miami County and Grissom ARB representatives agreed an updated stormwater management study is needed to evaluate the deficiencies of the current ditch and outflow system, identify where the choke points are, and identify where improvements are needed. Committee members concurred there is no encroachment to Grissom's mission or operations related to stormwater, even though a considerable amount of impervious surface has been added since construction of the base in the 1940's with no significant upgrade of the ditch system.

Mr. Smith also requested Committee input on the trees near the southwestern end of the runway. A committee member Greg Lipscomb stated the installation's new tree management plan recommends removal of these trees because they are located in the Clear Zone; however, they are located on private property. Colonel Shaw questioned whether the location of these trees truly impacts the installation's mission. Committee members agreed this should be removed from the SWOC, as it is not considered an encroachment issue. Committee members agreed the stormwater issue should be removed from the SWOC as well, though both matters should be monitored.

Ms. Shaver noted the Cass County overlay district restricts the height of vegetation as well as structures. She stated this provides support for Grissom ARB officials should they decide to discuss tree removal with the landowners.

Mr. Smith continued review of the various elements of the SWOC Analysis.

Mr. Smith asked whether there are any formal plans for gate realignment. Committee members responded there is only discussion at this point.

Mr. Smith noted the Cass County overlay district and the draft Bunker Hill and Miami County overlay districts address only the impacts of the KC-135 aircraft currently at Grissom and not the KC-46, which may arrive at Grissom in the future. Mr. Tidd asked whether the local governments should consider inclusion of KC-46 aircraft in their ordinances now, rather than amending them in the future. Ms. Shaver stated the Cass County overlay district generally already addresses the impacts of KC-46 aircraft. Mr. Hansen confirmed the noise contours used in his analysis are from the Air Force's KC-46 Environmental Impact Statement. Committee members agreed the local governments should try to address potential future conditions now, rather than amending ordinances later.

A committee member asked whether there is a concern about development of solar facilities. Committee members indicated solar is not a concern.

Mr. Smith briefly reviewed the Jurisdictional Overview, which condenses a considerable amount of regulatory information into a matrix. He asked the Committee members to review and let him know by October 20 if any changes should be made.

Mr. Smith reviewed broad conflict resolution strategy areas, which range from voluntary to mandatory. He noted the JLUS will include an implementation program identifying potential strategies and associated timeframes, priority levels, estimated costs and funding sources, and responsible and participating parties. He showed an example of an implementation matrix that will be included in the final JLUS report.

Mr. Smith reviewed next steps, including the public meeting scheduled for this evening. He noted the





Consultant Team will meet with the North Central Indiana Regional Planning Council Board today at lunch. He noted the next Committee meeting is tentatively scheduled for January 9, 2018, and this meeting will include review of the draft JLUS report and recommendations.

Mr. Tidd noted the next step after recommendations is implementation, which could potentially be funded through another Office of Economic Adjustment grant.

The meeting adjourned at about 10:30 a.m.



## Joint Policy Committee and Technical Working Group Meeting Summary January 9, 2018, 9:30 a.m.

The presentation slides are available online at:

<http://grissom-jlus.org/wp-content/uploads/2018/02/Grissom-Comm-Mtg-Jan-9-2018-Report-Overview.pdf>

Mr. Tyson Smith, White & Smith Planning and Law Group, welcomed everyone to the meeting, and introduced the Consultant Team members in attendance:

- » Vagn Hansen, with Benchmark Planning;
- » Brooke Thomas, with American Structurepoint; and
- » Phil Huber, with Marstel-Day.

Mr. Smith reviewed the meeting agenda, and stated the main purpose is to review the draft JLUS report provided to the committees. He stated the JLUS Consultant Team developed Grissom ARB zoning overlay district ordinances for Miami County and the Town of Bunker Hill, and to ensure the committee members are aware of the process, he would also review the proposed ordinances during the meeting. He noted this is an implementation project started in September and largely wrapped up in December.

Mr. Smith reviewed the provisions of the overlay districts with the Committees. He showed maps of the Clear Zone (CZ) and Accident Potential Zones (APZ) associated with Grissom Air Reserve Base (Grissom ARB). He noted Cass County already has an overlay district, but Miami County and Bunker Hill do not. The ordinances address accident potential by limiting land uses to those that do not concentrate people and do not have significant property improvements because these areas are where aircraft accident potential is greatest. The ordinances also address noise through avoidance of noise sensitive uses in these areas, and the noise contours associated with both the existing KC-135 aircraft and the potential KC 46 aircraft are addressed.

Mr. Smith clarified there are two separate ordinances, and reviewed maps showing the areas of each jurisdiction located or partially located in the APZ and/or Noise Zones. The only accident potential in Miami County is a small bit of the CZ on the southwestern end of the runway and another small bit on the northeastern end. With respect to Noise Zones, a small section of the 65-69 dB noise zone and an even smaller portion of the 70-74 dB noise zone falls within Miami County on the northeastern end of the runway.

A committee member asked why, on the Miami County map, there is only a small triangle of CZ on the southwestern end of the runway. Mr. Smith responded that it is a corner of the southwestern CZ that just happens to go into Miami County. The committee member asked whether it reflects noise impacts. Mr. Smith answered in the negative and stated it reflects accident potential. Another committee member noted the rest of the southwestern CZ is in Cass County. Mr. Smith concurred.

Mr. Smith stated the ordinances identify compatible land uses for the APZ and Noise Zones and are consistent with U.S. Air Force recommendations in terms of what land uses are appropriate.

Mr. Smith noted draft ordinances were provided to town and county staff as well as to Cass County Planning Department staff. Mr. Smith indicated he also met with Grissom ARB officials, and feedback from the military and local governments staffs was incorporated into the ordinances.

A committee member asked at what noise level is residential not permitted or recommended and whether it is at 70 dB and above. Mr. Smith responded that these residential uses are allowed in all of the Noise Zones in the ordinances, but there is a footnote in the table encouraging use of noise attenuation in construction.





Mr. Hansen noted the Air Force AICUZ [Air Installation Compatible Use Zone] guidance prefers no residential in any of the Noise Zones. However, when community needs dictate allowing residential uses in these areas, the Air Force guidance recommends use of noise attenuation techniques in construction. He confirmed Air Force guidance does not recommend residential in any Noise Zone above 65 dB. Mr. Smith clarified the draft ordinances allow residential, based on staff feedback, with the option to noise attenuate.

Mr. Smith noted the third area addressed in the overlay districts is airspace. He showed maps of Grissom ARB's imaginary surfaces. Following discussions with staffs and Grissom ARB officials, it was agreed, due to the relatively low number of land use applications in the area, that Grissom ARB should review all development proposed within its imaginary surfaces.

Mr. Smith stated the ordinances require Grissom ARB to review all development applications in the overlay district to determine whether the proposed development may present an obstruction or interference with operations. The ordinances identify certain land uses that are prohibited if they create interference. This is one reason to send the applications to Grissom for review — because planning staffs will not know whether a proposed development would cause interference. Also prohibited if they cause interference are uses that can attract birds and wildlife, like landfills, and renewable energy facilities. These uses will be reviewed on a case by case basis instead of precluding them entirely.

Mr. Vernon Keller, Town of Bunker Hill, asked about the minimum height that triggers a review by Grissom. Mr. Smith responded that any proposed development within the imaginary surfaces will require review by Grissom ARB. Mr. Keller asked if even a deck on a house will require review. Mr. Smith answered in the affirmative. He stated that, in discussions with local government staff and Grissom ARB officials, it was determined that finding a threshold for what should or should not be reviewed by Grissom ARB was very difficult; this is why the consensus was to send everything. Mr. Smith noted if staff wants to make an adjustment to the ordinances, we can revisit this. Committee members felt a short turn around time and the ability to review everything to ensure nothing slips through the cracks was preferable.

Mr. Greg Lipscomb, Grissom ARB, noted staffs discussed revisiting the ordinances in a year after everyone has had a chance to work with them.

Mr. Keller expressed concern that certain development we know is not going to be an issue, such as houses or swimming pools, will have to go to Grissom ARB for review.

Mr. Smith referred to the imaginary surfaces map and noted that, in certain areas, the surfaces go all the way to the ground. He stated that, in his experience, most staffs do not want to make the determination as to whether a proposed structure or development will cause an obstruction.

Mr. Smith noted an earlier draft of the ordinance had three different height zones; in the one closest to Grissom ARB, more development applications would be reviewed, and certain types of development in areas further from the installation would not need to be reviewed. Since the local governments are issuing only 45-50 building permits a year, it became simpler and less of a burden to just send everything to Grissom ARB for review. Mr. Smith agreed with Mr. Lipscomb that it may be appropriate to give it a year and see how things go and then amend the ordinances if needed.

Mr. Smith noted there are drafts of the overlay district ordinances posted on the JLUS website and tonight there will be a public meeting with elected officials to review the ordinances. The next steps will be for plan commission review, followed by consideration for adoption by the elected officials.

Mr. Smith began reviewing the draft JLUS report. He noted today's focus will be on the compatibility analysis in Chapter 3 and the recommendations in Chapter 6.

Mr. Smith provided a general review of the contents of Chapter 1.



Mr. Huber noted Chapter 2 covers what is going on at Grissom ARB and in the region. Chapter 2 provides context for the compatibility analysis in Chapter 3. He stated there are three potential incompatibility issues in this region. The first of these is urban growth, which is not unexpected as it is a significant factor at most military bases in the United States. He noted urban growth is not the issue; rather, it is what results from urban growth that is the issue- noise, light, etc. He stated Grissom ARB is in fairly good shape, with generally compatible land uses in the area.

Mr. Huber state the second potential incompatibility issue is energy development, which is a new encroachment concern for the military. Energy development is important to national energy policy, but it also bumps up against national defense policy. Because of the potential conflict between two major national policies, Congress directed the creation of the Clearinghouse process. Mr. Huber noted rotating wind turbine blades affect radar, and can obstruct low level flight training and testing. He showed a map of existing and planned wind energy developments in the area, none of which are an issue for Grissom ARB. He stated national defense and energy development currently are compatible here, and we want to make sure it stays that way.

Mr. Jim Tidd, Miami County Economic Development Authority, asked about currently proposed wind energy project sand whether they should be shown on these maps, with corresponding text confirming there is currently no concern with wind energy developments in the areas they are being proposed. This could help encourage economic development, as well as help educate the public on the actual versus perceived impacts to Grissom ARB. Mr. Smith concurred and stated if it is Grissom's opinion that wind energy developments in these areas do not pose a concern, then that could be added to the report.

Mr. Smith noted a challenge the Consultant Team encountered was a consistent and reliable source of location data for potential wind energy developments. There are no official data points for the wind energy development proposed north of Grissom ARB. Mr. Smith asked whether the committee members are aware of more firm plans for the facilities and, if so, those locations can be added to the map with a note that the locations have not been finalized. If not, the language could be more general.

Mr. Tidd stated that, to protect the base, we should also clarify that further investigation will be needed to confirm the locations are appropriate and not a threat to base operations.

Committee members described the general location of the referenced wind energy development project, and confirmed the southernmost extent of the project is known and can be mapped.

Mr. Lipscomb liked the idea of keeping the language general since there are other potential wind projects near Grissom ARB.

Mr. Huber stated the final potential incompatibility issue is security, and used the vacant former steam plant near the installation's main gate as an example.

Mr. Huber reviewed additional components of Chapter 2, including Grissom ARB's economic impact, regional population trends, employment figures, and economic development initiatives in the region.

Ms. Thomas reviewed potential improvements to US 31. She noted a high-level engineering assessment conducted in 2016 resulted in identification of a locally preferred alternative for improvements to US 31. Chapter 2 reaffirms this locally preferred alternative.

Mr. Tidd indicated the community has developed a list of priority intersections. Mr. Smith said a call-out box can be added to the report to reflect this.

Mr. Hansen reviewed Chapter 3 and the compatibility analysis. He noted the Air Force AICUZ guidance was used to determine land use compatibility. Mr. Hansen stated there is a high degree of compatibility between existing land uses and military operational compatibility factors. He also reviewed maps of the imaginary surfaces, planned wind turbines, special use airspace, and night lighting maps.





Mr. Hansen mentioned Public Law 261, which regulates wireless support structures in the public right-of-way. He showed a map of potential areas of conflict between small wireless facilities and military operations.

Ms. Arin Shaver, Cass County, noted there was an opportunity for local governments to pass laws prior to adoption of the state statute, which Cass County did.

Mr. Smith stated that Chapters 4 and 5 identify what plans and regulations local governments already have in place and what state law authorizes Indiana local governments to do. He referred to the jurisdictional overview spreadsheet provided to the committee members in October, which identifies plans and regulations adopted by the local governments in the Study Area. He noted the overview provides context for some of the recommendations in Chapter 6.

Mr. Smith stated Chapter 5 describes the statutory provisions, local authorities in general, statutes specifically related to the military, and federal compatibility tools and programs. He provided a brief overview of the chapter's content.

Mr. Smith stated that, notably, there are several state statutes related to the military that do not include Grissom ARB. One of these statutes requires notice to military installations when certain type of development is proposed within three miles of the installation. He noted we are providing for that notice locally with the overlay zoning district ordinances discussed earlier. Another statute involves the Military Base Planning Council, a state-level planning group, of which Grissom ARB is not a member. Another state law regulates tall structures located within five miles of certain military installations, and again excludes Grissom ARB. The State requires real estate disclosures for properties located near airports, but not military airports. Finally, there is purported immunity for the military for noise and telecommunication interference occurring within two miles of the installation.

A Committee member asked whether the state laws exclude Grissom ARB by name. Mr. Smith responded in the negative. He stated that it is the way the law describes the installations to which the regulations apply; when you apply the descriptions, the law does not include Grissom ARB. The Committee member asked what other military installations the law captures and whether it includes Crane. Mr. Smith affirmed the laws apply to Crane. He stated different states have different methods for identifying the installations; for example, in South Carolina, the law specifies the names of the installations to which the law applies.

Mr. Smith noted Chapter 5 also reviews new laws adopted in 2017, including Public Law 107 pertaining to drones (or "unmanned aerial vehicles") and Public Law 261, which Mr. Hansen discussed earlier.

Mr. Smith began reviewing the contents of Chapter 6. He listed the seven categories of recommendations, and stated there are currently a total of about thirty recommendations. The report excerpt on the screen lists the nineteen recommendations considered high priority. Mr. Smith pointed out the call-out box on this page of the report, which notes the KC-46 aircraft has been a priority in the JLUS process, the community is planning for it locally, and if Grissom ARB is under consideration again for that aircraft, the community is ready.

Mr. Smith emphasized these are the Consultant Team's suggested recommendations for the committees' consideration, so anything the committee members do not think is appropriate can be changed.

Mr. Smith presented a chart summarizing the recommendations, and noted each recommendation will be discussed in more detail in a narrative. The chart includes a brief description of the recommendation, level of priority (high, medium, or low), responsible party, timeframe, estimated cost, and potential funding sources. He noted some recommendations are eligible for OEA [Office of Economic Adjustment] implementation funding. Mr. Smith stated that funding is not guaranteed — an application must be made — but in the Team's experience, these are the types of implementation efforts OEA has funded in other communities.



Mr. Smith reviewed each category and its associated recommendations. He stated these recommendations are for the community to consider adopting during the JLUS implementation phase.

Mr. Smith and Mr. Tidd; Ms. Tammy Gamble, Miami County; Ms. Shaver; and other members of the committees discussed nonconforming structures in the CZ and the relationship of zoning to the deed restrictions of the Miami County Economic Development Authority property located in the CZ. They also discussed the effects of the proposed overlay districts on changes in land use. The Committee members expressed concern that if the overlay districts are adopted and an existing building in the Clear Zone is destroyed (by fire, for example), it could not be rebuilt – even in the same footprint – since aboveground structures would be prohibited in the CZ.

Mr. Smith suggested if there are concerns about the relationship of Miami County's and Bunker Hill's nonconforming provisions to the overlay districts, they should be discussed before the overlay districts are adopted. With respect to the CZ, he noted the Town's and County's existing nonconforming provisions could prevent a building from being used if it has been vacant for more than six months.

Mr. Smith reviewed the next steps for the project. He requested the committee members submit any comments on the draft JLUS report to him or to Mr. Tidd by the end of the month. Mr. Smith noted the revised draft will be posted on the website in February or March. After that, we will hold the final committee and public meetings and complete the JLUS report. He anticipates wrapping up the project in the March timeframe. He reminded the committees of the meeting tonight regarding the overlay districts, which will go to the Miami County and Bunker Hill plan commissions and elected officials for final action in the March timeframe as well.

Mr. Smith thanked everyone for attending.

The meeting adjourned at approximately 11:15 a.m.





## **Joint Policy Committee and Technical Working Group Meeting Summary April 9, 2018, 9:30 a.m.**

The presentation slides are available online at:

[http://grissom-jlus.org/wp-content/uploads/2018/05/Grissom-Comm-Mtg-Apr-9-FINAL\\_reduced.pdf](http://grissom-jlus.org/wp-content/uploads/2018/05/Grissom-Comm-Mtg-Apr-9-FINAL_reduced.pdf)

Guests:

- » James (Jim) Holland, Program Director - BRAC, Office of Economic Adjustment
- » Brandi Hughes, Director of Operations, Indiana Office of Defense Development

Mr. Tyson Smith, White & Smith Planning and Law Group, welcomed everyone to the meeting, and recognized the Consultant Team members in attendance:

- » Vagn Hansen, with Benchmark Planning; and
- » Brooke Thomas, with American Structurepoint.

Mr. Smith reviewed the meeting agenda, and stated the purpose is to provide an overview of revisions made to the JLUS report since the Committees last met, to provide an update on the status of the Miami County and Bunker Hill overlay zoning districts, and for the Committees to formally accept the final JLUS report.

### **Overview of Revisions to DRAFT JLUS Report**

Mr. Smith provided an overview of revisions to the draft JLUS report.

First, in Chapter 3 (Conflict & Compatibility Analysis), Mr. Smith noted the Grissom Air Museum is now classified as an incompatible use in APZ I due to its land use category/classification and local interest in advancing Air Force guidance. The museum can continue to operate as a nonconforming use but, under the Bunker Hill draft overlay zoning district ordinance, will eventually have to come into compliance with the ordinance, which is based on Air Force guidance. The corresponding acreages of compatible/incompatible uses were updated to reflect the museum's classification change.

According to committee members, there remains in the property deed a reversion clause stating if the museum ceases to operate, the property ownership reverts back to the MCEDA [Miami County Economic Development Authority].

Mr. Smith stated that language concerning wind energy infrastructure was added to Chapter 3 [VIII. Airspace Management and Protection], and a map was added to the JLUS showing the general location of the Harvest Wind project and its proximity to special use airspace and imaginary surfaces.

Mr. Smith stated wind energy is a concern in terms of special defense air space. With regard to pending projects in the area, it has been determined – where hazard determinations have been made by the FAA – that there is no hazard so far based on proposed and known turbines. He noted these determinations are final only after applications for individual turbines are submitted for review. Mr. Smith showed maps of existing and planned wind turbines in the vicinity of Grissom.

Mr. Smith provided an overview of the DoD Siting Clearinghouse, which allows the military to provide input to the FAA on certain proposed development in the vicinity of an installation that is more than 200 feet above ground level and/or exceeds an imaginary surface of an airport. He noted the FY2018 National Defense Authorization Act made significant amendments to the Clearinghouse process, though the changes have not yet been fully implemented.

Mr. Smith noted wind infrastructure around Grissom remains an area of uncertainty from a technical



standpoint, even though leases have been signed and there is a project area. Currently, there are two companies and three proposed projects. During the planning and development phase, a wind company may ask for 650-foot tall towers even if shorter towers are eventually proposed. They build in phases, so the specifics of all phases of a particular project generally are not known from the beginning.

Mr. Smith recognized that Fort Wayne Air National Guard units, Grissom ARB's military partner, use the MOAs [Military Operations Area] over northern Cass and Miami Counties for flying, and noted wind energy has the potential to impact those operations. He stated the JLUS recommends an MOU [Memorandum of Understanding] to include Fort Wayne or the Indiana Air National Guard to establish and maintain communications on matters such as this.

Mr. Smith stated the JLUS report content remains largely unchanged since the Committees' review in January. An executive summary, including a summary of the action steps, was added, as well as a matrix overview of local legislation and comprehensive plans.

Mr. Smith stated that, generally speaking, this study makes a good situation better, especially as the community begins the JLUS Implementation phase. The consultant team carried the possibility of KC-46A basing at Grissom ARB throughout the entire study. The team included the preferred interchange configurations for US 31 directly in the study, as the Committee requested at its last meeting. The study emphasizes the importance of establishing overlay zoning districts where they don't yet exist in the Study Area.

Mr. Smith emphasized the importance of the Clear Zones. One of the top priorities for implementation is the need to maintain or control land uses in the Clear Zones, as this is a high priority for the Air Force and all the Services pursuant to recent federal legislation and directives. He referenced a "Clearing the Clear Zone" action plan [2017 JBLM McChord Field North Clear Zone Action & Implementation Plan] recently completed for Joint Base Lewis-McChord in Washington state, which may be helpful as the community here begins the JLUS implementation phase.

### **Miami County & Bunker Hill Overlays Update**

Mr. Smith stated that amendments to the overlay zoning districts were prepared based on input received at the last committee meeting and following a joint meeting of County and Town elected officials. The adoption process will begin with review by the Plan Commissions. The Bunker Hill Plan Commission will meet on April 10, 2018, with Mr. Smith presenting the draft ordinance. Mr. Tidd will present at the Miami County Plan Commission meeting, as well as meetings of the governing bodies of both jurisdictions. Final adoption is expected in the May-June timeframe.

Mr. Smith described the overlay districts, noting they address land uses in Accident Potential and Noise Zones and height/obstruction avoidance. The Air Force's AICUZ [Air Installation Compatible Use Zone] Program guidance provides a matrix of recommendations concerning land uses in Clear Zones and Accident Potential Zones. For the overlay districts, the Air Force matrix was revised to correspond with the land use categories already in use in the Miami County and Bunker Hill zoning ordinances, but the land use restrictions are consistent with Air Force guidance.

Mr. Smith noted that, in terms of height, we want to prohibit intrusions into the airspace and imaginary surfaces – not only intrusions by physical structures, but also intrusions by smoke, glare, and radar interference. Grissom ARB's imaginary surfaces cover all of Bunker Hill and its extraterritorial jurisdiction, as well as most of the unincorporated portions of Miami County. In these areas, the overlay district requires coordination with Grissom ARB on development applications and prohibits uses that interfere with Grissom ARB operations, including uses that would protrude above the imaginary surfaces.

Mr. Smith stated there have been a couple of revisions to the initial drafts. For example, Grissom ARB personnel revisited the list of land uses that would be reviewed on a day-to-day basis, and recommended





that some smaller property improvements do not need to be reviewed, like single-family home renovations, for example. Mr. Smith noted the revised overlays accommodate some non-conforming rebuilds for former Air Force structures located in the Clear Zone in the short-term, if the property owner first seeks purchase or relocation assistance from the Air Force or MCEDA. He noted the long-term goal is to protect the Clear Zone consistent with Air Force guidance.

### **Acceptance of JLUS Report & Recommendations for Implementation**

Mr. Smith showed a graphic of the three phases of a JLUS process. Phase 1 has been the JLUS itself, which assesses current conditions and prioritizes the tools available to avoid encroachment or correct existing concerns. Phase 2 is the development of those tools (commonly referred to as JLUS Implementation); and Phase 3 is the actual implementation of those tools.

Mr. Jim Sailors made a motion for the Committees to approve the JLUS report as presented and recommend that the MCEDA Executive Board (the OEA grantee) formally accept the full study, transmit it to the local jurisdictions involved in the study, seek their participation in the Phase 2 implementation effort, and for MCEDA to pursue implementation.

The motion was seconded by Mr. Vernon Keller, and was unanimously approved.

Mr. Smith thanked everyone for attending the meeting and participating in this important process.



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## APPENDIX F: OVERVIEW OF LOCAL LEGISLATION AND COMPREHENSIVE PLANS

As noted in Chapter 4, the Overview of Local Legislation and Comprehensive Plans summarizes the extent to which or whether each local government has addressed military compatibility in their comprehensive plans or regulatory codes. Chapter 4 describes, in detail, the information summarized in the following table.





# Grissom Air Reserve Base Joint Land Use Study

Jurisdiction	Zoning					Subdivision		Comprehensive Planning		Grissom ARB Impacts				Other				
	Jurisdictional Zoning	Non-Military Airport Overlay Zoning District	Military Overlay Zoning District	Military Zoning Land Use Limitations <sup>1</sup>	Renewable Energy <sup>2</sup>	Jurisdictional Subdivision Regulations	Military-Related Subdivision Regulations <sup>1</sup>	Jurisdictional Planning	Military-Related Plan Policies <sup>3</sup>	Clear Zone (CZ) / Accident Potential Zone (APZ I or II)	65-69 dB DNL	70-74 dB DNL	Imaginary & Transitional Surfaces	Extraterritorial Jurisdiction (per IC 36-7-4-205)	Outdoor Lighting Regulated <sup>4</sup>	Noise Attenuation Standards <sup>5</sup>	Disclosures Required <sup>6</sup>	Airport Commission (or similar)
<b>Cass County</b>																		
<i>Unincorporated</i>	Yes	Yes	Yes	Yes	Yes (W)	Yes	No	Yes	General	CZ, APZ I, APZ II	Yes	No	Yes	n/a	No <sup>9</sup>	No	No	Airport Authority
<i>Galveston</i>	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	Yes	No	No <sup>9</sup>	No	No	Galveston Board of Aviation Commissioners
<i>Logansport</i>	Yes	Yes	No	No	Yes (W)	Yes	No	Yes	No	No	No	No	No	Yes	Yes	No	No	Logansport Board of Aviation Commissioners
<i>Onward</i>	No	-	-	-	-	-	-	-	-	No	No	No	Yes	-	-	-	-	-
<i>Walton</i>	Yes	No	No	No	No <sup>7</sup>	Yes	No	Yes <sup>8</sup>	General <sup>8</sup>	No	No	No	Yes	Yes	No <sup>9</sup>	No	No	No
<b>Howard County</b>																		
<i>Unincorporated</i>	Yes	Yes	No	No	Yes (W)	Yes	No	Yes	No	No	No	No	Yes	n/a	Yes	"Encouraged" in Airport Hazard Overlay District	Yes <sup>10</sup>	Kokomo Board of Aviation Commissioners
<i>Kokomo</i>	Yes	Yes	No	No	Yes (W)	Yes	No	Yes	No	No	No	No	Yes	No	Yes	"Encouraged" in Airport Hazard Overlay District	No	Kokomo Board of Aviation Commissioners
<b>Miami County</b>																		
<i>Unincorporated</i>	Yes	No	No	No	Yes (W)	Yes	No	Yes	Background, General	CZ	Yes	Yes	Yes	n/a	No <sup>9</sup>	No	No	No
<i>Bunker Hill</i>	Yes	No	No	No	No	Yes	No	Yes	Background, General	CZ, APZ I, APZ II <sup>11</sup>	Yes (Fringe Area Only) <sup>11</sup>	No	Yes	Yes	No <sup>9</sup>	No	No	No
<i>Converse</i>	Yes	No	No	No	No	No	No	Yes <sup>12</sup>	Background, General <sup>12</sup>	No	No	No	No	Yes	No <sup>9</sup>	No	No	Airport Authority
<i>Peru</i>	Yes	No	No	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	Peru Board of Aviation
<b>Wabash County</b>																		
<i>Unincorporated</i>	Yes	No <sup>13</sup>	No <sup>13</sup>	No <sup>13</sup>	No / Yes (W, S) <sup>14</sup>	Yes	No <sup>13</sup>	Yes	No	No	No	No	No	n/a	No / Yes <sup>15</sup>	No <sup>13</sup>	No / Yes <sup>16</sup>	No
<i>Wabash</i>	Yes	No	No	No	Yes (W)	Yes	No	Yes	No	No	No	No	No	Yes	No <sup>9</sup>	No	No	Board of Aviation Commissioners



## Notes

- 1 Whether regulations have been adopted which prohibit land uses incompatible with military operations at Grissom ARB.
- 2 Any regulations related to renewable energy - S (solar), W (wind), G (geothermal).
- 3 Describes the extent to which the Plan addresses Grissom ARB's presence; whether as "Background" data only; "General" land use policies/coordination; or "Limitations" on land use to encourage/require compatibility with Grissom ARB.
- 4 Whether adopted zoning or subdivision regulations address outdoor lighting characteristics.
- 5 Whether adopted zoning or subdivision regulations address noise attenuation techniques.
- 6 Whether zoning or subdivision regulations require disclosures (e.g., through real estate transactions, notes on plans/plats, etc.) of certain property characteristics or location.
- 7 Does not regulate Wind Energy Conversion Systems (WECS), but expressly exempts WECS from height limits.
- 8 Included in Cass County's Comprehensive Plan.
- 9 No lighting regulations aside from general requirements to shield lighting and direct away from streets and residential areas. (In Cass County, this applies to off-street parking lots, off-premise signs, WECS, and for development located within the Cass County Gateway Overlay District. In Galveston, this applies to temporary uses, off-street parking areas, and signs. In Miami County, this applies to off-street parking areas, in commercial and industrial districts, and for special exception uses. In Bunker Hill, this applies to off-street parking areas and for special exception uses. In Wabash, this applies only to commercial uses.)
- 10 In all zoning districts, an "Agricultural Activities Notice" is required on a subdivision plat. This notice indicates the proximity of agricultural activities and the potential for lot users to experience impacts.
- 11 Based on proposed boundary for extraterritorial jurisdiction ("fringe area").
- 12 Included in Miami County's Comprehensive Plan.
- 13 Same for both the current (1965) Zoning Ordinance and proposed Zoning Ordinance (Zoning Ordinance Draft 5 posted online 06/01/17; anticipated adoption 2018).
- 14 Current (1965) Zoning Ordinance does not regulate wind, but proposed Zoning Ordinance does (Zoning Ordinance Draft 5 posted online 06/01/17; anticipated adoption 2018).
- 15 Current (1965) Zoning Ordinance does not regulate outdoor lighting, but proposed Zoning Ordinance regulates outdoor lighting for certain uses (Zoning Ordinance Draft 5 posted online 06/01/17; anticipated adoption 2018).
- 16 Current (1965) Zoning Ordinance does not require disclosures, but proposed Zoning Ordinance requires them on plats for residential uses proposed in agricultural districts (Zoning Ordinance Draft 5 posted online 06/01/17; anticipated adoption 2018).



